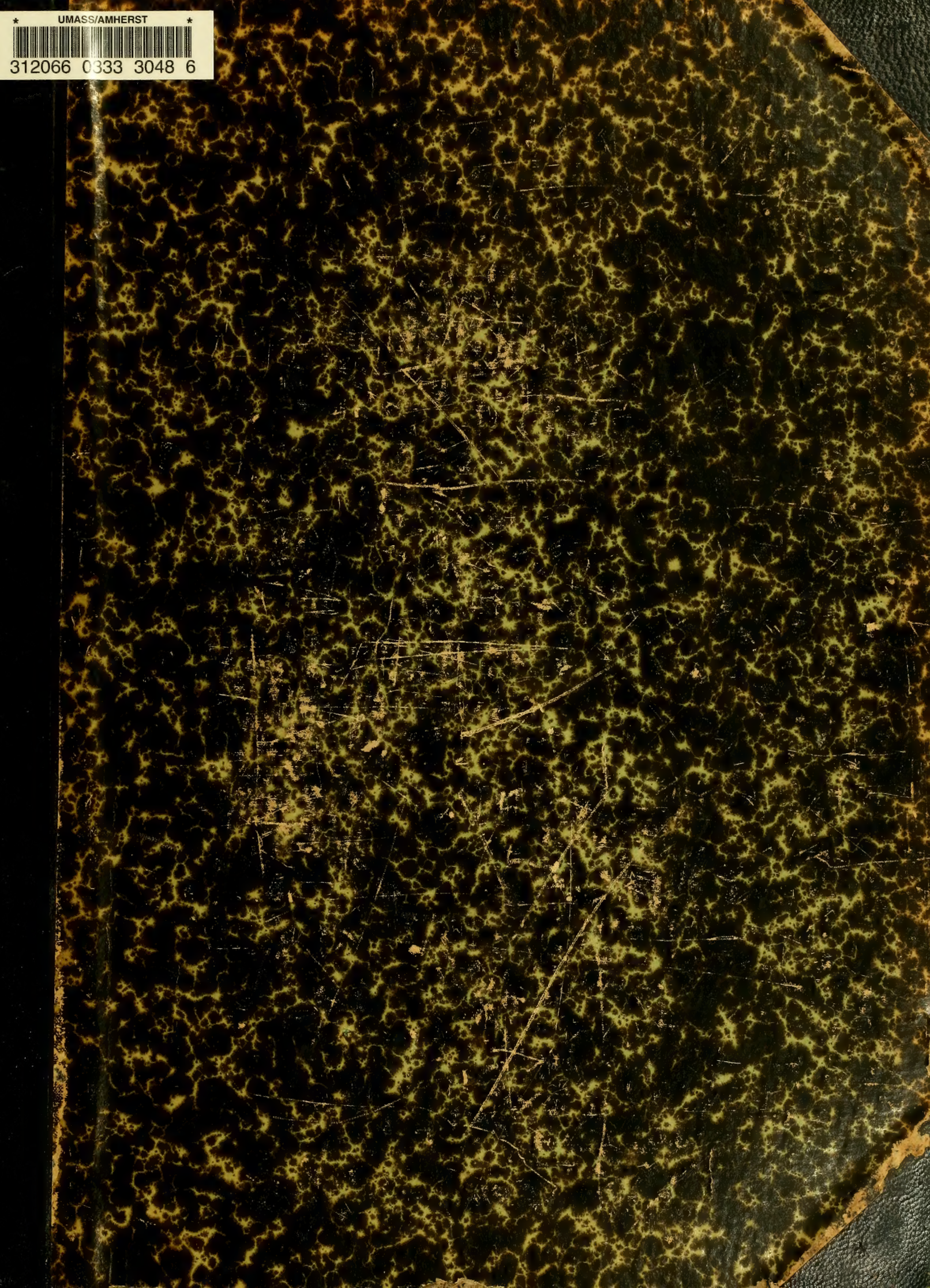


★ UMass/AMHERST ★



312066 0333 3048 6



~~635-75~~
41
Coll. Funds
No 12475

LIBRARY

OF THE



MASSACHUSETTS
AGRICULTURAL
COLLEGE

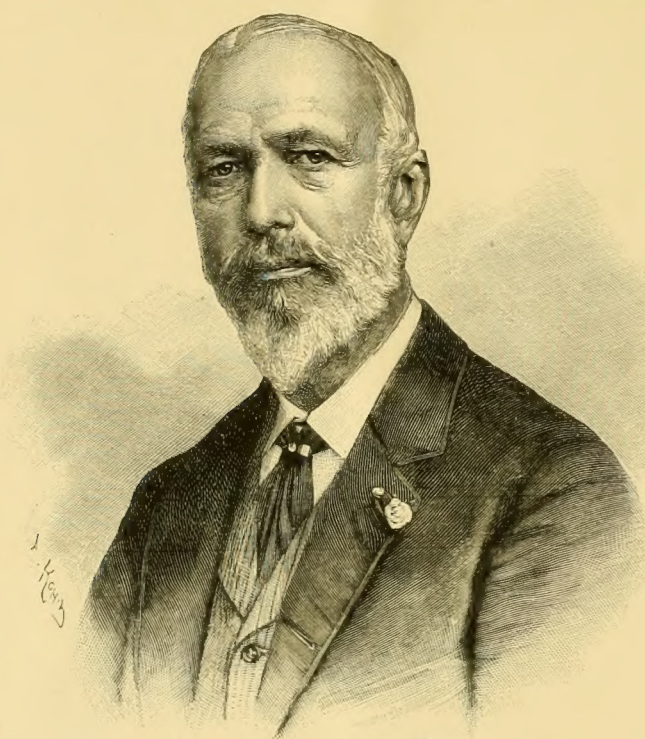
NO. 12475 DATE 10-1892

SOURCE College funds

C
Per
G 16

v. 41

P



Max. Leichtlin



AN

ILLUSTRATED WEEKLY JOURNAL

OF

HORTICULTURE IN ALL ITS BRANCHES.

FOUNDED BY

W. Robinson, Author of "The Wild Garden," "English Flower Garden," &c.

"You see, sweet maid, we marry
A gentler scion to the wildest stock;
And make conceive a bark of baser kind
By bud of nobler race: This is an art
Which does mend Nature,—change it rather: but
The art itself is nature."

Shakespeare.

VOL. XLI.—MIDSUMMER, 1892.

LONDON:

• OFFICE: 37, SOUTHAMPTON STREET, COVENT GARDEN, W.C. •



TO

MAX LEICHTLIN,

OF BADEN-BADEN,

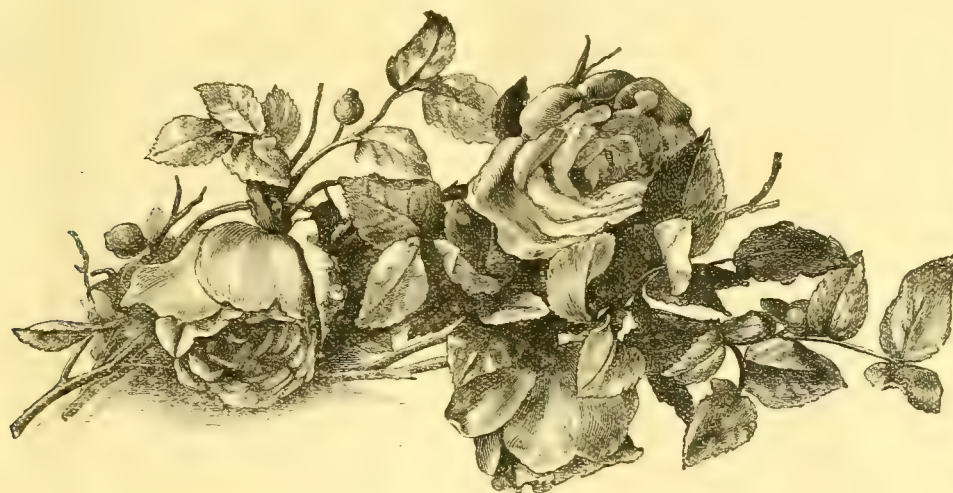
THE FORTY-FIRST VOLUME OF "THE GARDEN"

Is dedicated.

C
Per
G 16

v. 41

W. R., July, 1892.



INDEX TO VOLUME XLI.

(Illustrations in Italics.)

A.

Aberdeen, hardy plants from, 506
 Abies Douglassi, 20, 104; Tsuga, 215
 Abinger Hall, wild gardening at, 263
 Acacia armata, 271; dealbata, 14, 54; leprosa, 72; pulchella, 119, 213; retinodes, 136; the False, 112; verticillata, 45
 Acalyphas, 7
 Acer circinatum, 474; saccharinum, 222
 Achillea mongolica, 418; rupestris, 577
 Aconite, the winter, 115
 Adenophoras for cutting, 18
 Adiantum capillus-Veneris imbricatum, 313; ciliatum, 7; Farleyense, 201; macrophyllum striatum, 589; Williamsi, 273
 Adonis vernalis, 417
 Aerides, 452; crassifolium, 453; crispum, 453; falcatum, 453; Fieldingi, 453; Lawrenceæ, 453; Lobbi, 453; maculosum, 453; odoratum, 453; Picotianum, 476; quinquevulnerum, 458; suavisimum, 453; vandarum, 181; Veitchi, 453
 Agapetes buxifolia, 280
 Aglaonema costatum, 430
 A. glandulosa, 112
 A. provincialis, 164
 Ajaccio, a note from, 338
 Akebia quinata, 236
 Alder, the, 44, 364, 432; the Heart-leaved, 178; the silver, 222
 Alecyroides proleptella, 338
 Almonds, the, 485
 Almondsbury, notes from, 430
 Alnus cordata, 178; incana, 222
 Alpines, growing, in Sphagnum Moss, 553
 Alyssum pyrenaicum, 429
 Amaranthus, the, as decorative plants, 88
 Amaryllis Charles Penny, 385; Crimson King, 392; Eclipse, 290; Firebrand, 362; formosissima, 494; Mars, 244; Silver Queen, 290; Sylvia, 385
 Amaryllises and spring flowers at Messrs. Veitch's, 337

America, Rose stocks in, 180
 American blight, 274
 Ampelovitis Romaneti, 215
 Amygdalus, 447; argentea, 485; communis, 485; Davidiana, 485; Davidiana, 485; Davidiana alba, 136, 244; Davidiana rubra, 136; incana, 485; nana, 485; persica, 485; Simon, 485
 Anæctochili, 27
 Andromeda axillaris, 216; floribunda, 416
 Androsaces from the Pyrenees, 553
 Anemone apennina, 500; baldensis, 186; blanda, 204; fulgens, 435; Glory of the South, 419; patens, 338
 Anemones from Ireland, 567; in cultivation, 359; St. Brigid, 500
 Angraecum fastuosum, 266; sesquipedale, 24, 398
 Annuals, choice hardy, 52; for pot culture, 286; half-hardy, in pots, 393; serviceable, 137
 Anoanthus brevisiflorus, 136, 272
 Anthemis tinctoria Kelwayi, 418
 Anthericum, 513
 Ants and Peach trees, 296
 Anthurium Andreanum sanguineum, 244; Scherzerianum, 346
 Antirrhinum Asarum, 87
 Aotus gracillima, 339
 Apple, a new, 274; Albany Park Nonsuch, 66; Armorer, 503; Baddow Pippin, 136; Baumann's Red Reinette, 151; Beauty of Bath, 588; Beauty of Kent, 519; Beauty of Kent, 519; Betty Geeson, 296; Blenheim Orange, 132; Blenheim Orange, 37, 132; Calville Malingre, 151; Cockle Pippin, 38, 182; Cox's Orange Pippin, 38; crop, the, 521; D'Arcy Spice, 70, 136, 406; D'Arcy Spice 406; Dumelow's Seedling, 335, 566, 424; Fearn's Pippin, 38; Five-crowned Pippin, 35; French Crab, 72; Golden Noble, 151; Golden Pippin, 38; Guernsey Pippin, 334; Improved Ashmead's Kernel, 245; Kentish Pippin, 38

Apple Kerry Pippin, 38; King of the Pippins, 38; Lane's Prince Albert, 209, 250, 267; Lane's Prince Albert, 209; Lemon Pippin, 38; London Wonder, 151; Neelana Pippin, 249; Newtown Pippin, 249, 306, 422, 464; Ribston Pippin, 39; rings, 406; Royal George, 250; Sturmer Pippin, 39, 344; Wyken Pippin, 39
 Apple and Pear trees in pots, 225
 Apple trees as maidens, 172; canker in, 47; on lawns, 47; on their own roots, 46
 Apples and Pears, flavour in, 491
 Apples, colour in, 3, 45, 148, 211; delicately flavoured, 70; for villa gardens, 228; from Tasmania, 241; keeping, 196, 225; late, 36; late, for market, 133; market, 46; market value of colour in, 131; Norfolk Beaufin and Striped Beaufin, 540; notes on, 91, 150; old varieties of, 70; Pippin, 38; prizes for packing, 271; restricting the varieties of, 336; the cultivation of, 208
 Apricots, moisture for, 422
 Aquilegia pyrenaica, 263
 Aquilegias, 577
 Aralia Maximowiczii, 195; Sieboldi, 173, 182, 289; Sieboldi in bloom, 173
 Araucaria Cookii, 24; imbricata, 321; avenue of, in Pittodrie Nursery, Marchfield, Sussex, 321; imbricata from home seeds, 401
 Arches and baskets, 496; fruit-tree, 1, 93
 Archway, a Hop-covered, 473
 Arctotis acaulis, 140; aspera, 140; aureola, 140; Leichtliniana, 140; leptorrhiza, 140
 Arctotises, 139
 Arddarroch, Odontoglossums from, 398
 Arisema precox, 351
 Artichoke, Chinese, 142
 Artichokes, Globe, 190, 303; Improved Jerusalem, 164
 Asarum caudatum, 577; grandiflorum, 577
 Ash, the Weeping, 222; the, as an isolated tree, 430; uses of the, 436; varieties of the, 432

Asimina triloba, 561
 Asparagus, cutting, 444; decumbens, 40, 101; early, 384; scandens, 260; when to transplant, 402
 Asparagus beds, dressing with fish manure 443; top-dressing, 189
 Asphodelus fistulosus, 187
 Asplenium bulbiferum, 273; cicutarium, 202; flaccidum, 7; lucidum, 273
 Aster hevsarabicus, 460; longifolius Lady Trevelyan, 418
 Asters, 276
 Astilbe chinensis, 183; decandra, 183; japonica, 183; rivularis, 183; rivularis, 183, 204; rubra, 183; Tzünbergi, 183
 Astilbes, the, 183
 Athyrium Filix-femina, 159
 Attacia cristata, 368
 Aubrietia Leichtlini, 459
 Auricula double Golden Drop, 430
 Auriculas, alpine, 327; double, 498; new, 419
 Australian Nut tree, the, 83
 Aytasia bella, 100
 Azalea Deutsche Perle, 259, 336; Mme. van der Cruyssen, 286; Mrs. Anthony Waterer, 503; roseflora, 529
 Azaleas, good white, 494; hardy, 544, 550

B.

Baden-Baden, notes from, 204, 484
 Badminton, in the County of Gloucester, 309
 Bamboo from the Highlands of Africa, 160
 Bamboos in Wales, 449; rats destroying, 241
 Barberies, notes on, 486
 Bare places, 237
 Barkeria elegans, 253
 Batemannia Burdii, 272
 Bath, Orchids at, 563
 Beam, the white, 178

- Bean, Broad, Early, Mazagan, 187; French, Early Dwarf Mohawk, 218; the Beg, 500; the Indian, 178.
- Beans, Broad, early, raised in heat, 581; Bount, raised under glass 143; dwarf or kidney, 402; early Broad, 304; early runner, 281; French, 443; French, in pits and frames, 255; kidney, for forcing, 304; kidney, in pots, 304; runner, 231, 408; *Searl's Runner*, *arch of*, 403.
- Beds, dwarf roses in, 213.
- Beech, the, 410; wood of the, 570.
- Beeches, dwarf, 68.
- Bee, notes on, 331, 383.
- Beeches in frame, 109; in Pine shoots, 504.
- Begonia a new hybrid, 260; corallina, 496; Duchess of Westminster, 503; Gloire de Lorraine, 260; Haageana, 83, 514; Laing's Triumph, 503; Leopold de Rothschild, 503; Piotee, 503; *Scharfiana*, 515; seedlings, raising, 347; Triomphe de Nancy, 236.
- Begonia*, a bed of, *various* 265; in the flower garden, 205, 238; two useful winter-flowering, 347.
- Berberis Darwini, 416.
- Berry-bearing plants, 3.
- Bertonia argyrea, 154; Comte de Kerchove, 154.
- Bertonia, 173.
- Biennials, 374.
- Binned Wyck, trees at, 112.
- Biota orientalis pendula, 560.
- Birch, the, 410; the Purple, 68; the Silver, 68; the Silver, for poor wet soils, 156; the white, and its varieties, 526; value of the, 432.
- Birds and fruit-tree buds, 245; and Peas, 384.
- Blechnum Spicant, 160.
- Bletia hyacinthina, 186, 271, 368.
- Boggy land, Oisiers for, 222.
- Bomarea* *Candieri*, 445; flower of, 445; multi-flora, 449; *oligantha*, 449.
- Bomarea, 444.
- Bones, calcined, 177.
- Books—
- "Architect's Garden Design," 309.
- "Fruit Culture," 451.
- "Garden Craft, Old and New," 66.
- "Kikka Meiji-Sen," 568.
- "Les Fleurs à Paris, Culture et Commerce," 201.
- "Miss North's Travels," 242.
- "Observations on Injurious Insects," 375.
- "Table and Market Poultry for the Fancy Fowls," 199.
- "The Elements of Agriculture," 244.
- "The Exhibitor's Handbook," 412.
- "The Formal Garden in England," 309.
- Borago laxiflora, 141.
- Borecole, Head's Hearting, 482.
- Borecoles, 143; and their value, 383.
- Boronia elatior, 495; megastigma, 287.
- Bosnia linophylla, 494.
- Bostrichus laricis, 504.
- Bottle-brush trees, 571.
- Bougainvillea glabra, 585.
- Bonillie Bordelaise and the Potato disease, 133, 160.
- Bouvardia in the open air in summer, 472, 508.
- Brachyotum confertum, 151.
- Bracken, the establishment of, 436, 504, 522.
- Brassavola glauca, 360.
- Brassia arthotes, 561; caudata, 561; Circoulina, 562; Lauceana, 561; Lawrenceana, 514, 561; maculata, 561; verrucosa, 561.
- Brassias, 561.
- Bridgesia spicata, 271.
- Brier cuttings and seedling Briers, 457.
- Brier, the Austrian, 573.
- Britain, standard Pears for, 46; the woodlands of, 292.
- Broccoli, early sowing of, 231; and Cauliflowers in succession, 566; laying, 334; Snow's Winter White, 142; sprouting, 143.
- Brooms, flowering, 473.
- Brussels Sprouts, 14, 75, 128, 279, 444; early, 143.
- Bulbophyllum comosum, 48; elegans, 546; Sillemianum, 362.
- Bullace, the, 199.
- Bullaces, 295.
- Bulletin, the Kew, 245.
- Bullfinches and buds, 267.
- Burchella capensis, 371.
- Burford Lodge, Orchids at, 320.
- C.
- Cabbage plants, maggots in, 565.
- Cabbages, bolting of, 483, 534, 565, 584.
- Cacti, Night-flowering, 102.
- Caladium argyrites, 381; *argyrites*, 381; Mme. Edouard Pynaert, 589; Minus rubescens, 420; Souvenir de Paris, 430; the Silver-leaved, 381.
- Calanthe striata, 314; Veitchi and C. vestita, 253; vestitigigantea, 586.
- Calanthes, deciduous, 60; hybrid, 398.
- Calla Pentlandi, 589.
- Callas, giant, 236.
- Calliandra Tweedii, 120.
- Callistemon rigidum, 558.
- Calceolites, 144; at Oakwood, 145.
- Calceolites albus, 144; Benthami, 145; coruleus, 145; elegans, 145; *flavus*, 145; *flavus*, 145, 146; *flavus*, 144; Greeni, 145; Gunnisoni, 145; Hartwegi, 146; lilacinus, 145; longibaratus, 145; luteus, 145; macrocarpus, 145; madrensis, 146; Maweanus, 146; pulchellus, 146; purpureus, 146; splendens, 146; *venustus*, 145; *venustus*, 146; Weedi, 146.
- Calpurnia la-ogynne, 271.
- Caltha alpina, 407.
- Camassia Browni, 543.
- Cambridge Lodge, Camberwell, Orchids at, 312.
- Camel* *la* *old* *double* *white*, in *Mr. Pullar's conservatory at Taydis*, in *old* *double* *white*, 529; reticulata, 182.
- Canellies, 394, 571; at Claremont, 817; at Taydis Gardens, Perth, 313.
- Campanula pyramidalis, 508; rhombolalis, 454.
- Campanulas for windows, 441.
- Canker in Melons, 269.
- Canua Alphonse Bouvier, 65.
- Cannas, flowering, 286.
- Cannabis sativa, 357; *sativa*, 357.
- Canterbury Bells, 374.
- Cantua dependens, 484.
- Carex divulsa for covert, 592.
- Carnation disease, the, 208.
- Carnation George Fry, 589; Ketton Rose, 56; Marguerite, 12, 116; *Miss Joiffe*, 281; Mrs. H. Cannell, 563; Mrs. Hemley, 589; notes, 161, 328, 552; Souvenir de la Malmaison, 152; *Souvenir de la Malmaison*, 152; the old Clove, 358; Yellow Queen, 546.
- Carnations as annuals and biennials, 278; and Picotees, the yellow, 238; at Ham, 591; border, 462; from seed, 208; Tree, 4, 280, 507.
- Carrion Flowers, 99.
- Carrots and their culture, 278; French Horn, 148; intermediate, 564.
- Carsethorm, N.B., notes from, 429.
- Cassandra calyculata, 416.
- Cassiope fastigiata, 567.
- Catalpa bignonioides, 178.
- Cataetum atratum, 254; barbatum, 254; Bungeothii, 254; Christyanum, 254; fimbriatum, 254; Garnettianum, 254; longifolium, 254; macrocarpum, 254; Naso, 254; Rodigasianum, 254; Russellianum, 255.
- Cataetums, 253.
- Caterpillars and Gooseberries, 295.
- Cattleya Aclandiae, 532; Amesiana, 589; amethystoglossa, 284, 413; Empress Frederick, 589; flowers, 255, 313; Forbesi, 360; gloriosa, 414; hybrida Burberryana, 385; intermedia, 414; iricolor, 460, 477; Lawrenceana, 360; Lawrenceana rosea, 414; luteola, 27; Mendeli, 368, 476, 532; Mendeli (Cookson's var.), 503; Mendeli (Quorndon House var.), 430; Mossie, 496; O'Brieniana, 360; Patini, 497; Percivaliana, 27; Philo, 385; Philo var. albiflora, 430; princeps, 589; Sanderiana, 586; Schilleriana, 532; Schroederiana alba, 476; Schroederia Leywoodensis, 477; Skinneri, 368; Skinneri (Temple's var.), 477; Skinneri Virginia, 453; speciosissima, 180, 453; superba, 586; Triane, 180, 285; Triane delicata, 232, 285; Triane formosa, 285; Triane splendissima, 285; Victoria Regina, 430; Warneri, 413, 476, 563; Warneri marmorata, 589; Warocqueana, 497.
- Cauliflower *Etropas*, 220, giant Naples, 217. Snowball, 256; Veitch's Extra Early, 218; Cauliflowers, 217; and Ca' bages, 256; early, 143.
- Caution, a, 89.
- Cedar, the Lebanon, 246.
- Celery, 14; Dwarf White Incomparable, 142; for exhibition, 565; late, 443; quality in, 15; spoil, 32.
- Celsia cretica, 374.
- Centaurea candidissima, 140, 206, 298; macrocephala, 418; ruginosa, 140.
- Cerasus Padus, 222; Watereri, 241.
- Cereus coccineus, 104; fulgidus, 104; grandiflorus, 103; *grandiflorus*, 103; Lemairi, 103; Macdonaldii, 103; Napoleonic, 104; nycticalus, 103; *nycticalus*, 103; rostratus, 104; triangularis, 104.
- Cerinthe alpina, 213; aspera, 213, 265; glabra, 213; longiflora, 213; maculata, 213; major, 213; minor, 213; retorta, 212.
- Cheiranthuses, perennial, 414.
- Cheltenham, Orchids from, 118.
- Cherry Belle de Franconville, 53; the B'd, 222; the Cornelian, 195; the Winter, 577.
- Cherry tree, value of a, 464.
- Cherries, dessert, 588.
- Chestnut, a noble Horse, 485; the Sweet, 316.
- Chestnuts, giant Sweet, 455.
- Chimonanthus fragrans, 78, 182.
- Chionodoxa, Lucilia, 361.
- Chirnside, notes from, 273.
- Choisy ternata, 483.
- Chorozema Lowi, 260.
- Chorozemas, the, 891.
- Chou de Burghley, 535.
- Christmas, hardy flowers at, 19; market plants and flowers at, 8.
- Christmas Roses, 30, 162; seedling, 185.
- Chrysanthemum*, a *quintet*, 35; A. J. Manda, 23; Beauty of Castlewood, 23; blooms, big, 163; blooms, staging, 201; Col. W. B. Smith, 23; Delaware, 23; E. D. Adams, 22; Edwin Lonsdale, 23; Florence Davis, 22; Fulton, 60; Golden Gem, 60; H. Ballantine, 23; Harry E. Widener, 23; J. Swanborough Dibbens, 23; Lord Brooke, 23; Macaulay, 80; Miss Anna Hartzorn, 23; Miss Annie Manda, 164; May Tomlin, 22; Mlle. Marie Hoste, 22; Mme. Darrier, 22; Mons. R. Bahvant, 22; Mr. E. Beckett, 22; Mrs. E. Beckett, 22; Mrs. Libbie Allen, 22; Mrs. Robertson King, 22; notes, 15, 22, 113, 201, 293, 389, 503; President Harrison, 23; Richard Parker, 22; Robert Owen, 23; specimen, a, 16; stands, 79; the, in New Zealand, 201; Viscountess Hambleton, 23; Vivian Morel, 22; W. G. Dwyer, 79; Wm. Tricker, 22; William Westlake, 23.
- Chrysanthemums, cultural notes on, 389; decorative varieties, 69; dwarfing, 486; early flowering, 488; for cutting, 96; grafted, 95; growing large blooms, 16; half-dozen useful late-flowering, 80; Japanese, exhibiting, 23, 79; market, 80; new, 293, 389; new American of 1892, 487; and old, 16; new Continental of 1892, 449; new hairy, 411; new names of, 488; propagating, 144; raising from seed, 293; seasonal notes on, 25, 113, 294, 572; separating the two classes, 15; serviceable, 59; the Desgrange family, 293; the size of the stands, 15.
- Chysis bracteata, 407, 453.
- Cibotium Barometz, 8, 65.
- Cineraria lanata, 84.
- Cinerarias, 441.
- Cinquefoils, garden, 261; a group of, 261.
- Cistus allysoides, 413.
- Cistuses, 447.
- Citrons, 39.
- Citrus medica, 48.
- Claytonia sibirica, 72.
- Clematis flammula, 116, 199; indivisa, 336; *indivisa*, *floue* *s* *of*, 336; large-flowered or hybrid, 461; *white*, *on* *fence*, 461.
- Climbers, hothouse, 84; planting in mixture, 416, 473; pruning and training, 213.
- Clitorea ternata, 394.
- Clivia Mrs. P. C. Glyn, 154; seedling, 160.
- Clivias, 175.
- Club in the Cabbage tribe, 348.
- Cobaea scandens in Cornwall, 540.
- Cocoa-nut fibre refuse, 479; as a protector, 76.
- Coccyne corrugata, 285; cristata, 135, 180, 182, 232, 285, 413, 474; *cristata*, 413; elata, 367; lentiginosa, 285; odoratissima, 204; pandurata, 360.
- Colchicum Bivona, 18.
- Coleworts, 75, 142.
- Colour in Apples, market value of, 181.
- Colouring, artificial, of natural flowers, 409.
- Columbine, the blue Rocky Mountain, 567.
- Columnea aurantiaca, 119; aureo-nitens, 119; crassifolia, 120; erythrophæa, 119; scandens, 119; Schiediana, 120.
- Columneas, 119.
- Colysis spectrum, 505.
- Composites, annual, 10.
- Conifer seed sowing, 268, 340.
- Conifers, grafting, 111.
- Conifers, a few good, 356; golden, 18.
- Coppice wood, the aspect of, 246.
- Cordylus australis in bloom, 460; *australis* variegata, 173.
- Cornus Kousa, 589; mas, 195.
- Coryanthes leucocorya, 546.
- Corydalis nobilis, 441; rosea, 121.
- Cosmos bipinnatus, 24.
- Costus igneus, 101.
- Cotoneaster frigida, 68; Simoni, 214.
- Cottonia macrostachya, 398.
- Court, The Green, Cunnons Ashby, Northamptonshire, 312.
- Covert, Sedges for, 592.
- Cowslip, the, 513.
- Crassula jasminae, 571.
- Cratogeomys aestivalis, 509; brachycantha, 509; crus-galli, 509; Douglasi, 509; flava, 509; oxyacantha semperflorens, 561; tana-cetifolia, 561.
- Crickets in vinery, 111.
- Crinum brachyneura, 589.
- Crocus Biliotti, 116; corsicus, 116; hyemalis var. Foxi, 18; imperati, 115.
- Crocuses, the, 265.
- Crop, the Apple, 520.
- Croton Reidi, 503.
- Cucumber Allan's Favourite, 256; Matchless, 256; Rolisson's Telegraph, 564; Sutton's Success, 503; tree, the, 153.
- Cucumbers and woodlice, 565; bottom heat for, 189; in pots, 31.
- Cupressus Lawsoniana alba-spica, 355; Lawsoniana argentea or glauca, 355; Lawsoniana and varieties, 355; Lawsoniana Bowleri, 355; Lawsoniana compacta, 355; Lawsoniana erecta-iridis, 355; Lawsoniana filifera, 355; Lawsoniana gracilis pendula, 355; Lawsoniana intertexta, 355; Lawsoniana lutea, 355; Lawsoniana nana, 355; Lawsoniana stricta, 355; macrocarpa as an avenue tree, 20; nutkaensis, 321.
- Current, deep coloured Flowering, 448.
- Cuttings, rooting, in saucers, 303.
- Cyananthus lobatus, 72.
- Cyclamen, 420; coum, 263; ibericum, 203; persicum, hardiness of, 115; seed sowing, 455.
- Cyclamens, hardy, 326.
- Cynochos peruvianum, 546.
- Cydonia Maulei superba, 474.
- Cymbidium eburneum, 429; Loise-Chauvieri, 546; Lowianum viride, 503.
- Cymbidiums, 255.
- Cypress, the deciduous, 480; timber of the, 592.
- Cypripedium a-bo-purpureum, 414; Alice, 546; Amesianum, 86, 497; *habitatum*, 452; Boissierianum, 475; Boxalli, 72; Brysa, 244; Calypso (Oakwood var.), 65; caricinum, 367, 475; caudatum, 475; Ceres, 154; Chamberlainianum, 253, 361, 398; Chamberlainianum excellens, 503; enfeldiense, 65; Evenor, 460, 477; Exul, 385; festum, 26; gigas, 65; Harrisonianum, 385; purpureum, 414; Haynaldianum, 285; Hera, 154; Lanthe, 244; insignis, 177; insignis (Cambridge Lodge var.), 154; insignis Mooreana, 453; Juno, 154; La France, 48; Laurebel, 361; Lawrenceanum, 533; Lawrenceanum and its variety hyeanum, 60; leucorrhodum, 414; Lindleyanum, 544, 182, 475; longifolium, 475; Maserellianum, 27; Morgania, 180; Pearcei, 475; philippinense, 285; Robelini, 497; Schlumi, 475; Schroederia, 27; Sedeni, 313; southgateana, 503; *spectabile* in the open air, 25; *superbissima* *Veitchi*, *ma* *fore* *ed* *flower* *of*, 2-5; *Swinburnianum*, 361; Telemachus, 589; vexillarium, 476; villosum aureum, 216; Vipani, 503.
- Cypripediums, hardy, 25; malformed, 285; New World, 475.
- Cyrtanthus McKeni, 346.
- Cyrtopodium cardichilum, 407.
- Cytisus Andreanus, 321; Laburnum Adami, 583; scoparius pendulus, 591.
- D.
- Dædalacanthus microphyllus, 83.
- Daffodil disease, 12, 28, 51, 105, 374.
- Daffodil seedling, double, 461.
- Daffodils, 204; Ard-Righ and Countess of Annesley, 238; are they improving? 391, 433; at Ham, 413; at Kew, 361; deficient in colour, 369; for pot culture, 382; in pots, 420; notes on, 338; seedling, 483; the Irish, 274; white, 429.
- Dahlia, 359; dwarf, 419; seedling, 372.
- Damsons, 334.
- Daphne Blagayana, 338; Delphini, 274; Genkwa, 195; indica, 387; laureola for coverts, 316.
- Daphnes, 447.
- Davallia aculeata, 182; canariensis, 273; filiensis plumosa, 202; tenuifolia Veitchiana, 7.
- Decorations, simple house, 319.
- Delphinium grandiflorum Brecki, 591; trochilifolium, 506.
- Delphiniums, 373.
- Dendrobium Ainsworthi, 125; amethystoglossum, 244; atro-violaceum, 255, 360; barbatulum, 413; *Brymerianum*, 252; Cambridgeanum, 44; canaliculatum, 385; Cassiope, 27, 154; chloropis, 181; crepidulum, 532; crystallinum, 253; Draconis, 586; Euryclea, 361; Falconeri giganteum, 532; Farmeri aureo-flavum, 414; Felschi, 154; formosum giganteum, 10; Harveyanum, 313; infundibulum, 312, 475; infundibulum (Cassio Bridge var.), 289; Kingianum, 398; Kingianum var. roseum, 272; lituiflorum, 284, 312; luteolum chlorocentrum, 398; nobile, 382; nobile album, 114; nobile, imported, 180; Phalenopsis Schroederianum, 360; Phalenopsis Schroederianum delicatum, 289; philippinense, 181; Souvenir d'Alece, 589; speciosum, 176; splendidissimum Lecanum, 154; sulcatum, 360; thyrsoiflorum, 476; Venus, 312; Veitchianum, 110; Wardianum malformed, 367; *Wardianum*, 253.
- Dendrobiums, 252.
- Dendrobies, little-known, 510.
- Dendrochilum latifolium, 413.
- Derbyshire, Potatoes in, 99.
- Deutzia candidissima fl.-pl., 194; parviflora, 525.
- Dianthus callizonus, 568.
- Dicentra canadensis, 407.
- Dichorisandra muscica gig-ntes, 508.

Dicksonia antarctica, 585; *antarctica*, 585;
arborescens, 585; fibrosa, 585; squarrosa, 585
Dicksonias, 585
Dietogyneria japonica variegata, 273
Dietogyneris Camerouniana, 555
Dietymochlana lunulata, 266
Dielytra spectabilis, 373
Dinema polybulbon, 292
Dipladenia atropurpurea var. Clarkei, 546;
boliviensis, 420
Diplopappus chrysophyllus, 215
Disa incarnata, 244; tripetaloides, 567
Disporum Leschenaultianum, 567; sessile
variegatum, 567
Dodecatheon Jeffreyanum, 50
Dog's-tooth Violets, 361
Dogwood, the common, 215
Doronicum, 204, 513
Draba Dedecana, 368; Mawi, 318; pyrenaica,
418
Dracaena Bartlettii, 503; Coullingi, 430;
Doucetti, 259
Dracenas, 153
Dracoccephalum grandiflorum, 187
Drumleck, Hill of Howth, 338
Dublin, plants in bloom at, 18; the College
Gardens, 568

E.

Eccremocarpus scaber, 313
Edelweiss, 12, 567; in bloom, 591
Edge Hall Gardens, 409; spring flowers at,
371
Egypt, a note from, 361
Elaeagnus, 57; angustifolia, 353; argentea,
353; canadensis, 353; glabra, 58; hor-
tensis, 353; longipes, 352; longipes edulis,
58; macrophylla, 58, 353; parvifolia, 352;
pungens, 58; reflexa, 58; Simoni, 58, 353;
umbellata, 352
Elaeis melanococca, 154
Elder, the feathery-leaved scarlet, 195; the,
as a nurse tree, 156
Elm, the English, and Ash, 200; the Scotch,
410; the Winged, 68, 280
Elms dying on rockery, 410
Embothrium coccineum, 484
Enemies, garden, 569
Epacris onosmaeflora flore-pleno, 289
Epacris in bloom, 100, 260
Epidendrum aurantiacum, 414; bicoloratum,
266, 285, 452; ciliare, 232; cinnabarinum,
320; cotopaxum, 320; criniferum, 285;
Endresii x Wallisi, 65; Laucheanum, 289;
radicans, 285; stenopetalum, 110, 204;
vitellinum majus, 562; Watsonianum, 154
Epidendrum, 532
Eranthemum albidiflorum, 442; cinnabarinum,
495
Eranthis hyemalis, 115
Eremuri, 50
Erica candidissima, 530; carrea, 401; hye-
malis, 420; *hyemalis*, 421; *hyemalis alba*,
41
Erinus alpinus at Abinger Hall, 277
Eryngiums, 87
Erythroniums, 291
Essex, the Pea crop in, 484
Euadenia emines, 338
Eucalyptus globulus, 215
Eucharis Bakeriana, 339, 368
Eugenia Luma, 215
Eulalia gracillima univittata, 236; *japonica*
variegata in a garden at Norwich, 237;
zebrina in flower in the late Mr Taplin's
garden at Maywood, New Jersey, 240
Eulalias, the, 237
Euonymus japonicus compactus, 290; radicans
variegatus, 214; the Japanese, in fruit, 136
Eupatorium grandiflorum, 72; probum, 236
Eupatoriums, 41
Euphorbia splendens, 346
Eurya latifolia variegata, 118
Eurybia Gunni, 418, 484
Evergreens, pruning and thinning, 356;
transplanting, 321
Example, a good, 211
Exhibition, proposed international horticul-
tural, 111

F.

Fa' th, alleged breach of, 591
Fern, the Hard, 160; the Hart's-tongue, 161;
the Lady, 159
Ferns, British, for exhibition, 159; choice
Shield, 266; drooping, 7; for an outside
window case, 102; for hanging baskets,
428; handsome greenhouse, 273; hand-
some stove, 201; *ha ying ta ket of*, 428;
hardy, in pleasure grounds, 273; *on an old*
wall, 563; potting, 505; repotting, 102; shad-
ing, 436; Shield, 16; that are not sufficiently
grown, 23; the Buckler, 160; Tree, 65
Ferneries, hardy, 563
Fig, Bordeaux, 333; *Courcourelle blanche*,
333; *Dauphine Violet*, 333; *fruiting branch*
of, 332; *O'Brien's Prolia*, 333; *Pingo de Mel*,
478

Figs, pot culture of, 333; pruning, 437
Fig trees, neglected, 425, 466
Fire bush, the, 484
Flame flowers, 536; the hardness of, 88, 133
Fir, the Scotch, aspect of, 84; in damp
places, 156; thinning, 134
Firs squirrels damaging Corsican, 200
Filbert crop, the, 335
Florists how they love one another, 387
Flower beds on lawns, 204
Flower boyde in autumn, a, 161
Flower garden, Begonias in the, 298; notes,
11, 28, 122, 161, 206, 262, 275, 492, 434, 541
Flower markets and flower market gardens
of Paris, 350
Flower shows, the arrangement of, 33
Flowers, blue, 358; florists', seasonable
notes on, 51, 123, 376; hardy, from Forest
Hill, 459, 567; hardy perennial, planting, 104;
interesting wild, 153, 239; in the hospital,
409; in the Scilly Isles, 204; mountain,
the culture of, 238, 275, 433; of spring, the,
300; on Grass, 512; on the Grass at Kew,
434; self-coloured, 552; serviceable, 57;
some good autumn, 161; spring, at Edge
Hall, 371; sweet-scented, 575
Fly, the white, 338, 347
Foliage, coloured, for winter and spring
decoration, 235
Forest fires, 340
Forest lands around London, 268
Forest tree seeds, sowing, 432
Forest trees, pruning, 200
Forest's, Greek, 410; natural, 112
Forsythia suspensa, 279; viridissima, 179
Forsythias, 279, 448
Fota, notes from, 116
Foxgloves, 374
France, the weather in, 368
Freestias, 153, 199; and their culture, 259
French Beans in frames, 218
French notes, 497, 525
Fritillaria discolor, 203; Sewerzowi, 203
Frost, and its effects, 45; embroidery, 48;
in June, 567; severe, 453
Frosts, destructive, 591
Fruit bloom, the, 422; blossoms protecting,
24, 351; buds, thinning, 540; colour in,
91, 172; crops and the weather, 406; cul-
ture lectures on, 182; exhibition, the pro-
posed, 70, 182, 338, 484; growing, American
and English, 269; houses, moisture in,
464; houses work in, 62, 96, 146, 192, 252,
329, 378, 427, 469, 515, 559; notes, 492; pros-
pects, 250, 343
Fruit tree arches, 39
Fruit trees, flowering of, 228; in pots, 225;
neglected, 366; on pergolas, 133, 173; over-
crowding, 39; reserve, 37; thinning and
pruning, 37; top-dressing, 198; young,
490
Fruits, hardy, for villa gardens, 149; hardy,
work among, 31, 82, 126, 166, 219, 233, 267,
305, 351, 400, 439, 445, 493, 538, 583; im-
ported, 554; noteworthy, of the past year,
247
Fuchsia corymbiflora, 496; culture for
market, 35; triphylla, 32
Fuchsias, 557
Fungi and other parasites, 526
Furze, the double-flowered, 4.8

G.

Gages best from suckers, 405
Gainsborough, Orchard blooms from, 476
Galanthus Alleni, 136; caucasicus, 136;
Elwesi, 115, 265; Fosteri, 136; plicatus, 115
Garden, the, at night, 248, 289, 313; enemies,
337; nuisances, 404
Gardenias as biennials, 119; opening green,
303
Gardening, examination in, 569; learning,
41; nonsense about, 204
Gaultheria, 448
Genistas, 447
Gentiana acaulis, 184, 263, 407, 498; angust-
ifolia, 542; Fortunei, 498; verna, 185, 238,
299, 361, 368, 391, 453, 459, 498, 541
Geranium ibericum, 187
Gesneras, 7
Gladioli, hardy hybrid, 542; hybrid, 190; in
beds and pots, 300
Gladiolus A. de la Devansaye, 191; A. van
der Heede, 191; bulbs decaying, 419; hyzan-
tinus albus, 546; Charles Baltet, 191; Conte
Horace de Choiseul, 191; de Candolle, 191;
Dr. H. P. Walcott, 191; hardy, 11; Harry
Veitch, 191; hybridus gandavensis, 191;
hybridus Lemoinei, 191; hybridus mas-
siliensis, 192; hybridus Nanceianus, 191;
hybridus turicensis, 191; Kleber, 191; Le
Grand Ca not, 191; Massena, 191; Maurice
de Vilmorin, 191; Mons. Hardy, 192;
Mons. Laforcade, 192; Mons. Lefebvre,
192; Ondine, 192; P. Duchartre, 192;
President Carnot, 192; President Chandon,
192; Professeur Lauehin, 192; Professeur
Sargent, 192; Robert Lindsay, 192;
Rosamonde, 192; Rubens, 192; The Bride,
374; W. Watson, 192

Gladwin, the, 373
Glass bricks for plant houses, 525
Gleditsia triacanthos, 178
Gleichenias, 65
Globe Artichokes, 204
Globe Flowers, the, 484
Glory of the Snow, the, 241
Gloxinia Cicely, 503; Claribel, 503; Clio,
503; Ensign, 546; the Beacon, 546
Gloxinias, 151; planted out, 508
Goniophlebium s ibauriculatum, 7, 202
Goodia latifolia, 430
Goodyera repens, 263
Gooseberry, a serviceable, 521; Belle de
Meaux, 465; Edouard Lefort, 465; Mme.
Edouard Lefort, 465; *Roseberry*, 489;
Souvenir de Billard, 465; the, 42, 489;
Whomham's Industry, 488
Gooseberry bushes, pruning, 210
Gooseberry caterpillar, 211; lime and soot
dressings for, 335
Gooseberry trees, unpruned, 269
Gooseberries and caterpillars, 245, 270, 295,
337, 341, 365, 464; spineless, 465; trellis-
trained, 343; unpruned, 250
Grafting, 295, 335
Grammatophyllum Seegerianum, 589
Grape Alicante, 520; Golden Champion, 520;
Golden Queen, 46; Lady Downshire, 271;
Muscat of Alexandria, 343
Grapes failing to swell, 557; home-gr wn,
47; keeping, 465; profitable, 131; setting,
341, 366, 438, 492, 520, 554; thinning, 421
Grass, flowers on, 512
Grass of Parnassus, 500
Grasses, annual and other, for the waterside,
105
Greenhouse, hardy herbaceous plants for
the, 41; the cool, in midwinter, 100; why
paint it white? 569
Greenhouse plants, new and noteworthy of
1891, 212
Greens, hybrid winter, 415
Grevillea robusta elegantissima, 385
Grevia Sutherlandii, 266
Griselinia littoralis, 214
Ground, preparing the, and sowing seeds,
23; wet, trees and shrubs for, 90
Groups, plants for edging, 288
Grubs in garden, 455
Guntton, Violets from, 313
Gymnogramma schizophylla gloriosa, 7, 202
Gymnogrammas, treatment of, 65

H.

Haarlem, bulbs at, 361
Habenaria militaris, 360
Habrothamnus fasciculatus in Cornwall, 506
Haemanthus tigrinus, 7
Hamamelis arborea, 215
Ham, Daffodils at, 418
Hardenbergia Comptoniana, 308
Hardwood, felling, 388
Haw, the Parsley, 509
Hawthorns, the American, 508
Heaths, hardy, 130
Heating, 308
Heckfield, view in the garden at, 64
Hedgerows in midwinter, 44
Hedychiums, 7
Helianthemums, 447
Hellebore, the purple, 116
Helleborus caucasicus, 163; Madame Four-
cade, 163; maximus, 51; niger angust-
ifolius, 163, 241; niger latifolius, 163;
olympicus, 116; purpurascens, 116; Riv-
erton hybrid, 163; the Bath variety, 163,
vernalis, 163; Wm. Brockbank, 163
Hemidictyum marginatum, 266
He n p, the, 357
Hemp plant, the, 357
Herbaceous plants, dividing, 186
Herefordshire, Oak trees in, 292
Hesperochiron pumilus, 543
Heuchera sanguinea, 418; from seed, 479
Hexable, Orchids at, 562
Hibbertia dentata, 99
Hippeastrum, the, 101
Hitherbury, Guildford, 510
Holland, Potatoes for, 271
Holloway, Orchids at, 367
Holly berries, scarcity of, 17, 24; blossoms,
509; hedges, transplanting, 432
Honeysuckle, the fragrant, 133
Honeysuckle, 212
Hop, the, in gardens, 473
Horse Chestnut, 410; diseased, 504
Horse Radish, 143, 554
Horticulture, honours from, 164
Hotbeds, forcing early vegetables on, 76
Huonemannia fumarifolia, 208
Hyacinth, the Feather, 541
Hyacinths, 263, 373; why they sometimes
fail, 420
Hyacinthus azureus, 116
Hydrangea pani-ulata grandiflora, 194, 508;
rosea, 530
Hydrangeas, 448; group of, edged with Ferns,
288
Hypericum Moserianum, 194

I.

Ilex crenata, 215
Illicium floridanum, 407
Impatiens Hawkeri, 346; Micholitzii, 494
Inula, 29; *glandulosa*, 29; Hookeri, 136;
Oculus-Christi, 48, 74
Ionopsidium acaule, 453, 541; *acaulis in Rev.*
C. Wolley Do's g r d a, 541
Ireland, Anemones from, 567
Iris alata, 136; asiatica, 121; *asiatica*, 121
chinensis, 105; fimbriata, 105; *for id asi-ica*,
373; histrioides, 154; p. radib, 459; reticu-
lata, 203; r. purpurea, 182; r. var. cyanea,
265; r. in pots, 51; Rosenbachiana, 160
Irisas, bulbous, Dr. Foster on, 411; early
flowering, 18; English, 511; *g oap of Eng-*
l sh, 511; winter-flowering, 29
Italian lakes, flora of the, 262
Ivy, trimming, 401
Ixias and Sparaxis, 394
Ixora Westi, 546

J.

Jacobinia coccinea, 54
Jamaica, Orchids from, 2.2
Japan, a note from, 545; plants from, 140
Jasmine, the Spanish, 379, 448
Jasminum grandiflorum, 413; nudiflorum,
48
Juniper, the common, 44

K.

Kale, the cottager's, 319
Kalmia glauca, 418
Kennedyia lilacina, 314
Kerneria saxatilis, 484
Kerria japonica, 411
Kew, the herbaceous ground at, 2.1
Kitchen garden, work in the, 4, 31, 63, 81, 97,
126, 147, 167, 192, 219, 2.4, 254, 271, 280,
304, 331, 353, 379, 399, 427, 446, 470, 493,
515, 537, 558, 583
Kniphofia aloides, 536; Burchelli, 536;
caul-scens, 536; comosa, 536; foliosa, 536;
Leichtlini, 537; Macowani, 537; Northie,
537; Rooperi, 537; sarmentosa, 537
Kniphofias, hardness of, 13; hardy hybrid,
206

L.

Laburnum, Natal, 271
Lachenalia, seedling, 136
Lady's Slipper, the Tonguin, 452, 562
Lady's Slipper, New World, 475
Lady's Slipper, Ballantianiana, 65; a. Dawsoni,
135; a. Hilliana, 114; a. Percivaliana, 10;
a. Protheroana, 86; a. Stella, 135; a.
Williamsi, 60, 181; autumnalis alba, 27;
a. atro-rubens, 86; Bootbiana, 283, 476;
a. atro-rubens, 116; exoniensis, 285;
elegant mirabilis, 414; flammea, 253;
farfarea (Lucas's var.), 65; flammula, 10,
flava, 232; furfuracea, 135; Gouldiana, 10,
55; grandis, the ebrosa, 546; harpophylla,
135; Latona, 430; Lindleyana, 365; pur-
purata 533; p. Brysiana, 476; p. Hundley-
ana, 503; purpurata (The Dell var.), 589;
rubescens, 285; superbiens Quenselliana,
114
Laelio-Cattleya Cassiope, 65; Marriottiana,
362; Phoebe, 490
Lagenaria spherica, 164
Lakes, planting around, 268
Langport, notes from, 418
Lapageria alba, spray of flowers of, 53; un-
healthy, 152
Lapagerias, 53; distinct forms of, 101
Larch disease, the, 222
Larch on thin soils, 432
Lastrea aristata variegata, 273
Lastreas, 160
Latania borbonica, 153; is it hardy? 99
Lathyrus splendens, 418
Laurel cover, 356
Laurels, 33
Laurus Bernardi, 18
Laurustinus, varieties of, 214
Lavisia smaragdina, 503
Law Courts Garden, the, 363
Lawns, Apple trees on, 47; flower beds on,
184, 264
Ledum palust. e, 194; palustre, 194
Ledums, the, 194
Leek Mussc burgh, 533
Leeks, 443, 533; growing large, 131, 533
Leontopodium alpinum, 12
Leptospermum bullatum, 483; scoparium,
3-1
Lettuce, a new forcing, 566; Harbinger, 566;
Perfect Gem, 567
Lettuces, 482; early, in market gardens,
483; notes on, 349; summer, 432; trans-
planting, 564
Lewisia rediviva, 543

Lilac President Grevy, 154
 Lilacs, forcing, 111; in flower, 514
 Lilies of the Valley, 14, 514
 Lilium auratum, 39; Batemanniae, 31; candidum, 30, 201, 577; chalcidicum, 30; croceum, 30; davuricum erectum, 31; elegans atrosanguineum, 31; giganteum, 88; *gigantum*, a group of, 88; Hansonii, 31; longiflorum Harrisii going blind, 361; longiflorum Wilsonii, 31; Martagon, 31; pardalinum, 31; speciosum Kretzeri, 18, 31; Szovitsianum, 31; testaceum, 31; tigrinum splendens, 31; umbellatum, 575
 Lily bulbs from the Cape, 476; of New Zealand, 483; the African, 40; the Bermuda, 568; the Carolina, 460; the Madonna, 568
 Lily of the Valley, forcing, 83
 Lime and soot dressings for Gooseberry caterpillars, 335
 Lime, the Silver, 156, 268
 Lindaea trapeziformis 409
 Linodendron tulipifera, 156
 Linum arboreum, 459
 Lissanthus strigosa, 407
 Lissocylus giganteus, 180
 Lithospermum Gastoni, 123; graminifolium, 87, 123, 263; oleaceum, 123; petraeum, 123; prostratum, 123, 265; rosmarinifolium, 123
 Lithospermum, and how to grow them, 123
 Lobelia cardinalis, 417; *cardinalis*, 4, 7; fulgens, 138; Reine Blanche, 429; splendens, 417; syriatica, 416; the scarlet, 417; Tupa, 417
 Lobelias, hardy herbaceous, 417
 Locust, the Honey, 178
 London, forest lands around, 268; tree management around, 316
 London parks, golf in the, 479
 Lonicera Standishi, 136
 Lotus peltorhynchus, 430
 Loxwood, Sussex, notes from, 462
 Luculia gratissima, 469; gratissima, 469; gratissima, propagating, 53; Pinceana, 469; Pinceana, 469
 Luculias, 4, 468
 Lullingstone Castle, trees at, 388
 Lunaria biennis, 374
 Lycaste alba, 232; Skinneri, 368, 497; Skinneri alba, 85; Youngi, 154
 Lychnis neglecta, 186; vespertina plena, 277
 Lygodium articulatum, 436; flexuosum, 436; japonicum, 436; palmatum, 436; venustum, 436
 Lygodiums, 7, 436

M.

Macadamia ternifolia, 33
 Madagascar, plants from, 407
 Maggot, the Carnation, 372
 Magnolia acuminata, 156; conspicua, 361; stellata, 408
 Mahonia japonica, 355
 Maiden-hair tree, 112
 Manetti stock, the, 180, 526
 Maple, the Sugar, 222
 Marguerites, 260
 Mariposa Lilies, 144
 Market garden notes, 71, 221, 419, 586
 Market plants and flowers at Christmas, 8
 Market, the new fruit and vegetable, 241
 Marsh Marigolds, 434
 Ma devalia caudata Estrade, 477; elephanticeps, 27; ignea Massangeana, 368; leontoglossa, 265; m. crura, 146; melanopus, 72; polydicta, 232; Roszli rubra, 232; Wendlandiana, 407; xanthocorys, 414
 Masdevallias of the chimeraid group, 181
 May Apple, the, from the Himalayas, 484
 May blossoms, a mixture of, 545
 May, double white, forced, 271
 May, hardy flowers of, 512
Mealy-bell, the Great-bell, three forms of, 49
 Meconopsis cambrica, 566
 Mellal, fruiting branch of, 465; tree, the, 465
 Megacilium falcatum, 289
 Melocactis communis, 53
 Melon culture, notes on, 463, 540; *Golden Perfection*, 195; Gunton Park Orange, 578; Rithing's Perfection, 547
 Melons, 198, 521; cankering, 269, 331, 520; early, in pots, 69, 148; good early, 195; ripe in succession on the same plants, 519, 554, 588
 Menyanthes trifoliata, 500
 Mercury as a vegetable, 443
 Mertensia maritima, 417
 Mespilus, the Snowy, 407
 Mexican Orange Flower, the, 483
 Michaelmas Daisies, 264
 Michauxia campanuloides, 874
 Microleptia hista cristata, 201; platyphylla, 274

Mill-house garden, an old, 73; at Mount Usher, Co. Wicklow, 73
 Miltoia Endresii, 510
 Mina lobata, 313
 Mitaria coccinea, 508
 Mixture, a charming, 568
 Moisture in fruit houses, 461
 Monochetum sericeum, 265
 Montbretias, 265
 Morrea irrorata, 289
 Morus nigra, 178
 Moss and lawn grass for packing, 348
 Moss for packing, 289
 Mosses, 64
 Moth, the Raspberry, 535
 Mountain flowers, the culture of, 322
 Mulberry, the common, 178
 Mulleins, 551
 Musa Basjoo or japonica, 54; seeds of, from Upper Assam, 120
 Muscari, 454; comosum, 541
 Mushroom experiences, 55
 Mushrooms failing, 332; in summer, 384; outdoor, 415

N.

Narcissi, basal rot in, 86, 121; failing, 434; forcing, 236; from Scarborough, 204; in the open air, 265; on Grass, 412, 500, 542, 576
 Narcissus, a hybrid, 392; Barka, 408; Bernardi, 454; calathinus, 499; Countess of Annesley, 313; Johnstoni, 408; pallidus praecox, 203; papyraceus, 391; *papaya*, 391; Queen of Spain, 408; Santa Maria, 361; the double Post's, 514; triandrus, 417
 Nature and clipped Yews, 489
 Nepenthes, 54; Mastersiana, 48
 Nephelaphyllum, 10
 Nephrolepis davallioides, 7; davallioides furcata, 201
 Nerine crispa, 50
 Newry, a note from, 111
 New York Garden, the Botanic, 202
 New Zealand, the Chrysanthemum in, 201
 Night, the garden at, 289
 Notes, French, 274
 Nymphaea odorata carolinensis, 460

O.

Oak, destruction of an ancient, 430; for wheel-spokes, 431; the, 410; the Durmast 134; the Golden-leaved, of California, 388; the Pin, 156; the scarlet, 65; the *W. Major*, at Holwood Park, 77
 Oak trees in Herefordshire, 292
 Oakwood, Calochortis at, 545
 OBITUARY —
 Allen, J., 455
 Cole, E., 508
 Cooper, E., 431
 Dickson, W. A., 18
 Fitch, W. H., 89
 Holford, R. S., 199
 Margottin, M., 547
 Parker, R., 111
 Rawlings, Mrs., 155
 Regel, Dr., 455
 Roberts, J., 155
 Rozen, A., 19
 Ross, S., 138
 Rowan, H. C., 221
 Smith, J., 363
 Taplin, J., 111
 Thirkott, L., 89
 Williams, J., 19
 Woodman, Dr. W. R., 19
 Odontoglossum Alexandrae, 320; Alexandrae Warneri, 452; aspersum, 216; blandum, 114; Bleui splendidissimum, 503; cariniferum, 82; Cervantesi, 272; Cervantesi decorum, 414; citrosorum roseum, 452; crispum Johnsonianum, 586; c. nobiliss, 154; c. Rex, 516; c. Sanderae, 563; c. spotted, 232; c. Wolstenholmei, 516; cristatum, 510; Halli, 453; Ioplocan, 154; Londesboroughianum, 114; Lowryanum, 508; luteo-purpureum, 114; Murrellianum, 414; naevium, 198; Oerstedii, 476; Oerstedii majus, 114; Owenianum, 383; Pescatorei (Jackson's var.), 214; P. var. Lindenian, 361; P. Schroederianum, 154; pulchellum, 111; ramosissimum, 176; Rossi, 232; R. albens, 65; R. majus, 160; Ruckerianum, 413; Sanderianum, 407; triumphans, 360; t. chrysotoxum, 368; Vinkl-tianum, 398; Wendlandianum, 385; Wilkianum nobiliss, 503
 Odontoglossum, 181; from Arddarroch, 398
 Oenothera aculeata, 192, 266; tenuifolia, 564
 Oenothera Lamarckiana, 874
 Olearia Gunniana, 418, 481; Haastii, 216; stellata, 293
 Olearias, 417

Oleasters, evergreen, 57; the, 352, 483
 Omphalodes verna, 431
 Oncidium ampliatum majus, 232; auriferum, 546; concolor, 408; dasytyle, 532; Gravolanum, 385; inculpatum, 533; Jonesianum, 110; Jonesianum flavens, 24; Lanceanum var., 589; Joxense, 532; Marshallianum, 586; Phalaenopsis, 492; sarcodes, 272; splendens, 284, 313
 Onion, flat Tripoli, 165; giant Recco, 165; giant V. (the), 164; globe Tripoli, 165
 Onions, 75, 402, 443; and their culture, 164; keeping badly, 218; white Spanish, part of a bulb of, 176
 Onosma tauricum, 513
 Onychium auratum, 202
 Onopogon spicatus variegatus, 283
 Orange Silvermere seedling, 290
 Oranges, Citrons, and Lemons, 38
 Orchard fruit, 467
 Orchard house culture, 170
 Orchards, maintaining the fertility of soil in, 226, 344
 Orchids at Bath, 563; at Burford Lodge, 320; at Clapton, 110; at Elmstead, 510; at Hextable, 562; at Holloway, 367; at Mr. Sherwood's, 359; at Palace Road, Brixton, 559; at St. Albans, 474; at Streatham Lodge, 589; diseases in, 10; from Cheltenham, 114, 589; from Gainsborough, 476; from Fickering Lodge, 531; from seed, 313, 360; from Sefton Park, Liverpool, 562; from The Dell, 255; in flower at W. Bull's, 216; in flower at Messrs. Veitch & Sons, 216; in small gardens, 531; new and noteworthy, in 1891, 85; pruning, 562; useful to grow in quantity, 26; work among, 35, 62, 81, 96, 125, 147, 167, 193, 220, 234, 257, 281, 305, 330, 353, 378, 400, 428, 446, 470, 516, 538, 560, 582
 Orchis latifolia, 506
 Origanum Dictamnus, 105
 Ornithogalum arabicum, 377; arabicum, 377; armeniacum, 377; aureum, 377; comosum, 377; excapsum, 377; fimbriatum, 377; glaucophyllum, 377; latifolium, 377; montanum, 377; narbonnense, 377; nutans, 377; nutans, 376; pyramidale, 377; pyrenaleum, 377; sibiricum, 377; umbellatum, 377; unifolium, 377
 Orobolus vernus, 87
 Osiers for boggy land, 222
 Osmunda palustris, 274, 313; regalis, 160
 Oviandra fenestralis, 347
 Overcropping, 438

P.

Packing, Moss and lawn Grass for, 369
 Paeonia albiflora, 101; corallina, 418, 454; tenuifolia plena, 568
 Paeonies, 483, 481; planting, 373; with drooping stems, 543
 Paony, a white, 591; Felix Crousse, 589; Grizzel Muir, 589; Lottie Collins, 589; Mlle. Rousseau, 589; Mme. Breon, 589; Mme. Loise, 589; Snowball, 589; Snowflake, 503; Van Dyck, 589
 Palm house and rock garden at Streatham Hall, Exeter, 117; view in the, 117
 Palms, cool greenhouse and temperate, 83; hardy, 153
 Palumbina candida, 532
 Pandanus, the variegated, 152; treatment of, 120
 Pandanus pacificus, 477
 Pansies, tufted, 27, 52, 106, 358, 453, 498, 577; from Dr. Stuart, 506; from Hawick, 591; in bedding arrangements, 513; in pots, 313
 Pansy, tufted, Violette, 89
 Papaver pilsbami, 277
 Paris, the flower-markets and flower market gardens of, 395, 471
 Parks, tree-planting in, 246; tussocky, 340
 Parsley, 403; transplanting, 443
 Pasque flowers, 429
 Paulownia imperialis, 304
 Pea, a, with many names, 564; crop in Essex, 484; *Telephium*, 349; *Walteri* L., 348
 Peas, 98; a good succession of, 318; early, 128, 564, 584; late, 414, 584; Sweet, 232, 265; *Sweet*, *low to the ground* in a vase, 233
 Peach Alexander dropping its buds, 228, 269; Amsten June 547; and Nectarine trees, 406, 424; bud-dropping, 342, 423, 439; Early Beatrice, 591; shoots crowded, 314, 423; Thames Bank, 91; Violette Hâtive dropping its buds, 252
 Peach tree in pot in Mr. Rivers' nursery, 229
 Peach trees, absence of green-fly on, 424, 464; and ants, 252, 296; black-fly on, 467; bud-dropping in, 296, 497; free growth of, 405; green and black-fly on, 250; pruning and training, 209; thinning the flower buds on, 227, 270, 334, 366, 424, 457, 491, 556; on sowing, from walls 150
 Peaches, colour in, 587; golden, 46; in succession, 196

Pear Bergamote d'Esperen, 437; Beurré Rance, 437; Châumontel, 437; Easter Beurré, 437; *Enfer de la Harpe*, 437; Eliza d'Heyst, 437; Huyshe's Queen Victoria, 37; Jean de Witte, 437; Josephine de Malines, 437; Knight's Monarch, 47, 91; Mme. Millet, 437; Ne Plus Meuris, 437; Olivier de Serres, 437; the Chalk, 45; Winter Nela, 437
 Pear trees, pyramid, 229
 Pears, autumn, 92; late, 93, 437; some reliable, 171; standard, for Britain, 3, 40; under glass, 132
 Pelargonium Arctoe, 477; F. V. Raspail, 212; Fitchall, 589; Ivy-leaved Rye-roft Surprise, 589; Rosy Gem, 589; Souvenir, 589; Venus, 348
 Pelargoniums, bedding, 500; decorative, 307; Ivy-leaved, 571; two good, 493; zonal, 118; zonal, in winter, 507
 Pentstemon, 374; from seed, 204
Pergola, formation of, with brick pillars, 107; *et tend*, 110
 Pergolas, fruit trees on, 133, 173; on creeper-covered walls, 107
 Perovskias, 448; as pot plants, 54
 Petrocallis pyrenaica, 418
 P. aius Cooksoni, 272; Sanderianus, 430, 503
 Phalaenopsis, 313
 Phalaenopsis casta, 176; intermedia Brymeriana, 135; intermedia Portei, 135; Mariae, 563; rosen aurantiaca, 26; Sanderiana, 135; Schilleriana, 111; speciosa, 60, 239; Stuartiana, 181
 Phlebotium sporocarpium, 202
 Phlox amena, 186; subulata, 459
 Phloxes, herbaceous, in the conservatory, 495
Phygelius Alkekengi, 577
 Picea alba, 112; Nordmanniana, 246
 Picture, a winter, 116
 Pine-apple, the variegated, 7
 Pine, the Austrian, 232; the Chilean, 321; the Chilean, from home seed, 401, 449; twig and cone of the Austrian, 388
 Pink, the, 61
 Pinks, 359, 585
 Pinus contorta, 90
 Pitt as a tree-planter, 77, 134
 Pittosporum Tobira, 239
 Place, bare, 163
 Plant houses, work in, 3, 35, 63, 82, 97, 125, 148, 166, 193, 219, 233, 258, 274, 306, 340, 354, 379, 399, 426, 446, 471, 493, 516, 539, 559, 582
 Plant trade in America, vexatious interference with, 497
 Plant, wanted a climbing, 567
 Plantations, mixed, 456, 489
 Planting, and what to plant, 548; around lakes, 268; economic conifer, 20; for utility and ornament, 548; in towns, 90; late, 169; seaside, 316; thick and thin, 68
 Plants, alpine, in the open, 13; alpine, the cultivation of, 578; *climbing, round window at 13, Waltham Terrace, Blackrock*, 369; every-day, 174; fine-foliaged, 307; hardy, notes on, 49, 87, 105, 186, 263, 301, 417, 498, 577; hardy, after the winter, 357; hardy, dividing and transplanting, 162; hardy, in pots and tubs, 139; hardy, potting up for decoration, 4; herbaceous, 325; in cold pits, management of, 265; medals for herbaceous, 483; New Holland, from seed, 308, 389; sending abroad, 591; wanted, 545; window, 78; winter flowering soft-wooded, 175
 Platanus, the, 316
 Platycodon alcinorne, 274; grande, 202; Wilkinckii, 563
 Platyloma falcata, 102, 273
 Pleasure ground notes, 477; work in the, 58, 194
 Pleasure grounds, hardy Ferns in, 273
 Plume humilis, 181; with two flowers, 181
 Plum, the Mirabelle, 366
 Plums on walls, 45
 P. dophyllum Emodi, 484
 Pogonia discolor, 27
 Polemonium Richardsoni, 459
 Polyanthus Border Maid, 453
 Polyanthus from Gainsborough, 453
 Polybotryes, 505
 Polygonatum bifidum, 207; japonicum, 207; latifolium, 207; latifolium var. commutatum, 207; multiflorum, 207; officinale, 207; oppositifolium, 207; punctatum, 207; roscum, 207; verticillatum, 207
 Polygonatum, 207
 Polyptichum vulgare, 160
 Polystichum acrostichoides, 266; amabile, 266; amplissimum, 266; auriculatum, 266; capense, 266; concavum, 266; coriaceum, 274; coriifolium, 266; denticulatum, 266; falcinellum, 266; flexum, 266; lepidocaulon, 266; mucronatum, 266; rhizophyllum, 266; triangulare, 266; venustum, 161
 Polystichum, 160, 266
 Poplar, the Abele, 156; the black Italian, 112; the Canadian, 156; the Lombardy, 156
 Poplars, 548; Lombardy, 568; notes on, 453

Poppies, perennial, 277; *white*, 276
Poppo, the hairy, 277
 Populus alba, 155; fastigiata, 156; monilifera, 112
 Potato blooms, 444; disease and bouillie bordelaise, 133, 160; flowers, 482; Imperator, 187; *Imperator*, 187; Richter's Imperator, 164; Sharp's Victor, 256
 Potatoes, 32, 127; Ashleaf, 256; as ground cleaners, 384; early and late, 129; early, 188; earthing, 534; for Holland, 271; in Derbyshire, 99; of good quality, 99; quality in, 55; remarks on planting, 229; removing the flowers of, 403; seed, 188, 256; sprouting seed, 218
 Potentillas, hybrid, 499
 Primrose, a useful white, 297; double crimson, 391; double white, 463, 519; *Munstead White*, 297; the Sikkim, 591
 Primroses, coloured 461; hardy, 11, 299, 358, 418; Indian, 580
 Primula Auricula San Martino, 368
 Primula capitata, 581; Clusiana, 361; denticulata, 277, 581; *denticulata*, 588; denticulata, 581; denticulata, 311; elliptica, 581; erosa, 581; *Erna-leaved White Perfection*, 198; floribunda, 203, 581; imperialis, 545, 581; japonica, 506, 533, 572, 591; longifolia, 103; minutissima, 581; mollis, 581; nivalis, 581; nivalis var. purpurea, 429; obconica, 52; obtusifolia, 581; Peach Blossom, 65; petiolaris, 581; Pink Queen, 65; prolifera, 581; Reidi, 577, 581; reticulata, 581; rosea, 361, 581; rotundifolia, 582; Sieboldii, 122; *sikkimensis*, 581; *sikkimensis*, 582; Stuarti, 582; venusta, 418, 544; verticillata, 313
 Primulas at Abinger Hall, 206; Chinese, 203; single Chinese, 198; two good cold-house, 119
 Privet, the golden, for an edging, 58
 Promenaea microptera, 85; Rolissoni, 85; Rolissoni, 85; stapelioides, 85; xanthina, 85
 Promenaea, 85
 Propagating in spring, 235
 Protea nana, 495
 Prumnopitys elegans, 322
 Pruning, summer, 599
 Prunus, 447; sinensis fl.-pl., 151
 Psychotria jasminiflora, 7
 Pteris argyrea, 274; serrulata gracilis, 503; tremula densa, 503; tricolor, 202; umbrosa, 274
 PUBLIC GARDENS—
 Albert Palace, the, 387
 Alexandra Palace, the, 155, 177, 525, 569; scheme, 19
 Avondale Park, 155; opening of, 545
 Battersea Park, a Palm house for, 43
 Bethnal Green poor's land, 43
 Birmingham, an open space for, 313
 Bournemouth, winter garden at, 67
 Borstal, recreation ground for, 67
 Brockwell Park, 409, 455
 Chelsea Hospital grounds, 339
 Chelsea, recreation ground for, 387
 East London, new playground for, 525
 Eltham Park, 409, 455
 Fulham, proposed open space at, 387
 Great Driffield, recreation ground for, 177
 Hackney Marshes, purchase of, 315, 569
 Hampton Court, allotments at, 315
 Hanley, new park for, 479
 Hilly Fields, Brockley, 221
 Hilly Fields, Lewisham, 545
 Inner Temple Gardens, 515
 Islington, another open space for, 409, 455
 Lincoln's Inn Fields, 525
 Maryon Park, 363
 Metropolitan Public Gardens Association, 5
 Millbank Prison site, the, 387
 Mitcham Common, 545
 North Park, Eltham, 221, 525
 Open space, a new, 43, 363, 591
 Open spaces, 67, 155, 177, 363, 455, 530, 545; for London, 19
 Paddington recreation ground, 221, 569
 Parks and open spaces, expenditure on, 177, 525; superintendent of, 177
 Peckham Rye extension, 387
 Pimlico Road, open space in, 315
 Poplar, an open space for, 339
 Space, an open, threatened, 409
 Tottenham, open space for, 339
 Walmer, recreation ground for, 387
 West Wickham Common, 155, 221
 Pyrocinia, 164
 Pyrethrum Alfred Kelway, 546; Jubilee, 483; Princess Marie, 546
 Pyrethrum, 551, 575
 Pyrus aria, 178; Cydonia, 194; japonica virginialis, 416; malus floribunda, 195, 347, 473; Maulei under glass, 286
 Pyxidanthra barbatula, 301
 Q.
 Quercus coccinea, 68; palustris, 156
 Quince, the, 194
 Quince stock, the best soil for, 37

R.

Rabbits destroying Beeches, 245
 Radishes, 349; early, 98
 Rainfall in 1891, 133
 Ramondia, a fine, 567
 Ramondias, 575
 Ranunculus amplexicaulis, 105; cortusae-folius, 290; Iyalii, 105, 506; montanus, 460
 Raspberries, 70, 93; cutting down, 365, 424
 Rats destroying Bamboos, 241
 Redwood, the, 268
 Reinwardtia tetragyna, 175
 Remedy wanted, a, 280
 Renanthera coccinea, 231, 281; Lowi, 26
 Restrepia antennifera, 114, 176; elegans, 176; nuda, 176; pandurata, 176; striata, 176; vittata, 176; xanthophthalma, 176
 Restrepia, 176
 Retinosporas, the, 279
 Rheum palmatum, 533
 Rhodanthes in pots, 420
 Rhododendron, a fine, 459; Auckland, 496; campiculatum, 454; campylocarum, 362; Ceres, 169; dauricum, 322; formosum, 381; grande, 295; javanicum, 169; multiflorum, 383; precox, 119; racemosum, 368, 383; scaberrimum, 242; Teymanni, 19; Vaseyi, 418; Veitchianum, 314, 347
 Rhododendrons, hybrid Java, 328; Sikkim, 368, 477
 Rhubarb, 505; flavour of forced, 189; forcing in tubs, 129
 Rhus Cotinus, 195
 Rhynchospermum jasminoides, 507; *jasminoides*, 507; as a specimen, 558
 Ribes sanguineum fl.-pl., 560; speciosum, 561
 Richardia Little Gem, 124
 Riviera, notes from the, 315
 Robinia Pseudacacia, 112
 Rock plants, a wall for, 325; well shown, 484
 Rockwood Lily, the, 506
 Rockwork in plant houses, 382
 Rondeletia amena, 287
 Rondeletias, 236, 3-6
 Roots or stocks, 573
 Rosa polyantha as a stock, 61; rugosa and its varieties, 549
 Rose Augustine Guinoisseau, 48; blooms, packing, 440; Caroline Testout, 290, 338; Celeste, 9; Celeste, 9; Cheshunt Hybrid, 481; Climbing Devonian, 180; Corinna, 430, 458; covered porches, 573; Danmark, 290, 318; Dundee Rambler, 345; Elise Fugier, 338; Ethel Brwnlow, 319; factory for cut flowers, 157; Gloire de Dijon, 141; *Gloire de Dijon on a wall*, 141; Gustave Regis, 589; La France, 48, 94; Lady Henry Grosvenor, 318, 477; Lamarque, 52, 62; Lamarque under glass, 142; Laurette, 271; Mme. Nabonnand, 80; Marechal Niel, 157, 439, 458, 527; Marechal Niel, forcing, 223; Medea, 318; notes, 179, 458, 526, 574; *old Clusier on a wall*, 301; Persian Yellow at Abberley Hall, 550; Pink Rover, 458; Princess May, 318, 503, 526; Reine Marie Henriette, 459, 549; Reine Marie Henriette under glass, 4-6; Salamander, 458; show at Farnham, 667; Spenser, 458, 526; Souvenir d'un Ami, white sports from, 481; sport from Catherine Mermet, 526; stocks in America, 180; The Bride, 440, 458; the Guelder, 568, 551; Waban, 390, 430; White Lady, 111, 318, 430; white sport from Souvenir d'un Ami, 518; Wm. Allen Richardson, 179, 390, 527, 5-0; Zenobia, 526
 Roses, among the, 317, 549; and the past winter, 179, 247, 390; Ayshire, 345, 440; button-hole, 21; climbing, 247, 425; climbing, after flowering, 457; diseases and enemies of, 21; dwarf, in beds 203; early-flowering, 527, 550; early pruning of, 441; enduring quality of cut, 482; exhibiting, 158; forcing, 84; for decoration, 247; frost prints among the, 345; Hybrid Perpetual, 179; Hybrid Tea, 21; Hybrid Tea in pots, 62; indoor trellis, 459, 526; in February, 142; in June, 517; in masses, 157, 179; in pots, 93, 159; in the cool house, 84; insecticides for, 549; Lamarque and Niphotos, 142; m. l. dew among the, 203; new, 318, 458; night soil for, 549; notes on, 440; *on a cot. ave. north in Surrey*, 573; on iron and wire trellises, 248; on walls, 301, 390, 439, 459, 526, 574; own-root, 426, 458, 482, 574; pillar, 526; pot, 9; planting from pots, 141; pruning, 114, 157, 224; pruning newly-planted, 247; ripening the wood of, 247; Scotch, 549; should they be planted in spring or autumn? 223; shy-blooming, 549; some early-flowering Hybrid Perpetual, 318; spring planting of, 94, 180; stocks for, 481; strong-growing, 518; summer pruning of, 574; Tea-scented, and their uses, 223, 247, 318; Tea-scented, under glass, 302; Tea, propagating, 318; the hard pruning of, 4-6; the Lenteu, 241; *trained over an iron arch*, 425; trellis-trained, 319, 457, 425; two good white, 318; two new, 338
 Rubus, 447; arcticus, 459; chamamorus, 498; spectabilis, 401

Rudbeckia pinnata, 187
 Rudbeckia macrophylla, 507
 Ruscus racemosus, 418
 Ruxley Lodge, Tomatoes at, 483
 Rydo, notes from, 266

S.

Saccolabium Blumei, 367; celeste, 216, 284; giganteum, 48, 367; guttatum, 367; praemorsum, 367; retusum, 367; violaceum, 367
 Saccolabium, 367
 Sali alba, 592; caprea, 68
 Sambucus racemosa plumosa, 195
 Sanguinaria canadensis, 418
 Saponaria aspitosa, 568; lutea, 568
 Sarcanthus cruceus, 414
 Sarcocolla repens, 403
 Sarrazenia atrosanguinea, 211; crispata, 211; Drummondii, 211; flava, 212; psittacina, 212; purpurea, 212; rubra, 212; varicolor, 212
 Sarrazenia as flowering plants, 211; at the United States Nurseries, 558; in flower, 239
 Saxifraga Burseriana, 203, 262; Burseriana major, 180, 263; calyciflora, 408; longifolia, 509; luteo-purpurea, 182, 208; luteo-purpurea Malvi, 338; Malvi, 204, 213, 391; Mertensiana, 459; muscoides atropurpurea, 499; petata, 301; Rhee, 268; Rocheliana var. coriophylla, 499; sancta, 419, 498; virginiana, 418
 Scabious, a new species of, 274; the Caucasian, 372; *the Caucasian*, 372
 Scene, a winter, 48
 Sciscedon soldanellae, 314
 Schomburgkia crispata, 114; Humboldtii, 114; Lyonsii, 114; rosea, 114; Thomsoniana, 114; tibicensis, 114, 285; undulata, 114
 Schomburgkia, 114
 Scilla bifolia, 265, 325, 338
 Scilly Isles, flowers in the, 204
 Scolopendrium crispum fimbriatum, 503; digitatum majus, 503; vulgare, 160
 Sea Hollies, 576; border, 543
 Seakale, 190; in May, 468
 Seaside planting, 316
 Seed-growing in Germany, 370
 Seeds, collections or selections of, 332; failing to germinate, 534; ordering, 74
 Selaginella elegans, 503
 Selaginella, 8
 Selenipedium caudatum, 414
 Senecio grandifolius, 21; petasites, 116
 Sequoia sempervirens, 268
 Shelter, planting for, 90
 Shirley Hibberd memorial, 19
 Shortia galacifolia, 136
 Shrub pruning, 195
 Shrubs, arrangement of flowering, 356; choice for beds and borders, 447; hardy, that have been certificated in 1891, 78; in pots, 429; lifting, 55; notes on, 129, 194; unmulled, 33; with ornamental foliage, 544
 Siphocampylus Humboldtiana, 54
 Sisyrinchium grandifolium, 186
 Smilax argyrea, 503
 Snowdrop, a yellow, 338; Elwes' giant, 115 the Crimean, 115
 Snowdrops, 204; early, 116
 Sotolia Lucania, 5-9
 SOCIETIES AND EXHIBITIONS—
 Crystal Palace, 314
 Gardeners' Orphan Fund, 43, 89, 153, 221, 241, 479, 483, 547
 Gardeners' Royal Benevolent, 43, 89, 245, 567
 International Horticultural Exhibition, 155, 245, 315, 431, 454, 523
 Midland Carnation and Pottee 182
 National Auricula (Northern Section), 431; (Southern Section), 386
 National Chrysanthemum, 221, 267
 Royal Botanic, 191, 408, 478
 Royal Horticultural, 43, 65, 115, 136, 154, 244, 267, 289, 361, 385, 430, 453, 455, 477, 501, 506, 546, 567, 589
 United Horticultural and Benefit, 267
 Soils, 108
 Solanum crispum, 545; jasminoides, 420, 453; saccianum, 164; Torreyi, 248, 271
 Soldanella minima alba, 418
 Soldanella, 429
 Solomon's Seal, 137, 207; for forcing, 348; *group of, at the foot of a wall*, 137; the scent of, 418, 542
 Sophora japonica, 222
 Sowing better than planting, 456
 Sparmannia africana, 241
 Sphagnum Moss, growing alpine in, 553
 Spinach, New Zealand, 75; scarcity of, 304; winter, 75, 143
 Spiraea arguta, 474; aruncus, 49; *aruncus*, *tree forms of*, 474; astilboides, 49, 118; astilboides floribunda, 553; callosa, 474; confusa for forcing, 308; filipendula, 49; gigantea, 49; lobata, 49; palmata, 49; Thunbergii, 368, 385, 401, 416; Ulmaria, 49; Ulmaria aurea, 553

Spiraeas, herbaceous, 49
 Spring, the flowers of, 300, 325
 Spruce gall aphid, 526
 Spurge, the, for coverts, 316
 Squill, the Siberian, 265
 Squirrels damaging Corsican Firs, 200
 Stachys floridana, 497
 Stanmore Common, fire on, 361
 Stapelia deflexa in bloom, 99
 Stapelias, 99
 Staphylea colchica, 237, 402
 Star Flower, the spring, 429
 Stars of Bethlehem, 376
 Stenandrium Lindenii, 503
 Stenochlora scandens, 202
 Stock, the Maratti, 518
 Stocks, Brompton, 374
 Stokesia cyanea, 3-1
 Straffan, flowers at, 241
 Strawberry Auguste Nicose, 521; Commander, 484; Empress of India, 478, 521; flowers protecting, 365; forcing, 197; Royal Sovereign, 590; Sharpless, 490, 557; Vicomtesse H. de Thury, 423, 467
 Strawberries after forcing, 490; and moisture, 587; and the frost, 343, 490; by post and rail, 365; damage to, by the severe winter of 1891-92, 497; early, 587; early, in pots, 210; early, watering, 450; flavour in forced, 295, 341; for preserving, 270; forced, in March, 438; in cold frames, 466; large, 422; mulching, 490; new, 521; planting forced, 271
 Strelitzia Nicolai, 407; Regina, 506
 Streptocarpus hybrid, 121, 2-0
 Streptocarpus Galpinii, 256
 Streptosolen Jamesii, 261
 Sulphurous acid and plants, 315
 Sumach, the Venetian, 195
 Surrey, the weather in, 407
 Sweet Brier Alice Bridgenorth, 589; Lucy Bertram, 589
 Sweet Peas, 123
 Sweet Williams, 374
 Sycamore, the common, 156
 Syme, David, testimonial to, 484
 Synthyris reniformis, 417

T.

Tasmania, Apples from, 241
 Teophylla cyanocrocus, 362
 Tetralonia to David Syme, 484
 Tetralonia pilosa, 322
 Thalictrum anemonoides plenum, 418
 Thalictrum fabacea, 186
 Thermopsis, 509; the Washington, 509; the White, 509
 Thorns, 222
 Thyracanthus rutilans, 347
 Tigrids, 372
 Tillandsia Massangea a superba, 430; Moensi, 430; splendens, 83
 Timber, appearance of good, 592; felling by contract, 200; trade, the home, 570
 Tinnea athiopica, 287
 Tomato, a valuable new, 274; Acquisition, 304; disease, 332; disease in the Canary Islands, 506; disease, prevention of, 278; roots diseased, 19
 Tomatoes at Ruxley Lodge, 483; manure v. moisture, 567; notes on open air, 417; simple method of growing, 467; status of, 483; two good early, 231
 Town planting, 112, 156, 178, 2-2
 Toxicophloeas spectabilis, 261, 571
 Tradescantia Regina, 503; superba, 503
 Tree knowledge, 544; management around London, 316; measurements, 68; notes, 68; planting on a small scale, 200
 Tree of Heaven, the, 112
 Trees, effect of Ivy on, 90; hard-wooded, for economic planting, 410, 504; influence of, on temperature, 473; Mosses on, 570; natural reproduction of coniferous, 364; new varieties of, 526; nurses for, 422; plant specimen, 289; staking and protecting, 68; staking newly planted, 246; the growth of, 134; thinning hard-wooded, 178; transplanting evergreen, 246; young fruit, 490
 Tremandra ericifolia, 368
 Trichocentrum triquetrum, 154, 181
 Trichomanes, 101; alatum, 102; anceps, 102; angustatum, 102; Ankersi, 102; auriculatum, 102; Bauerianum, 102; brachypus, 112; Colensoi, 102; coriaceum, 102; crinitum, 102; crispum, 102; elongatum, 102; exsectum, 102; filicula, 102; humile, 102; Kauffussi, 102; Krausi, 102
 Trillium erectum, 87; grandiflorum, 429
 Triteleia uniflora, 429
 Tritoma caulescens, 589
 Tritoma, hardness of, 208
 Trollius asiaticus, 542; Gibsoni, 542; giganteus, 543
 Tropaeolum speciosum, 263; tuberosum, 49
 Truffles, 75; French, 32
 Tuberoses for early work, 175
 Tulipa Leichtlini, 454; sylvestris, 442

Tulip, the florists', 576
 Tulip tree, the, 156
 Tulips at Long Ditton, 419; failing, 198; in the London parks, 470
 Turner Memorial prizes, 338
 Turnip Extra Early Milan, 218, 241, 261, 271
 Turnips, 332; early, 567; yellow-fleshed, 384
 Turquoise berry, the, 203

U.

Ulmus alata, 68, 280
 Ulm derwood, 364
 Utricularia Humboldtii, 362; longifolia, 362

V.

Vallota purpurea, 495
 Vanda Amesiana, 396, 397; Bensoni, 197; Cathcarti, 265, 397; cerulea, 397; cristata, 232; Denisoniana, 313, 396; Hookeriana, 397; Kimballiana, 196, 397; lamellata Boxalli, 216, 167; parviflora 396; peduncularis, 398; Roxburghi, 396; Sanderiana, 397; suavis, 222, 397; teres, 397; teres alba, 477; tricolor, 397
 Vandas, notes on, 396
 Vanderbilt's nursery, 94

Vegetable Marrow Pen-y-hyd in frames, 256; Portuguese, 274
 Vegetable notes, 129
 Vegetable sculpture, 66
 Vegetable seeds, ripening of, 15
 Vegetables, forcing early, on hotbeds, 76; growing for market, 483; hot weather, 522; novelties in, 14, 56, 98, 143, 191; pot culture of, 127; protection of, 404; scarcity of, 332, 401, 441; shelter for early, 535; watering and mulching, 564
 Veltheim's viridifolia, 495
 Verandah, plants to cover a, 272
 Verbascum Chaixii, 551; crassifolium, 551; cupreum, 551; *noyrum* var. *album* in *Rev. Wall y Dods' garden*, 551; *oluspicum*, 555; *olympicum*, 551; *phlomisoides*, 374, 551; *phlomisoides*, 555; *phlomisoides*, 551, 596; *pyramidalis*, 551; *vernale*, 551
 Verbena Sea Foam, 509
 Verbenas, 207
 Veronicas in flower, 17
 Viburnum plicatum, 136
 Viburnums, 44
 Villa gardens, Apples for, 228
 Vine borders, exhausted, 196; sloping, 69
 Vine Mrs. Pearson unhealthy, 172, 250
 Vines, disbudding and stopping, 228; evils of closely training, 210; planting, 149; should they be shaded? 587; starting late, 227
 Vinery, crickets in, 89, 111; the amateur's, 555
 Viola declinata, 454; pedata, 186
 Violas, 542

Violets, early autumn and late spring, 552; for winter flowering, 435, 512; from cuttings, 357; from Gunton, 313; planting, 513
 Virgin's Bower, the, 116
 Vitis argyrophylla, 525; heterophylla variegata, 393
 Vriesia brachystachys, 6

W.

Wales, notes from, 499
 Wall, a useful, 347; for rock plants, 325; for rock plants, 325
 Walls, bare spaces on, 37; Roses on, 301, 439
 Wallflowers, 247, 574; unhealthy, 19
 Walnut, the Black, 222
 Walnuts, soil for Black, 44
 Waltham Terrace, Blackrock, near Dublin, 369
 Warszewicz's la Lindeni, 546; velata, 181
 Water gardens, 297
 Waterside, the annual and other Grasses for, 103
 Wattle, the Silver, 54
 Weather and the crops, the, 257, 406; during April, 443; in Surrey, 497; the, 182; the wintry, 392
 Wellingtonia, a spiral 435
 Williams Memorial prizes, 431
 Willow, the Goat, 68; the white or Huntingdon, 592
 Willows, dwarf, 301; pollarding, 177

Windflowers, 542
 Window case, Ferns for an outside, 172
 Window plants, 78
 Winter effects, 120, 302
 Winter, preparing for, 535
 Wireworms, 71
 Wistaria sinensis alba, 477
 Witloof, field culture of, 274
 Wood Hyacinths in the pleasure ground, 552
 Wood Lily, the white, 429
 Woods, the outline of, 48
 Woodlands, Orchids at The, 311; the, of Great Britain, 292
 Woodlice and Cucumbers, 565
 Woodwardia radicans, 274
 Worcestershire garden, notes from a, 460

X.

Xanthoceras sorbifolia, 420

Y.

Year, the past, 59
 Yew and Oak stem, junction of 68
 Yews Irish, trained and untrained, 53

Z.

Zygopetalum leucochilum, 174





COLOURED PLATES.

	PAGE		PAGE
BEGONIA HAAGEANA	514	KNIPHOFIA CAULESCENS	536
BOMAREA FRONDEA	444	LUCULIA GRATISSIMA	468
CALANTHES, HYBRID	398	ONCIDIUM PHALÆNOPSIS	492
CALLISTEMON RIGIDUS	558	ORNITHOGALUM PYRAMIDALE	376
CALOCHORTUS FLAVUS	144	PAULOWNIA IMPERIALIS	304
CARNATION KETTON ROSE	56	PRIMULA FLORIBUNDA	580
CARNATION (TREE) MRS. A. HEMSLEY	280	RHODODENDRON CERES	168
CEREUS LEMAIRI	102	RHODODENDRONS, HYBRID JAVA (1, LUTEO-ROSEUM; 2,	
CERINTHE RETORTA	212	PRIMROSE; 3, JASMINIFLORUM CARMINATUM) ...	328
COSMOS BIPINNATUS	10	ROSE MME. NABONNAND	80
ELÆAGNUS PARVIFOLIA	352	STREPTOCARPUS GALPINI	256
ERICA HYEMALIS AND E. H. ALBA	420	STREPTOCARPI, HYBRID	124
FUCHSIA TRIPHYLLA	32	SWEET PEAS H. M. STANLEY, MRS. ECKFORD, ORANGE	
GLADIOLI, HYBRID FORMS OF NANCEIANUS	190	PRINCE AND DOROTHY TENNANT... ..	232

HERR MAX LEICHTLIN.

HERR MAX LEICHTLIN, to whom we have great pleasure in dedicating the forty-first volume of THE GARDEN, was born at Carlsruhe (Baden) on October 20, 1831. In 1846 he went as an apprentice gardener, and afterwards held situations at Frankfort, Bolweiller and Ghent. He then spent some years travelling, and in 1856 returned from South America. After spending a few months in Dublin, he went to Van Houtte's, Ghent. Here he stayed two years, and then, owing to deaths in the family, went into business with his two elder brothers. After sixteen years' diligent work he retired to Baden-Baden, where he founded a private botanical garden, and since then his name has been a household word wherever hardy plants are grown. About 1866 his collection of Lilies was very important, and in the following year Sir Joseph Hooker named after him a Lily that had been introduced by Messrs. Veitch. In 1874 he went to Montenegro to collect *Lilium Martagon*. The position of his garden at Baden-Baden was, however, unfavourable to the cultivation of Lilies, and he gave them up, devoting his attention to miscellaneous bulbs, more especially Irises. Few good gardeners—so far as the introduction of new or rare plants is concerned—have done so much for English gardens. Every year he introduces some sterling novelty, and botanists as well as gardeners in this and other countries owe much to his ability and enterprise. As a raiser and hybridiser he has achieved no inconsiderable success, as witness the *Nerines*, and above all the handsome *Aubrietias* known in gardens as *A. Leichtlini*, *rosea*, and *violacea*. It requires a man of courage to persevere for twenty years in the hope of obtaining at last a red *Aubrietia*! And he has nearly succeeded. *Primula rosea grandiflora*, *P. capitata cœrulea* and *atro-violacea*, and a host of plants too numerous to mention we owe to him. It is only a few years ago since we were on the tip-toe of expectation as to the success or failure of his effort to collect *Jankæa Heldreichii*. Few people were aware of the real danger this expedition had to face, and a company of soldiers had to be engaged against a possible attack by banditti. The collector was successful, and the plants sent home have already flowered in several gardens in England. *Ostrowskia magnifica*—the most gigantic Bellflower ever seen—was another surprise. *Meconopsis aculeata* is an introduction of rare merit, equal to, if not surpassing, Wallich's Poppy. *Tellima parviflora*, introduced under the name of *T. affinis*, is the best of the genus known to us. *Primula grandis*, *Coptis orientalis*, *Erythronium Hendersoni*, *Allium Sewerzowi*, *A. giganteum*, and Irises, especially the bulbous and *Oncocyclus* sections, are all closely associated with the name of Max Leichtlin. Wherever a new Iris was heard of, Max Leichtlin was determined to find it. *Calochortus Leichtlini*, *Milla Leichtlini*, *Tulipa Leichtlini*, *Kniphofia Leichtlini*, *Mutisia retusa*, *M. ilicifolia*, and numerous other plants tell a story of his work. Many species of *Eremuri*, *Crocus iridiflorus major*, *C. biflorus Leichtlini*, *Tecophylæa cyanocrocus*, *Arnebias*, *Colchicum Sibthorpiæ*, by far the finest of the genus, besides varieties of *C. autumnale*, &c., we owe to him. Among his latest introductions is *Gladiolus armeniacus*, one of the prettiest and the nearest to a true blue we have yet seen.

The GARDEN.

VOL. XLI.

ORCHARD AND FRUIT GARDEN.

STANDARD PEARS FOR BRITAIN.

IN your list of standard kinds (given p. 530) I cannot regard three of them in that light, viz., Nouvelle Fulvie, Olivier de Serres, and Bergamotte d'Esperen. Judging them from experience gained over several seasons, I should say decidedly that they are not suitable for the north or eastern parts of England. Nouvelle Fulvie growing on a south wall here bears freely large good-looking fruit, but it has never once ripened fit for dessert. Bergamotte d'Esperen is not reliable; good only after fine summers. Olivier de Serres is small and rather gritty. I would rather recommend either Durondeau, Passe Colmar, Knight's Monarch, Beurré Rance, and Easter Beurre as being much more likely to ripen over a larger area of the British Isles. Knight's Pear is hard to beat for flavour; it is delicious. Autumn Nelis deserves a place and should be added; it is hardy, free, ripens on a bush or espalier, almost equal to Comte de Lamy for flavour, which is saying a good deal for it, as I consider the Comte heads the list in that respect, surpassing even Thompson's and Doyenné du Comice. Alexandre Lambre might very well be left out of standard varieties; it is rather small, nothing specially taking in flavour; it also ripens when three of the best are in season, viz., Marie Louise, Doyenné du Comice, and Emile d'Heyst. A list of standard varieties containing all the highest flavoured should cover the complete Pear season to be a guide to planters. I have ventured to substitute a list which will supply the dessert from July to March, but have not confined the number to twelve: Doyenné d'Été, Jargonelle, Williams' Bon Chrétien, Fondante d'Automne, Beurré Superfin, Autumn Nelis, Comte de Lamy, Thompson's, Durondeau, Marie Louise, Doyenné du Comice, Emile d'Heyst, Passe Colmar, Glou Morceau, Josephine de Malines, Knight's Monarch, Winter Nelis, Easter Beurré. It must also be borne in mind that this selection is not sufficient to supply the wants of a large establishment. A certain number of the large free-bearing kinds, although second-rate in quality, must be grown as a reserve for the kitchen. I find, more especially of late years, that the *chef* favours a plentiful supply of Pears ap-

proaching ripeness in preference to those that are recognised only as fit for stewing. Emile d'Heyst, among the comparatively new Pears which I have tried, is the best, and will become as generally grown as Marie Louise or Doyenné du Comice. It is of good size, melting, buttery, with a flavour that much resembles Winter Nelis. It ripens here a little later than Doyenné du Comice when grown on south and west walls. Those who have not yet planted it should not let the winter pass without putting in two or three trees of this excellent variety.

WM. ALLAN.

Guntton Park.

COLOUR IN APPLES.

AT the fruit show which took place at Manchester in October last a collection of Apples, staged by Mr. W. Crump, The Gardens, Madresfield Court, attracted a great deal of attention on account of the rich colouring of the fruit. Mr. Crump informed me this characteristic is peculiar to most of the Apples grown at Madresfield, and they rivalled, if they did not excel in richness of tint the fruit grown in Kent and Sussex. Probably there are certain conditions in the soil, or in the climate and atmosphere that impart so rich a colouring to Apples, and it was noticeable that the collections from Herefordshire, Worcestershire, and Derbyshire were generally remarkable in this respect. A striking contrast was furnished in the very fine collection of twenty-four dishes of Apples exhibited by Mr. Reynolds, from Gunnersbury Park, Ealing, fruit of large size, great beauty, and finish, but mostly destitute of colour beyond tints of gold, as evidencing maturity. A southern climate told in favour of Mr. Reynolds in a season remarkable for the absence of sunlight, and the maturity shown in his fruit was absent from the collections which came further north.

I had some conversation with Mr. Crump relative to the striking colour seen in his Apples. He attributed it in great measure to the fact that free Crab seedlings are largely used as stocks for Apples at Madresfield Court, these stocks being raised from the pips of some well-ripened fruit of highly-coloured Apples, generally of the Pippin type such as the best cider is manufactured from, and that colour was transmitted from the stock to the scion. I may add, by way of parenthesis, that in a paper read by Mr. Crump, at the conference which followed the opening of the show, on the method of "Raising, Budding, Grafting, and Pruning of Apple Trees for Orchard or Estate Planting," Mr. Crump justified the use of these seedling free Crab stocks by stating that "the first and natural inclination of these seedlings is to strike straight

downwards with a tap-root which should, at the fall of the leaf, during the first or second season, according to growth made, be carefully lifted, the tap-root preserved entire, and replanted full length, but in a horizontal position, near the surface, the said tap-root being then young and pliable. Thus bedded early in the season, future growth of the stock will scarcely be interfered with, and an abundance of healthy fibrous roots will form throughout the entire length of the original tap-root, stretching nearly across the row, and securing the most desirable foundation for a future tree."

But to the matter of the presence of colour in Apples. It seems that though many fruit conferences are held, at which a great deal of attention is given to Apples, very little indeed, if anything, is mentioned in reference to colour. It may be said that after all colour is but a small matter, because an Apple inferior in quality may be richly coloured, while one destitute of colour may be of the highest flavour. The fact is we have come to associate flavour rather more with russety brown as in the case of Cox's Orange Pippin and Ribston Pippin, than in the case of the rich blood crimson of Worcester Pearmain. But seeing that writers are advocating the employment of Apple trees for shrubbery decoration, there seems to be no reason why we should not have rich colour in association with quality. What is the cause of colour in Apples? Is it simply a peculiarity of the variety? If so, what are the causes at work which make Worcester Pearmain to differ so widely from Golden Noble, and both from the French Crab or any other green-skinned variety? Has soil, climate, or position anything to do with the production of colour? I have looked in vain for any account of experiments made in this direction. If any are on record, I shall be glad of a reference to them. At Manchester I asked Mr. Bunyard's foreman if he thought grafting on the stock of a highly coloured variety would impart colour, but he appeared to think it would not do so. So it follows authorities may differ. Has anyone noticed peculiarities in the wood of trees bearing highly coloured Apples that may account for the brilliancy? The subject, though large, is an interesting one, and any flashes of light which can be thrown upon it will, I am sure, be welcomed by many.

R. D.

Fruit tree arches.—"H." (page 593), writing on fruit tree arches, speaks of "the cost of erection." This is not great. We have had a series of arches over a walk in this garden for many years with Plums, Pears, and Apples trained over them. The fruit ripens well, and the covered arches look so pretty, that we were led recently to put up a larger number of them at Oakwood By planting showy-fruited trees, such as Dart-

moath Crab and Duchess Favorite, on the first arches most in view, the effect should be good. Strong, high arches cost from 8s. to 10s. each, and may be 8 feet or 10 feet apart, so that a good long walk may be arched over for £10.—
GEORGE F. WILSON.

MANURING FRUIT TREES.

ALTHOUGH it is well known that to produce good fruit a judicious system of manuring must take place, yet in the majority of instances this does not appear to be acted upon. True, climate is answerable for a deal of the imperfections, but cracked and scurred fruit must not be attributed to this cause alone, but more often to the impoverished condition of the soil, and also to the want of healthy and active roots, the production of which a rational course of manuring largely promotes. Poverty of soil does not exactly tend to sterility, as generally the individual fruits may be plentiful enough, but nourishment to bring these to perfection in the majority of instances is found wanting. Obviously, however, the blooms from these impoverished trees are not of the healthiest description, for to produce blooms of a large size, comparatively speaking, well-nurtured trees are necessary, as with the flowers well developed in all their parts, naturally the fruits would be the same when they commence to grow. Often the fruits are injured by frost while in the embryo stage, and as they swell up, the injured parts expand in a like manner, and by the time they are fully grown they have such a scurred appearance as to cause a considerable depreciation in the general quality. There are no doubt thousands of old trees which would be considerably benefited by a judicious course of manuring, especially on those soils which are of a sandy or porous description. Without a due proportion of feeding roots—and the nearer these are to the surface, comparatively speaking, the better—the trees are not very quick in responding to the good things provided for them. Deep digging about the trees is answerable for the loss of more roots than any other cause. With some people this digging is carried out annually, no other reason being given than that of making the surface appear tidy by burying the weeds and other refuse. Wall trees are often sadly deficient of roots near the surface, from the practice too generally adopted of digging up to at least 2 feet of the wall, so as to make the most of border space for the production of vegetables. Not that the inferior quality of the fruit is solely attributed to this cause alone, as more often than not the soil about the roots is in a very impoverished state. In dry districts especially the soil about the roots and up against the wall is apt to become very dry, and the food within reach of the roots is of the most meagre description. The above being the case, I will now consider the best means of applying such so that it is placed where the roots will quickly avail themselves of the support afforded.

The manure may be applied in both the solid and liquid form, and although the latter will not exactly tend to the production of surface roots or active feeders, yet on open and porous soils where the roots do not feel the ill effects of deep rooting, as in the case of cold soils with a bad subsoil, the application of liquid during the winter months is much to be commended. In the fruit-growing districts of the western counties this is adopted with great success on Grass orchards, and during the winter season, on account of the roots being in a less active state, there need not be the least fear of applying the

liquid. The soil in these cases gets stored with food, and in the coming spring the opening flowers expand with renewed vigour, and the trees carry the fruit to maturity free from blemish—the exigencies of the climate, as before mentioned, having of course to be reckoned with. The surface soil should be pricked over with a fork and removed, placing the manure on the roots, afterwards replacing the soil. Pears on the Quince are particularly benefited by this plan, as I have every reason to believe, having adopted it some years since on trees which were rather celebrated at the time. The manure used was not worn-out stuff from old hotbeds, but good farmyard manure not too much decayed. The same plan was adopted with some fine old Marie Louise Pear trees upon which the fruit had become scurred. If I had the material, however, I would add a good proportion of well-burned garden refuse; this and the manure would undoubtedly prove of even greater assistance on open soils. This surface-dressing may well be supplemented by a soaking of liquid or sewage with marked benefit to the trees, be they Apples or Pears, especially so where growing against walls.

Only Apples and Pears come under the above system of manuring, as in the case of stone fruits such measures would be apt to favour grossness, unless for fruitful trees growing in orchards, and which may be subjected to periodical soakings of liquid where means are at hand for this being applied. This being the case, Plums, Damsons, and Cherries would derive marked benefit. On sandy or gravelly soils, which quickly become sterile, trees growing against walls, if of a fruitful nature, but the fruit of which does not become of good quality, are also greatly benefited by feeding. Instead, however, of applying solid manure alone, this with a good proportion of burnt refuse and lime rubbish from an old building will be the best means of affording nutriment without favouring grossness. Peaches and Nectarines must obviously be excluded, as these have a great dislike to solid manure or rich feeding of any kind, unless a soaking of liquid when the trees are in full bearing, and requiring some such assistance to perfect their crop, or a mulching during the growing season. If any kind of tree shows its dislike to having rich material placed in close contact to the roots, it is the Peach, gross shoots being the result. These, besides forming an unfruitful growth, become constitutionally addicted to gumming. It will be gathered from the foregoing remarks how beneficial to the well-being of fruit trees is a judicious system of manuring, and by so doing the fruit will become of large size, clear in the skin, and also of that full flavour peculiar to the variety when well grown. Y. A. H.

RASPBERRIES.

WHEN we consider the great value of Raspberries, and the many ways in which they may be used, it is surprising that they are not more cultivated, the more so as they are so easily grown, and so indifferent to the position they occupy, for though they do best in the open, they succeed well under the partial shade of Apple trees, and flourish alongside of low walls or fences, as there the roots are well supplied with moisture and the fruit then swells to a large size, and is fine. The best season for planting Raspberries is now, and to give them a good start the ground should be trenched or deeply dug, and have a liberal dressing of rotten manure worked in. The proper plants for forming a fresh plantation are the young suckers or shoots the old plants throw up around, and they should be carefully lifted so as to secure as many roots

as possible, as on that, success in getting them well and quickly established in a great measure depends. The way to plant is to strain a line and have a long rod lying by its side with the distances marked out on it at which the Raspberries are to go, 4 feet apart being sufficient for the moderately strong, but for those more vigorous and that make taller canes, 5 feet should be given. In planting it is better to have two persons to do the work, as then the operation is simplified and quickened, the one to dig the hole and put back the soil, and the other to hold the plant in position. The mode of manuring after planting is to leave the canes full length as they are till the spring, and then to cut them down just as they start to grow, as during the first year they should not be allowed to fruit, for if they do, they never break freely below. The ground may, of course, be cropped between with some low-growing subject, and thus utilised, but the canes should be kept clear that they may make short, sturdy growth. The best sort to grow is Superlative, a new Raspberry that bears very fine fruit and is remarkably free in cropping. So large and vigorous are the canes, that stakes are not required, as they stand without any support. Carter's Prolific is likewise a good Raspberry, and so are Fastolf and Baumforth's Seedling, while the double bearer should be grown by those who want fruit late in autumn. The way to treat old plantations of Raspberries now is to cut out all the old canes that bore during the summer, and then to select three or so of the strongest and best of the young ones at each stool, shortening them back to 3 feet and removing all others. Those left should be staked and tied at the top or supported in some other manner. The next thing is to clean the ground and mulch with rotten manure. Raspberries should never be dug amongst or the roots disturbed other than in the manner referred to. S. D.

THE PROPOSED INTERNATIONAL FRUIT SHOW.

IT is to be hoped that the proposed international fruit show this year will be carried out on different lines to the one held in 1890, which, though organised with the professed object of "increasing the interest of the general public in the cultivation of fruit in our homesteads and cottage gardens," failed to put that object before the public in its true light, the whole thing being enshrouded with a glamour that was altogether misleading. Here we had a show, principally consisting of hardy fruits, to encourage the planting of such, but the principal prizes were obtained by the aid of fruit grown under glass and with all the assistance that art could command. Is it possible that any but a very limited quantity of such fruit (which might be sold at a fancy price) could be sold at a profit or even made to pay expenses? If not, what use would it be to the cottager or farmer? For fruit grown under the system which is responsible for the production of the bulk of our home-grown Apples, viz., orchard culture, there was not a prize offered. Surely this was a grave mistake, which can hardly be explained away by the excuse that such a restriction would lead to dishonest exhibits. Apparently some improvement is needed in the way prize money is distributed. If prizes were more in number and less in value individually, there would be far less inducement for dishonest exhibiting, and the number of exhibits would be increased if there was a fair prospect of winning enough to pay expenses with a good, healthy, all-round lot even if it betrayed no signs of artificial fattening.

Another matter calling for criticism was the attempt made to grapple with the geographical or climatic difficulties. Granted that some division was advisable, the wisdom that placed, let us say, Norfolk or Suffolk in the zone which

contained such great fruit-growing counties as Kent, Surrey, and the adjoining counties, while Shropshire and Leicestershire were placed in the northern zone, scarcely commends itself to one's sense of fair play. Still, bearing in mind the object of the show, it might be thought that double the number of divisions would not have been too many to show the relative chances of success intending planters for profit might expect each in his own district, but even if three divisions were the most desirable, one would think that southern, midland, and northern would have been a better way of defining them, or that the half-dozen or so of great Apple-growing counties might have had a class to themselves and another could have been thrown open to the rest of the country. But whatever view may be taken as to any division of the country into districts, house-grown fruit should never be brought into competition with that grown outside. For those who care for such exhibits a class might be provided in which they could be shown in their true colours as curiosities, delightful perhaps to the eye, but insipid to the taste.

CORNUBIAN.

THE WEEK'S WORK.

ORCHIDS.

As soon as we get into the new year the anxious cultivator begins to look round to see what work requires doing in the way of repotting the plants; not that it is necessary to do any of this work at present, but where there is a large collection of plants and a good deal of repotting to do in February and March, some previous preparation is necessary. The pots must be in readiness, for the same pots ought not to be used again; indeed, many Orchids cannot be removed from the pots in which they are growing, except by breaking them in pieces. It is also desirable to look out in time for the best fibrous peat and Sphagnum that can be obtained. As the season advances, so much the more difficult is it to obtain good material; especially does this remark apply to the Sphagnum Moss. I lived in one place where we needed only to go out on the heath to gather as much Moss as we required, but in either case, whether it is gathered or purchased, it takes some time to pick it over. I have known a man take three days to pick over a sack of Moss, to get all the weeds, pieces of decayed and decaying Grass, &c., out of it, and such work as this can be done in wet or frosty weather. Another thing I always see to before repotting any plants is to make every one of them perfectly clean. If there is any suspicion of thrips, I dip the entire plant overhead in a mixture of soft soapy water and tobacco liquor. The plants are laid on their sides to drain the mixture from the leaves and bulbs without any of it getting into the roots. If any of the mixture comes in contact with the fresh-growing Sphagnum, the Sphagnum will be killed. In an hour or two after dipping, the plants should be carefully sponged over with rain water heated to about 90° or 100°. All the plants needing repotting should be seen to now that there is time to attend to them. Everything in flower should be placed in a position where the plants can be seen to the best advantage, and where they will last in good condition for some time. For instance, the cool Orchid house at this season ought to have a comparatively dry atmosphere, and now that the days are getting longer, 50° may be the minimum temperature, always allowing for a slight fall in very cold weather. Our house is well exposed to the north-east, and I find the continued keen winds blowing from that direction in the early months of the year very trying to the plants, especially when they are accompanied by a temperature much below the freezing point. There ought to be a considerable number of the paler *Odontoglossums* in flower, and they last a

long time in good condition if the house is kept at the right temperature and the atmosphere moderately dry. Some of the more richly-coloured *Masdevallias* may be in flower now, especially the deep fiery-red *M. ignea*. The variety *superba* is the best for winter flowering, and it is readily distinguished from any of the other forms by its peculiar habit of making its young growths much higher above the surface of the ground than any other form known to me, also by the larger size and decidedly darker colour of its flowers. A remarkable contrast to it is the odd-looking *M. polysticta*, which has numerous small flowers on a spike with a white ground. It is not beautiful, but interesting and attractive, because of its free-flowering character. The pure white *M. tovarensis* is now in full flower, and is so easily grown, that almost anybody can manage it. The plants will continue in bloom a long time in the cool house if the temperature is kept at 50°, but I find they pass through the winter best in the Cattleya house. The beautiful *M. Chelsoni*, the first garden hybrid of this genus raised in England, flowers usually very early in the year; it is richly coloured, and a very fine thing. I fancy it is better not to report any of the *Masdevallias* in the spring months, as many of them are either in growth or throwing up their flowers; we have usually seen to them in the late summer months. It is a good plan to surface dress any of them that seem to require it. The surface of the compost should be covered with healthy growing Sphagnum, amongst which the fibrous peat and potsherds can be seen here and there amongst it. A surface dressing of fresh material throws new vigour into the plants, and the roots run freely in it. If slugs are in the house, it may be desirable to place a circle of cotton wadding round the base of the stems of any choice spikes. It is better to trap the slugs, and continue to set baits of Potato and Carrot slices. Lettuce leaves and small heaps of bran are very attractive to them. The slugs are more destructive to the spikes just pushing out from the side of the bulbs than they are to them after they are well advanced, and some Orchid spikes are much more attractive to them than others. At this season the spikes of *Oncidium macranthum* are in course of development, and the young roots pushing freely over and amongst the damp surface Moss are both more attractive to slugs than any other vegetable production in the cool house. I usually place the plants of this species on an inverted flower-pot which has been placed in a saucer of water. It must be seen that the plant itself has no slugs in the Moss. The plants of *Sophranitis grandiflora* placed in small pans or baskets and suspended from the roof glass are out of the way of these troublesome pests, and they are now probably in flower. The plants must not suffer for want of water at the roots, because the small bulbs and leaves are likely to suffer if the plants are kept dry at the roots when they are supporting such proportionately large flowers. Any *Cattleyas* now passing out of flower should be kept comparatively dry at the roots. Besides *C. labiata*, there is also *C. Bowringiana* in numerous varieties; a few of them produce rather pale coloured flowers not very remarkable for beauty, but, on the other hand, some are of the deepest reddish purple; the plant is also so free in growth and the flowers are so freely produced, that even small growers should possess it. The varieties of *C. Percivaliana* are now pushing their richly coloured flowers out of the sheaths; there are poor varieties of this species, but the better forms are of exquisite beauty, the rich orange-yellow of the throat contrasts so well with the crimson labellum. It is interesting, too, to watch the development of the flowers of *Lælia anceps*, especially of the white varieties; we have none out yet, but it is quite as interesting to watch the growth of the buds to their perfect development as it is to enjoy the beauties of the perfect flowers. We report these plants as they pass out of bloom, and those that have not flowered, but have started to grow instead, should be placed in a light position near the roof glass.

J. DOUGLAS.

FRUIT HOUSES.

PROTECTING STEMS.—Where either Vines or fruit trees of any kind are planted in outside borders and a portion of the stem exposed, unless these are protected considerable risk of injury by frost will be run. While the sap is dormant frosts will not often injure the stem, but directly there is an upward movement a severe frost may freeze the sap hard, the expansion consequent being almost certain to cause a rupture of the sap-vessels. Although this may not end fatally to either the Vines or trees, the injury will be so severe, that several seasons may elapse before the recovery is complete; any way, it is advisable to be on the right side, and if not already done, no time should be lost in enclosing the stems in some kind of protective material. Heavily bandaging the stems with hay-bands is usually sufficient, though dry sawdust enclosed by boards or boxes would keep out most frost. The least that can be done is to mound up dry straw litter over and about the stems, and if the borders are not covered with heating material, these also ought to be protected.

FORCING ESTABLISHED VINES.—When ripe Grapes are required moderately early from permanent Vines, or say by the middle or end of May, forcing must commence at once. If the advice previously given has been acted upon, a thorough cleansing process will have already taken place, walls, woodwork, glass, and floors being attended to, while the Vine rods will have been scrubbed and dressed with insecticide. The roots of Vines, to be thus early started, ought to be wholly confined to inside borders, but if they are wholly or principally outside, it is advisable to warm the border with the aid of a hotbed of well-prepared stable manure and leaves, taking care, however, to watch this closely, as a sudden change from cold to warmer weather may lead to over-heating and injury to the roots in the border. Failing the adoption of this old-fashioned method of warming the outside border with a view to hastening root action, the forcing must be conducted slowly or with caution, or otherwise a loss of bunches, these changing to tendrils, may be the untoward result. There is no need to place hotbeds on inside borders, but a ridge of leaves and manure fermenting, and a part of it turned every day, would create a genial, moist and ammonia-charged atmosphere, this softening the buds and otherwise favouring an even and strong break. In addition, the rods, walls and floors should be syringed frequently, especially on clear days, and at the outset the temperature should range from 45° to 50°. Quite young rods or canes are apt to break somewhat irregularly unless given a sharp curve, the sap thus checked in its flow causing the back buds to break nearly as strongly as those at the furthest end from the roots. Older Vines do not require to be so treated, and all that is necessary in their case is to suspend them half way up the roof, allowing the upper portion to drop considerably, this depression sufficiently checking the too rapid upward movement of the sap.

PEACHES AND NECTARINES.—Unless wanted extra early, the first week in January is a good time to start forcing these, commencing with a night temperature of from 45° to 50° with an increase of from 5° to 10° in the daytime, accompanied with plenty of atmospheric moisture and overhead syringings once or twice during the early part of the day. While cold, frosty, or dull weather lasts, forcing must be slowly conducted, an excess of fire heat being apt to unduly forward the wood-buds at the expense of the flowers, these being greatly weakened accordingly. When the flowering period is reached the temperature may safely be increased 5° all round, discontinuing overhead syringing, if not altogether for a time, at any rate on dull days. If flowers are plentiful and pollen abundant, the fertilisation of the former may be effected by simply smartly tapping the branches, this being done every morning towards midday, or directly the pollen grains are sufficiently dry to distribute readily. In the case of the large-flowered or shy-setting varieties the impregnation

should be carried out with the aid of either a camel's-hair brush, or, better still, a rabbit's tail fixed to a long stick.

EARLY MELONS.—Plants raised very early in the year are apt to become very spindly and weakly, but if extra early fruit is desired, a few seeds ought to be sown now, the plants obtained being eventually fruited in moderately large pots, later raised and much stronger plants being planted out on mounds or ridges to give the requisite succession of fruit. Eastnor Castle, Victoria of Bath, and Blenheim Orange are among the quickest to give ripe fruit, and seed of these or any other variety that may be preferred should be sown either singly or two in each 3-inch pot, filled with loamy soil, the weakest plant being eventually removed. Seeing that new seed germinates the most strongly, this ought to be sown as much as possible, the plants obtained from very old seed especially frequently being much deformed and always weakly. Plunge the pots in a brisk bottom-heat and be careful not to saturate the soil. When the seedlings appear look out for slugs, and support the former with light stakes, keep them on a hotbed and in a light position well clear of stove plants, for fear of any insects that are apt to infest these. When the small pots are well filled with roots give the plants a shift, using clean, lightly-drained 6-inch pots and a fairly strong loamy compost, well warmed through, and pot moderately firmly. When they are growing strongly, and before becoming badly root-bound, give the final shift. Melons from the first delight in a rather high temperature. **PRACTICAL.**

THE KITCHEN GARDEN.

SEAKALE.—Weather permitting, any Seakale crowns needed for forcing may well be lifted, as they will not take the least harm if laid in a cool shed and covered with any old mats. A good part at any rate should be so lifted, so as to be at hand for putting in to force. Care must be taken during lifting to injure the thong-like roots as little as possible, as it must be remembered that the longer the cutting is in reason, the better will it be for forming a strong crown during the first season.

FORCING SEAKALE.—This will now force readily, darkness and a fairly warm temperature being the necessary essentials. Subjecting the roots to a high temperature causes the growth to be spindly, and there is also not the weight of produce there otherwise would be when the growth is forced steadily. I have frequently advised the importance of providing a stock of Lily White, as with me it is satisfactory in every way, the produce being very white and the quality first-rate. Even when the older kind is forced in perfect darkness the stems have a purplish tinge, but with the variety in question there is not the faintest tinge.

RHUBARB.—This may now be forced readily, and there need not be the slightest trouble in keeping up a supply where the necessary roots are forthcoming. In a corner partitioned off in a warm plant house, a warm cellar, or the Mushroom house proper, where such a structure is available, the roots force readily.

FORCING LETTUCES.—It will now be seen whether that best of all salading, *i.e.*, young and tender Lettuces, will be likely to be short during the early months of the year, as without such to fall back upon, the salad materials will not be very tempting. Where the practice has been adopted of sowing in a frame during the month of October one or more of the early forcing forms, of which we may take Early Paris Market as a type, some useful-sized plants will now be forthcoming for planting out on a gentle hotbed, where, if carefully tended, young Lettuces fit for cutting will not be long in turning in. A three-light frame will accommodate a good number of plants. The bed should be formed of well-worked fermenting material, consisting of equal parts of leaves and stable litter. As the beds are apt to lose heat rather quickly if

a cold term should set in, bank up the sides with litter if necessity requires that this should be done.

GROWING LETTUCES IN BOXES.—Young Lettuces may also be forwarded in boxes, such as are used for cuttings, by placing them in a gentle warmth, such as along the front of an early vinery or Peach house. Box-grown plants, even thus early in the season, will be found most satisfactory where other conveniences for growing on the plants are wanting. Do not crowd the seed in a pan, but allow it ample space in a box. For immediate use, Lettuces for cutting may be had by sowing the seed of one of the Cos varieties rather thickly in boxes, cutting over the seedlings in the same manner as Mustard and Cress. This plan answers for a special time or two, but the produce is rather bitter. It is better, however, to adopt such a method than be without. I have been enabled to cut good Lettuces from the open up to within a few days of Christmas, frame-grown plants now coming in useful, but I shall not fail to make further provision by growing some on for boxes. **A. YOUNG.**

PLANT HOUSES.

THE FORCING PIT.—As it pertains to flowers this will now require to be well stocked. I am not an advocate for extremely early forcing when it is so comparatively easy to have a good supply of flowers in their more natural season. With the turn of days, and every hope of more favourable weather, all kinds of plants and bulbs which are usually forced early can be reasonably expected to advance into the flowering stage with better and more enduring results. The mistake is made in many cases of starting in too much heat at first, when the same method is still carried on until in full bloom there is a lack of substance in the flowers, which with a little forethought might have been avoided. A moist atmosphere is most essential, particularly for such plants as Azaleas, Lilacs and Deutzias, and bulbs of all descriptions. These last should be well looked after to avoid the growth being drawn up weakly. Hyacinths should be kept up close to the glass; so should Tulips and Narcissi. Other things, as Lilies of the Valley and Spiræas, will come on all the better in bottom heat, particularly the Lilies; in fact these should not be attempted if bottom-heat cannot be given, as in the case of the single crowns, which ought still to be depended on rather than clumps. Those plants above mentioned should be well moistened overhead at nightfall and again the last thing if a damp atmosphere cannot be maintained. Continue to introduce those Azaleas into warmth that are naturally early-flowering; plants that have been forced early in other seasons should be chosen if well set with buds. The imported Lilacs, as Charles X., are the best for use as pot plants; larger and home-grown ones can be chosen if cut bloom is the main object. Those Deutzias and Guelder Roses should be first selected that are known to be thoroughly well established in their pots; without this essential aid the results will be poor. A gentle bottom heat for all early-forced shrubs is a great assistance. For this purpose I prefer leaves only; these when well moistened daily upon the surface give off a genial moisture that greatly assists vegetation. In providing bottom heat, however, I counsel that no excessive heat be given, otherwise more harm than good will follow. Even if the heat in the leaves is not more than 65° or 70° a great assistance will be rendered, as much probably from the evaporation as from the warmth itself. A higher temperature than 80° should not be permitted; therefore manure added to the leaves is not advisable. As the plants are coming into flower it is better to remove them to a rather cooler house where the moisture is not so great.

It is hardly advisable to place any of the hardy Rhododendrons in warmth yet; sharp forcing does not prove satisfactory with these, the trusses not opening out so well in most cases as one would desire. For early flowering it is best to depend upon such as *R. Nobleanum*, which is naturally a

very forward variety; this will, when well established in pots, continue to do good service from year to year. Another excellent kind is Early Gem, a very compact-growing plant, and one that also produces a profusion of its lilac-coloured blooms in small trusses. Established plants of these Rhododendrons, if they do not yield such a good supply in after seasons as when first potted up, will at any rate develop their trusses much better and come into flower earlier. *Kalmia latifolia* should not be forced yet, and it will be just as well to postpone for a few weeks longer such as *Spiræa confusa* and *S. Thunbergi*, also *Staphylea colchica*. *Hydrangea paniculata grandiflora* for forcing should be well established if started early. This variety of *Hydrangea* should be pruned hard back, just as one would treat newly-planted dwarf Roses; from four to eight shoots will then push up, according to the strength of the plant, and produce good heads of bloom in due course. It is a mistake to treat it otherwise, as a host of small shoots will result in but little or no flower. Of early Hyacinths, those should be first chosen that are known to force well; such, for instance, as *L'Ami du Cour* and *Homerus* of reds; *Norma* and *Gigantea* of pinks; *Grand Vedette* and *Princess Beatrice* of whites; and *William I.* and *Grand Vedette* of blues. Where the Roman and early Paper-white or early Snowflake *Narcissi* are over (as they may be), the next to follow might be the Chinese Sacred *Narcissi* or *Joss Flower* and *Soleil d'Or*. The hardy *Daffodils* can also be brought on steadily now if well rooted; besides the common variety, which is useful, there are such as *princeps* and the *Tenby Daffodil* or *obvallaris*. *N. Bulbocodium* should not be overlooked; it is one of the best, as it flowers in pots freely and lasts well. These *Daffodils* should not be forced hard, or the result will be a good crop of foliage only. The first of the American *Tuberoses* should now be potted up and started in a gentle warmth, a little bottom-heat being a good assistance to root action. These should afterwards be brought on in batches, a few at a time being better than a quantity with a break between of considerable length. Guard against too much moisture at the roots until a good number of roots is formed. The African-grown bulbs, if potted up early in the autumn, will now be fit to push forward in a brisk heat. A batch of *Gladiolus The Bride*, if potted up now, will flower in good time; these should be kept cool until a good amount of roots has been made.

J. HUDSON.

STOVE AND GREENHOUSE.

BERRY-BEARING PLANTS.

DURING the present month there will be found appropriate uses for these in various forms and sizes. When the plants have been well cared for during the growing season, the berries in most instances will now have arrived at perfection, *Aucubas* excepted. The failure with berry-bearing plants occurs more often than not in neglecting their particular needs during the early spring and summer. Thus, for instance, *Solanums*, the best plants of which are raised from cuttings rather than seed, should be struck in good time, be potted off before they are drawn up weakly, and then be grown on in plenty of light in a temperate house. The point to aim at in these plants is to obtain a good plant as early in the summer as possible, so that the stock can then be exposed to all the light and air which can be given. Pits during the warm weather will suit these plants well, with the lights off on all favourable occasions. Thus treated, a close and stocky growth will have been obtained by frequent pinching up to the middle of June, when the plants must be allowed to flower. As soon as a sufficient quantity of berries has set, the plants should again be stopped, so as to assist the fruit in swelling

to a good size as speedily as possible. After this the plants will be greatly assisted by manure water or an artificial manure. Red spider and fly may be troublesome, but both may be kept under by ordinary precautions. When the berries begin to change colour the plants should be removed to a light and airy house with a little warmth in the pipes if possible by day, but not necessarily so at night. These plants another season will make large ones for grouping in conservatories by pruning them about the same time as the Fuchsias, not, however, repotting, but later on towards the end of May they should be shaken out and planted out of doors in a sunny spot. The object of shaking off the soil is to keep the roots at home and to facilitate repotting in the autumn. This should be seen to about the middle of September, the plants being put into as small pots as possible without injury to the roots. The best guide in this respect is to see that the pots are not in any sense out of proportion to the plants in point of size. These potted-up plants must not be kept close after this work is finished, otherwise a fungoid growth will often appear upon the foliage, very much disfiguring it. With a little air and frequent syringings overhead, and plenty of water at the roots, these plants will quickly re-establish themselves. Thus both the large and the small plants will in private gardens be useful in various ways when well berried. Seedling plants grow too strongly to be of much service the first season as compared with cuttings. These berry-bearing plants are very convenient for standing in places where more choice ones would possibly receive injury that is not easily effaced. The ordinary variety of *S. capsicastrum* (usually grown) is about the best; the smaller berried and dwarfer form is very distinct and pretty, being useful in a small state.

ARDISIAS.

The *Ardisias*, when well grown, are distinctly ornamental plants, but more often than not they are but sparsely berried. To grow these plants well they should be kept in the stove, or at least in an intermediate house. Their chief enemy is scale or mealy bug, both of which soon make the plants in a filthy state. The plants can, however, be cleaned easily, compared with some things, by a frequent use of the syringe and a reliable insecticide. The best way to raise a stock is from seed; the young plants in this instance will not grow any too strongly. It will take about two years to obtain a good-sized plant with its first crop of berries ripe; this may be considered very good work. When carefully treated, these berries will remain upon the plant until the next crop another year is ripe; thus, with two whorls of small branchlets, each laden with fruit, a very good effect is obtained. For the first year 3-inch pots will be quite large enough—in fact this size will suffice for nearly eighteen months if good soil and proper attention have been the rule throughout. The plants should not be shaded in common with most stove plants, but be kept in a light place and as near to the glass as possible. The second shift should only be into pots one size larger, the soil being of a loamy character. No stopping of these plants is needed, the central growth is the main feature; all suckers or side shoots other than the berry-bearing ones, which are easily recognised, should be removed. Plenty of water is needed whilst the plants are active, whilst a moist place will be better than too dry a one. The best kind is *Ardisia crenulata*, with scarlet berries, and *A. crenulata alba* with ivory white ones. I have tried *A. mammillata* with considerable patience; it is now berry-

ing very well, but the plants, although now more than two years old, are still too dwarf to make a good show; probably another season will see it in better form. Its hirsute foliage is quite distinct from that of the foregoing variety with its glossy leaves. *A. macrocarpa* is a much stronger grower with larger berries than the *Solanums*, but is not, on the whole, so useful. *A. polycephala*, from the description given of it, should be quite a distinct species.

CAPSICUMS.

The ornamental-fruited varieties of the *Capsicums* deserve more attention than they often receive as decorative plants. It is a mistake to sow the seed too early in the spring, the end of March or early in April being quite soon enough. There will thus be more room in most cases as the plants increase in size. Heat and moisture are the two chief agents in bringing these plants to perfection. A very good place for them is the shelf in a Pine stove or pit where they can be near the glass. The best plants I have seen were grown in such a house (a three-quarter span), the shelf at the back being just the place for them, the extreme exposure to the sun's rays being thus avoided, with less fear of spider. The back shelf of a stove house of the same shape I have found to suit them well. A Melon or Cucumber house will also suit them, but too much shade must be guarded against. Too large pots should be avoided, those of 4½ inches diameter being large enough if the plants be well supplied with water and stimulants. Good loam will grow *Capsicums* well. Rich soil is not needed, else the growth will be too strong before the fruits are set. The best kinds to grow are Prince of Wales (with fruits of a bright canary-yellow and of the size of Cob Nuts), Williams' Little Gem, and Sutton's Coral-red Chili. The two last are showy, compact-growing varieties, which produce their berries very freely, being alike ornamental and useful.

RIVINA HUMILIS

is a quick-growing plant which will produce a good crop of berries the first season when well cared for. I have found it to do best in a stove temperature, but it may be grown in a moderately warm house. It looks best when the plants are about 18 inches in height; the growth then should be vigorous and capable of producing an abundant crop of long, Currant-like racemes of bright scarlet berries. These do not remain any too long upon the plants, but the succession is good, and thus an effective display is made. Plants when at their best look well upon the dinner-table, being very light and elegant. Three plants grown together in one pot make a better show; being of slender growth, this is not any too much. It is not difficult to keep up a succession of plants, seedlings coming up freely enough wherever the seed has the least chance of germinating.

ORANGES.

Dwarf plants of Oranges with ripe fruits upon them are at the present season of the year both ornamental and interesting. These plants, however, require careful attention. It is not easy to accommodate them in private gardens so as to bring them to that state of perfection in which they are seen where everything is in their favour from the time of propagation. Having once obtained these plants whilst in a dwarf state, every effort should be made to retain them in good condition. The culture does not vary from Orange culture in general beyond the fact of its being safer to keep the plants always

under glass, not in too dry an atmosphere or where exposed to much draught; a temperate house is about the best place for them with light shade in hot weather. PLANTSMAN.

LUCULIAS.

I was pleased to see in your issue of December 19 (p. 558) an account of *Luculias* at Kew. When the culture of *Luculias* is thoroughly understood and the plants seen at their best, with their numerous Hydrangea-like heads of deliciously sweet-scented rose-coloured flowers, they are noble-looking objects. Unfortunately, the flowers do not last long in a cut state. *Luculias* succeed best when planted out in a suitable position in a warm greenhouse or conservatory. I would recommend that they be planted out in good light loamy soil. They can be grown and flowered in pots, but I always found they succeeded best when the pots were plunged in some material such as cocoa-nut fibre, or even double potted, the space being filled between with the cocoa-nut refuse. The roots of these plants, in fact the whole plant, seem very susceptible to sudden changes. Watering at all times requires considerable judgment, especially so if in pots. Another great matter is ventilation. Many subjects are killed by over-ventilation, or rather what is sometimes called ventilation; let these plants be placed in a cool current, and mark the results. I agree with what your correspondent says on the subject of pruning. But when he recommends that *Luculias* be kept dry from the time of pruning until started into growth, I must certainly differ from him. Their roots are very tender and hair-like, and over-dryness must prove fatal to such tender-rooting Evergreens. Many valuable plants are yearly lost through being kept quite dry. I can understand keeping plants moderately dry during their resting season, especially so at pruning time; this is in many cases the right method. Cuttings root with difficulty, but why import seed? If a few flowers are fertilised, they will yield an abundance of good seed, which if sown as soon as ripe, will quickly germinate and form nice little plants. I have raised hundreds in this way, but few of them will bloom until the second year, and, strange to say, the colour of those seedlings is almost to a shade identical with that of the parent. I thought, and still think, it is possible to obtain some highly coloured forms of this deliciously sweet-scented shrub if it be taken in hand by someone who has the time and means at his disposal.

Nostell Priory Gardens, Yorks.

J. E.

POTTING UP HARDY PLANTS FOR DECORATION.

WHERE there is a great demand for various kinds of plants in the house, more use should be made of such as are hardy, thereby relieving the pressure unavoidably put upon such as require to be kept under glass all the season round, or at any rate for a greater portion of the year. Belonging to this description of plants are several with ornamental foliage. Of these the variegated Maple (*Negundo* (*Acer*) *fraxinifolia albo-variegata*), the old silvery-leaved variety and the newer one, *aureo-variegata*, are both very useful, remaining in good condition for a considerable time when permanently established in pots. The older form is indeed a very excellent pot plant, with its leaves so profusely variegated. For using in rooms or any place that is comparatively dark, this variegated Maple produces a capital effect, particularly when associated with light fine-foliaged plants, as the feathery Palms or *Bambusa gracilis*. These Maples should be potted up now, first pruning the roots so that the plants can be put into fairly small pots, then potting in good mellow loam and a little leaf-soil. After this the plants themselves should be moderately pruned, so as to bring them into something like shape, bearing in mind that rather tall plants will be more effective than dwarf bushy ones. Various sizes can of course be chosen from plants 18 inches to 2 feet in height up to 4 feet or 5 feet, but all could be turned

to a good account in their time and place. By this pruning a better plant will be formed than that left unpruned, the tendency often being to break away at the points of the shoots instead of making back breaks; thus the plant soon becomes lean and bare. It will also act in accord with the shortening of the roots to accommodate the plants to the pots. If these plants are needed earlier than they would be fit, if still left out of doors until the growth commences in a natural manner, it is very easy to bring them on gradually in a Peach house at work, or any other place where the heat is not excessive. A good companion to this plant is *Prunus Pissardi*, it being readily adapted to the same purpose, looking best in light positions, however, or in rooms that are decorated in light colours. It is amenable to the same course of treatment, and will, like the Maple, bear pruning every year if it is desirable, such as when the plants have attained to the full size for the positions they occupy.

Other splendid plants are the beautiful fine-leaved varieties of *Acer palmatum*, as *A. p. dissectum*, *A. p. atropurpureum*, *A. p. elegans purpureum*, *A. p. laciniatum*, *A. p. palmatifidum*, and *A. p. sanguineum*. Having used these plants, I can speak of their utility from small plants upwards, particularly for the conservatory. These are usually sold in pots; all that is needed, therefore, in this case is to give them a shift as may be necessary. The variegated forms of *Cornus* (Dogwood) would also be serviceable, as well as being hardy plants. Small ones also of *Hydrangea hortensis* variegata are very effective, particularly in the fronts of groups. Of evergreen plants, the golden and silver *Euonymus* will be exceedingly useful in various sizes. Take, for instance, *E. radicans* variegatus; as usually seen it is procumbent. Train a good strong shoot upwards and form a small standard, and it will develop quite another character with much larger foliage. The *Veronicas* should receive more attention, both as foliage plants and for the sake of their beauty when in flower. A first-rate and very enduring pot plant is *Andromeda floribunda*; when it is coming into bloom it will last a long time in unfavourable positions. The *Aucubas* are not in any sense to be despised either for their foliage or berries. The *Bamboos* should be grown more as pot plants when large spaces have to be covered or frequent changes made. These are all useful, but the smaller-leaved varieties, both tall and dwarf, are the most preferable, *B. gracilis* being one of the best of the tall growers, and *B. Fortunei* variegata of the dwarf kinds. *Arundo Donax* variegata, *Carex riparia* variegata, *Elymus glaucescens*, *Gymnotherix latifolia*, *Iris pseudacorus striata* (a very distinct and useful plant), *Phormium tenax* and the variegated sorts (not quite hardy) can all be turned to good account, with the knowledge that they do not want a lot of coddling to bring them round after having had rough usage for a time. Such things as the *Retinosporas* will do good service in pots, particularly the golden-tipped forms; so also will the varieties of *Cupressus Lawsoniana*, any of which would be handy, particularly for corridors, lobbies, and such like places where choice tender plants in the winter months would inevitably suffer. *C. Lawsoniana lutea* should be particularly noted as one of the best of all the forms. The smaller growing *Junipers* could also be turned to a like purpose, particularly the upright growers. In the case of all these *Conifers*, after one season's use the better way would be to plant them out and have in a fresh lot. The same plan could also be followed with anything else when needed save in the case of the deciduous shrubs; these would continue for a few years to do a good turn either by re-potting or top-dressing them. In the summer when not required the better way is to plunge in a bed of coal ashes; there will thus be less danger of suffering at the root. When potted up now, the same course should be followed as a safeguard against injury from frost if not immediately required in any particular case. J. H.

Vriesia brachystachys.—Among the numerous *Bromeliads* mentioned on p. 557 I did not notice

this pretty free-flowering *Vriesia*, which in addition to the specific name of *brachystachys* is also known by that of *psittacina*, while *Tillandsia carinata* is another synonym. It is now and has been for the last month in full bloom, while under favourable conditions it may be expected to retain its brightness of colouring for some time, as by far the showiest portion of the inflorescence is not the flowers themselves, but the comparatively large boat-shaped bracts which subtend them. These bracts, which are arranged in two opposite rows on the upper part of a stem not more than a foot high, are at the base of a deep bright crimson colour shaded with purple, which gradually merges into the orange of the upper part. The flowers themselves, which do not last long, are bright yellow, but as they protrude only a little way beyond the bracts, at no time are they particularly conspicuous. The plant is of easy culture, while the neat bright green foliage renders it ornamental at all seasons.—T.

TREE, OR PERPETUAL FLOWERING CARNATIONS.

THESE have now become an almost indispensable adjunct to every garden. A lover of the Carnation with whom I had some conversation at the exhibition of the Carnation Society remarked to me that he found no difficulty in obtaining Carnation blooms in summer; what he wanted to know was how to obtain them in the winter. As I write these lines the earth is frozen hard, and the only flowers before the intense frosts set in that we could cut in the open garden were the Christmas Roses, and very beautiful they were. It is needless even to dream of Carnations in winter without the aid of glass, although some persons suppose that they may be had. There may be a few favoured localities in England and Wales where Carnations may be gathered in winter, but they cannot in most of the districts where Carnation flowers are wanted. I lived in a favoured district in Scotland many years ago, and can well remember the Carnations of this type being planted against walls where they produced their flowers very late in the season, but seldom into the winter, although I would not say that in mild seasons it might not happen occasionally. The number of Carnation growers increases year by year, and one cannot say that many of them take pains to obtain satisfactory results. I not unfrequently meet with a person who fancies that the summer-flowering Carnations and *Picotees* should produce flowers in winter, and innocently inquires how it is to be done. It really cannot be done, for we must depend upon the Tree Carnations for our winter flowers. Wherein do they differ? is a fair question for the uninitiated to ask. They differ very materially from the summer-flowering varieties in the character of their growth. The ordinary border varieties usually produce a central flower-stem, and at the axils of each leaf flower-buds are formed, which produce blooms smaller in size as they are found nearer the base of the stems. The Tree Carnation produces growths from the axils of the leaves, and these if allowed to grow will in time produce full-sized flowers, and the stem will branch out again until it takes quite a branching form; hence the name of "Tree Carnation;" and as these branches in their turn produce flowers at various seasons as the branches are formed, they take the name of "perpetual." We take the first cuttings about the first week in the new year, and a succession of them until March, the reason being that we obtain smaller plants from the late cuttings which usually flower later. They are easily propagated from cuttings, being in this respect also different from the border varieties which are propagated by layers in July and August.

The cuttings strike freely with other things early in the year in a propagating house with a little heat. They must be grown on (when the cuttings are rooted) in small pots and inured to the open air by the end of May, for all these Carnations grow into the best specimens when cultivated out of doors. The earliest flowers will be produced in September, just as the summer-flowering varieties are passing out of bloom. When I say they are easily cultivated, it must not from this be implied that the plants will grow or flower in any kind of potting soil, or that they may be left in the small pots until they are pot-bound. Our plan is to repot them as soon as it is seen they need it, using for this purpose a mixture of about three parts loam, one of fibrous peat, one of leaf-mould and one of decayed manure, to which has been added a small portion of coarse sand. It is necessary to drain the pots well in which they are to flower. Tree Carnations must be carefully attended to as regards watering. In summer they may be exposed freely to the full glare of the noonday sun, but they must not be allowed to become dust-dry, for this would give them a serious check. They are also liable to be drenched by excessive rains, which harden the surface soil in the pots, causing it to form a thin cake impervious to the action of air, and the water applied subsequently does not pass away as it ought to do by soaking into the soil freely; therefore it is well, as soon as the soil dries after a heavy downpour, to stir up the surface in order that the water may act over the entire mass of roots. Good flowering plants may be had in pots from 6 inches to 8 inches in diameter, and as soon as the plants are in bloom they must be protected under glass, and those with flower-buds must also be placed with them, as the flowers open most freely and perfectly in a light house with a minimum temperature of not less than 50°. The plants grow freely and flower well in this temperature, and the nearer they are placed to the roof glass and the more light they receive the better. A damp, close atmosphere is not congenial to them; it causes a rapid growth, but not a healthy development of leaf and bud. A damp, rather close atmosphere in winter with a growing temperature may cause an apparently rapid growth, but it is not so in reality, for the flower-buds will not develop well, nor will the blooms be of such good quality. Many of the early introduced Tree Carnations had a particularly bad habit of running up with long slender stems to a great height, and they were in the majority up to the time that a very distinct variety of French origin was introduced, named *A. Alegatière*. This is quite a dwarf form, producing flowers freely on plants a foot or 18 inches in height, but the blooms, though of a bright scarlet colour, are not well formed. Since the advent of *A. Alegatière*, more than ten years ago, many really good varieties with better formed flowers have been obtained, but with the same dwarf habit. *Winter Cheer*, for instance, is an exceedingly good variety, with superbly formed flowers of a bright scarlet colour. *Mme. Carle* is a fine white form. *Miss Joliffe* is still one of the best pink or rose-coloured varieties; it has been in cultivation for many years. *Niobe* we also grow; it has carmine flowers which are very pleasing and sweet. *Juliette* is a good rose-coloured variety, the flowers of large size. *Mrs. Llewellyn* is also rose or pink of a deeper colour and with larger flowers than *Miss Joliffe*. *Andalusia* is a pale yellow with prettily fringed flowers which open freely in winter. *Purity* and *Mrs. Moore* are both good white varieties, the latter being the more desirable of the two. There are doubtless other

good varieties in cultivation, but the above are what we grow and find valuable for our purpose besides being varied in colour.

J. DOUGLAS.

Hæmanthus tigrinus (*S. N. Luton*).—I am glad to hear of this plant again; it shows that the genus has not been discarded. I recollect some forty years ago this used to be grown largely for blooming during January and February. Your temperature is about right—rather low at night perhaps. The plants require to be grown well, and after they have lost their leaves and gone to rest the bulbs should be kept dry; in fact they should be turned out of their pots. They should be grown in sandy loam.—W. H. G.

Psychotria jasminiflora (*J. B. C.*).—This plant should be at rest now in a cool house, but not by any means a cold one, or the beauty of the evergreen plant will be lost. Neither would you have it flower in due season. You say it never flowers, and I should be inclined to think you never get the wood ripe. It should not be allowed to grow again soon after resting. In this way the plant never gets a thorough rest after its growth is finished in autumn. The plant should bloom all through the spring months. Loam, leaf-mould, and peat, made sandy, suit it best. If you grow it well and rest it properly, you may succeed another season. I have never experienced any difficulty with it; in fact it has always appeared to me to be very free-flowering. It is sometimes known as *Glonera*.—W. H. G.

The variegated Pine-apple.—This ornamental-foliaged variety (*i.e.*, the best form with pendulous growth, not the other with a stiff erect habit) frequently matures its fruit in the autumn and early winter season. Every care should be taken of the crowns, for these make by far the better plants. I have known these crowns to be duplex; in one instance I took as many as eighteen nice young growths from one fruit alone. I think, however, that this is a rare occurrence. Every one should be saved, so also ought the gills where any push forth from the base of the fruit. Suckers, too, will be useful to keep up the stock. I remember some years ago seeing a beautiful lot of dwarf, well coloured little plants that were being grown suspended from the roof in a stove. This struck me as being the best way to treat this Pine-apple whilst of medium size. Overpotting must be guarded against, only a little soil being allowed until roots are active, then a bare shift may be given. These will then as soon as established make excellent table plants.—H. G.

Acalyphas.—The value of this quickly growing, high-coloured race of plants does not seem sufficiently well known. The rich tints of the leaves are extremely showy under artificial light. For associating with light-coloured plants, as *Caladium argyrites*, *Pandanus Veitchi*, and *Eulalia japonica variegata*, or even with Maiden-hair Ferns, they are peculiarly well suited. Plants of these *Acalyphas* present the best appearance when grown upon single stems and from 1 foot to 2 feet in height. When used in rooms they are seen to the best advantage if kept low, so that the plants are looked down upon. They should not be stood in dark places unless with either of the other plants alluded to; the more light that is thrown upon them the better will they look. They will grow well under the same treatment as is accorded to *Crotons*; heat with plenty of sunlight and moisture, both atmospheric and at the roots, will soon develop freshly struck cuttings into serviceable plants. The flowers are not at all conspicuous; they might remind one of those of the Nettle. These plants belong to the *Euphorbiaceæ*, although they have not much in common to lead one to that conclusion. There are at least five varieties worthy of culture; these are *Acalypha tricolor*, which has been cultivated longer than most kinds, *A. musaica*, *A. marginata*, *A. macrophylla*, and *A. Macfeeana*. The predominating colours are bronzy green and crimson, russet

brown, orange and dull red. A young stock should be raised every spring, as in the case of the *Coleus*.—H.

SHORT NOTES.—STOVE AND GREENHOUSE.

Pentas carnea.—How seldom do we see this grown in quantity, and yet it is one of the freest winter-flowering plants we have. The flowers, produced in a compound umbel, are waxy white, with just a tinge of flesh colour. It was originally introduced about fifty years ago. It will grow in any moist stove, and should be potted in a mixture of light loam, fibrous peat, leaf-mould, and sand in about equal parts. There is also a variety of this named *rosea* with rose-coloured flowers.—G.

Hedychium (*S. M.*).—These plants will naturally be at rest now. They should be allowed to remain thus until the end of January or February, when they should be shaken out, divided if you will, and repotted. During the growing and flowering season *Hedychium* requires abundance of water. The white kind is in all probability *H. coronarium* or *H. maximum*, and the yellow-flowered perhaps *H. Gardnerianum*. Being natives of the East Indies, they require to be grown in the moist stove, but about the time of flowering they may be removed to the conservatory.—G.

Gesneras (*M. M.*).—These plants, if they have been properly rested, should be started early in January, and for a succession of bloom start another lot towards the end of February and another lot in the month of March. *G. zebrina* and *G. cinnabarina* are useful for flowering now and through the winter months. These should have been started in the month of August. They should be potted in a mixture of peat, loam, and leaf-mould in about equal parts, adding sufficient sand to make the whole feel gritty, and be grown in a hot stove and near the light. *Gesneras* like a good supply of water to their roots, but I do not like to sprinkle them overhead, as this spoils the appearance of the beautiful velvety leaves.—W. H. G.

FERNS.

DROOPING FERNS.

UNDER this head may be included many most desirable Ferns which for the ornamentation of a fernery or plant house are decided acquisitions. They can be grown in pots very well, but unless elevated above the level of vision, they are not seen to the best advantage. Upon slender pedestals or as bracket plants against a wall they display their attractive features. In most instances, however, the best effect is gained when planted out sufficiently high for the long fronds to hang down gracefully. Seen thus when in good sized masses they are quite a feature either in a fernery or upon the wall of any plant house. Many also are peculiarly adapted for basket culture; when thus grown and of good proportions, they are fine ornaments in a conservatory, producing an effect not easily obtained by other means. Belonging to this category are the following, most of which are free-growing kinds:—

GONIOPHLEBIUM SUBAURICULATUM is one of the finest of its genus, producing under good cultivation fronds from 5 feet to 6 feet in length, or even longer when the plant is an extra strong one. Such a plant with numbers of its elegant arching fronds is a fine feature in a large house. During the summer a conservatory or temperate house will suit it well, but during the winter it should not have a less temperature than 50° at night. Thus grown it will retain its fronds; whereas if in too cold a house, it would not do so. When the fronds are plentiful and extra tall vases have to be filled with foliage and flowers, a few of these fronds will give a splendid effect. At the international show held in Edinburgh in September last a finely grown plant of this was shown in one collection. When it is grown in a stove temperature the fronds will come even longer than above mentioned. *G. verrucosum* somewhat resembles the foregoing, but

has fronds that are broader and longer in the pinnae, but generally shorter as a whole. *G. appendiculatum* has shorter fronds with a reddish tinge upon the veins, which gives it quite a distinct appearance. It will grow well in a temperate house.

NEPHROLEPIS DAVALLIOIDES is one of the finest of its family. To see it in perfection it should have plenty of room to grow and extend itself; then, when well established, it will put forth stems of great length, sometimes as much as 6 feet long. The smaller fronds do not display its beauty to such a degree, but with more vigour and greater length the fertile portions become more finely divided in the pinnae and longer, these being very beautiful and of elegant drooping habit. This Fern is best suited for planting out upon rockwork at a good height. It will grow and extend itself, clinging to rockwork or other material without any soil as long as there is sufficient moisture to sustain it. In a pot it should be kept at a good height to show off its true character. *N. exaltata* is a comparatively common species. It is a very free-growing kind, and one that is admirably suited for growing upon a good stretch of wall where there is not much room for soil. It will acclimatise itself to positions where it has little but the bare wall to sustain it. *N. tuberosa* is not such a strong grower as the preceding; otherwise it may be used in a similar way, being of the two the better sort for basket culture, and it will thrive well in a rather cooler house. *N. pectinata* is still finer in its parts, but it should be grown in the stove where it thrives admirably, making also a beautiful basket Fern or for vases in the summer-time. Either of the last two varieties does admirably for planting upon the tops of dead stems of Tree Ferns, being about the best for that purpose. *N. davallioides furcans* is quite distinct from the type, having forked and crested fronds, which do not attain to such a length, but it forms a more compact specimen, and is thus a very handsome plant in a pot. In colour it is also of a deeper green when grown under similar conditions.

ASPLENIUM FLACIDUM is one of the best and hardiest of its race; when well grown its fronds will exceed 3 feet in length, hanging down over the pot or basket in a most graceful manner. I have seen it thus drooping down in a most effective fashion, the plant being upon a shelf at a good height. For the fernery upon rockwork it is admirably suited, being an evergreen and most enduring variety. *A. longissimum* is seen at its best when grown as a basket Fern and suspended at a good height in the stove. A plant in a comparatively small basket will put forth fronds of great length. Strong plants will make fronds up to 8 feet in length, but 6 feet may be taken as a good growth; the young plants formed at the apex of the fronds add to its appearance considerably. During the warmer weather it will do well in a temperate fernery.

THE LYGODIUMS, as represented by *L. palmatum*, *L. japonicum* and *L. scandens*, should all be considered as drooping Ferns, for when thus grown they are seen at their best. They should be allowed to grow partly up the roof and then hang down of their own accord. Being free-growing plants they quickly cover a good space, and are most attractive by their light and elegant growth.

ADIANTUM CILIATUM is a very pretty and interesting Fern. It is seen at its best in a stove where its fronds, and the young plants upon them, present a singular appearance, extending themselves almost indefinitely. It is best suited for basket culture.

DAVALLIA TENUIFOLIA VEITCHIANA is the best of its genus as a drooping Fern. Grown in baskets the plants present a beautiful appearance with the finely divided fronds of considerable length hanging over the sides in profusion.

GYMNOGRAMMA SCHIZOPHYLLA GLORIOSA is an exceedingly elegant Fern, seen to far better advantage when grown in baskets. As the plants gain in vigour and the fronds extend, young plants will be formed upon the apices, further adding to the length and to the effectiveness also. This is a

decided acquisition, as in the case of the *Davallia* just mentioned. Both should, however, be grown in the stove to see their full beauty.

WOODWARDIA RADICANS is a splendid Fern for a cool fernery. To see it to advantage it should have plenty of room, and is best when well elevated, as upon a prominent point in the fernery, where its long and graceful fronds can hang down naturally. Of the Tree Ferns, allusion should be made to that singular, but elegant and effective variety,

CIBOTIUM BAROMETZ, which is rarely seen in collections of any size. When it can be provided with plenty of room at a good elevation, so that the fronds can hang down, it forms a fine feature. *Cibotium Schiedeii* is another splendid Tree Fern; it, however, takes years to make any stem. Its fronds are of great length when under good cultivation, 12 feet or more being nothing out of the way. Given plenty of room in the fernery, this makes a magnificent plant; elevated to a good height, it is most effective with its long fronds hanging down around.

The foregoing list of drooping Ferns might be added to, but those to which attention has been drawn are amongst the best. They should receive more attention than is accorded them. Wherever they are seen in ferneries displaying their true character they will always find plenty of admirers, frequently being the chief features in the house, all the more so when in baskets or planted out.

FILICES.

Selaginellas.—These will not now be in an active state of growth; less moisture will therefore suffice both at the root and overhead. Of the dwarf-growing varieties, *S. apoda* does not always keep well through the winter; where any difficulty is found in this respect it should be pricked off into small tufts in about one-third of sand with two-thirds of light loam and leaf-soil passed through a sieve. Where it is very dense it frequently damps off, particularly if not kept in sufficient warmth at this time of the year. *S. denticulata* and *S. Martensi* are no trouble under ordinary conditions. The sorts of harder growth, as *S. Wildenovi*, *S. stolonifera*, *S. inequalifolia*, *S. Lyalli*, and others, should not be kept too dry at the root. It is better to just keep them on the move and avoid any extreme. *S. rubricaulis* is another kind at times disposed to die off; it does best in a stove temperature. I would prefer not to break it up at this time of the year if it can be avoided; when done, smaller pots should be made of the growths. The long trailing growths of *S. cæsia* should now be cut off, or they can be used as needed instead of Fern in floral arrangements. This would also be a good plan with any of the other sorts of hard wiry growth where it is very thick. Where the soil upon the surface appears to be sour or close, some sand should be shaken upon it; this will assist in keeping it in better condition until potting time comes round again. —H.

MARKET PLANTS AND FLOWERS AT CHRISTMAS.

THE Saturday before Christmas is usually a busy time at Covent Garden, for the Flower Market is then crammed with representatives of all, or nearly all, the flowers that can be induced to open at this season of the year, provided they are sufficiently showy to be employed for general decoration. Anyone seeking a good selection of plants for blooming in mid-winter would find a visit to the market during the early hours of the morning well repay the trouble taken; while, at the same time, it must be admitted there are some very beautiful flowering subjects that are not at all popular with market growers, owing, in many cases, to the flowers being too fugacious, and consequently with the shifting about incidental to disposing of them in the market they would lose a good deal of their beauty previous to reaching their final destination. The bright-coloured *Apheleandras* and *Eranthemums* are two classes of plants to which these remarks will particularly apply.

Of flowering plants, Tulips were this year very good, and represented in considerable numbers. The bulk, however, consisted of the Scarlet Van Thol, as, irrespective of those in pots, large quantities were disposed of in boxes, these being packed as closely together as the bulbs will allow. Besides these, numerous combinations were to be seen, in nearly all of which the Scarlet Van Thol played a part; in some cases a small spreading Fern was placed in the centre of a pot with four Tulips around, just overtopping it, while in others spikes of Lily of the Valley were alternated with the Tulips, and in some Roman Hyacinths played a part. White and yellow Tulips were also represented, but in limited numbers, while one cannot fail to be struck with the almost total absence of striped, flaked, or parti-coloured flowers not only in the case of Tulips, but also in that of Azaleas, Camellias, Carnations, and other subjects, in all of which self-coloured flowers meet with by far the most ready sale. The pure white blossoms of the Roman Hyacinths cause them to be universal favourites, while one particularly noticed the fine spikes of the ordinary Hyacinths, as it is, of course, yet early for them. Very few Azaleas were to be seen, but such plants as *Cyclamens*, *Cinerarias*, *Poinsettias*, and *Primulas* are grown by so many, that between them they formed numerous banks of colour. Heaths principally consisted of *Erica gracilis* and *E. hymenalis*, and of this latter the difference in colour between some of the groups was very noticeable. This is to be accounted for by the conditions under which they have been grown, as where they are pushed on in a little additional heat the flowers are a good deal paler than those which expand in a light and airy house. *Erica melanthera*, with its myriads of little pinkish blossoms, is not sufficiently showy to become popular as a basket plant, though a good many could be seen. Lily of the Valley, grown from what is known as German or Berlin crowns, which can be forced earlier than the clumps from Holland, are always well represented at Christmas, and this year was no exception to the rule. *Epiphyllums* in pots are very pretty, and a few good examples were shown, but there does not appear to be much demand for them, while, on the other hand, *Callas*, so much used for church decoration, were eagerly sought after. *Echeveria retusa* is a succulent that has been a recognised market plant for years, but it is rarely seen in private gardens. The blossoms of this are bright red, and possess the merit of remaining in beauty a long time. *Bouvardias* in pots were limited in numbers, while, on the other hand, a good many of the white *Marguerites* were noted. I was very much struck with some fine flowering examples of a double blossomed scarlet or crimson zonal *Pelargonium* that were growing in pots 5 inches in diameter. The variety was not *F. P. Raspail* so long grown for market to the exclusion, or nearly so, of any others, but it was, I believe, a sport from it known as *Turtle's Surprise*, which has the white flower-stalks of the West Brighton Gem class. *Chrysanthemums* in pots were represented by several varieties, but the bulk of them consisted of three kinds, viz., the white *Boule de Neige*, the bronzy yellow *Golden Gem*, and the deep crimson *Cullingfordi*. The two first I was fully prepared to see, but little bushes of *Cullingfordi* from 15 to 18 inches high, each carrying a number of flowers, showed that variety to me in a new light.

Cut flowers of *Chrysanthemums* were very numerous, and several other varieties were to be met with in that state. The one offered in the greatest numbers was *Lady Trevor Lawrence*, that large Japanese flower with broad incurving petals of the purest white. Not only are the blossoms large and massive, but they are borne on good, stout stems that greatly enhance their value for use in a cut state. *Ethel*, a white-flowered variety with curiously upright petals, and the yellow sport from it, *Mrs. H. J. Jones*, are both grown in considerable numbers for the production of blooms at Christmas. *Ethel* was, I believe, sent out as long ago as 1878, and another of the same year, *Fulton*, appears to be still grown to a greater extent than any other yellow-flowered variety for the produc-

tion of late blooms. It is somewhat singular that this should be the case, considering the hundreds that have been put into commerce since that time, for a great many of which is claimed the merit of being an advance on all older varieties. *Cullingfordi* was also well represented among the cut blooms, and of others noted, but in limited numbers, may be mentioned *Florence Piercy*, *Source d'Or*, *Fair Maid of Guernsey*, and two or three of the bronzy red varieties. Of incurved flowers there were some good blooms of *Princess Teck*, to which some small but fresh flowers of the amber-coloured *Barbara* added variety. The various shades of purplish pink and mauve-purple, of which there is such a long list of varieties now in cultivation, were conspicuous by their almost total absence. A mere recapitulation of many of the cut flowers will suffice, there being, of course, Lily of the Valley, Azaleas, particularly the double white *Deutsche Perle*, *Pelargoniums* of the zonal section, *Camellias*, *Eucharis*, *Marguerites*, *Gardenias*, *Mignonette*, Christmas Roses that had been brought on under glass, white *Abutilons*, *Euphorbia jacquiniæflora*, *Narcissi* of various kinds, *Roses*, *Acacias*, *Violets*, *Bouvardias*, noticeable among them being *President Garfield* and its pink sport, *Mrs. Green*. Beautiful blooms of *Miss Joliffe* *Carnation* were to be seen in quantity. *Daphne indica*, though less showy than many of the others, was in fragrance surpassed by none; while among *Orchids*, *Odontoglossum crispum*, *Zygopetalum Mackayi*, *Calanthes*, and *Cypripedium insigne* were represented by numerous examples.

Plants in pots other than flowering subjects covered a wide range, there being large quantities of *Solanums* finely grown, as well as the usual run of foliage plants, such as *Aspidistras*, both green and variegated, the best of all plants for a dwelling-house in London, *Palms* of various kinds, including *Kentias*, now so popular, *Latantias*, *Corypha australis*, and others. Of Ferns the forms usually grown were to be seen, the bulk consisting of the *Maiden-hair*, *Pteris serrulata* and *tremula*, *Polypodium aureum*, and *Cyrtomium falcatum*, but besides these a great many others were offered to a limited extent. Narrow-leaved plants of a grass-like character are grown as market plants to a much greater extent than was formerly the case, for at one time they consisted almost entirely of *Cyperus alternifolius*, in addition to which there is now another *Cyperus* known as *distans*, an extremely pretty *Carex* about 6 inches or 8 inches high, variegated with a stripe of white, which I have met with under the name of *Carex japonica*, but as to its correctness I cannot say. *Acorus gramineus variegatus* is another of this class of plants, while though widely removed in a botanical sense from any of the preceding, the *Ophiopogons*, or *Snake's-beard*, are by the market salesman included in the collective name of Grasses. While the bulk of the plants are in pots 5 inches in diameter, a good many of these last as well as several Ferns are in small pots, and disposed of in boxes of a dozen. Most of these are employed in filling the various ornamental stands that are now so generally met with, and of many of which it may be said that they detract from rather than serve to display the beauty of the plant. *Aralia Sieboldi* is always sought after, owing to its standing well in draughty places, and much the same will apply to *Cordyline australis*, or *Dracæna* as it is often called, while *Ficus elastica* is always to be met with. A varied assortment of evergreen shrubs is usually to be found in Covent Garden, and this year they were as numerous as ever, there being a great many of the smaller *Coniferae*, *Box*, *Euonymus*, *Aucubas*, *Berberis* or *Mahonia Aquifolium*, and such things. The little creeping *Ficus repens* seems always to meet with a regular, if limited sale.

A good deal of foliage is disposed of in a cut state, such as bunches of bronzed Ivy leaves, the foliage of *Mahonia Aquifolium* in the same stage, various Ferns, especially *Maiden-hair*, *Asparagus plumosus* and *A. tenuissimus*, as well as long sprays of *Myrsiphyllum asparagoides*, so popular in America under the name of *Smilax*. H. P.

ROSE GARDEN.

ROSE CELESTE.

THIS, so truthfully shown in the annexed engraving, is probably one of the oldest kinds in our gardens to-day; the half-open bud is in form as exquisite as its perfume is delicious, its colour the most dainty shade of delicate pink. The open flower is only semi-double, and in this respect very different from that of the variety Maiden's Blush, which has been very often substituted for it. Its hardiness is beyond all question, as it will grow anywhere, in any soil, and only requires to be left alone to become a small tree. In many places in Ireland there are bushes of it

which would clothe with beauty the neighbouring trees to the height of 30 feet.

Newry.

T. SMITH.

POT ROSES.

THOSE Roses only that have been well prepared by pot culture, so as to have made a good quantity of fibrous roots during the past twelve months, should be depended upon for forcing, as no satisfactory results can be reasonably expected from those not so treated. Too much warmth for Roses is a mistake; the temperature of a Peach house just started will suit them well, or a vinery for the first few weeks after being shut up. Keep the plants as close to the glass as possible to prevent the shoots from becoming drawn. As soon as growth commences the maggot that infests Roses will require looking after; indoor culture does not relieve one of this nuisance. If pruning has not been done, it should be seen to at once in the case of all the stock of pot Roses for forcing. Those now pruned and at the same time placed in warmth should have the wounds dressed with some styptic, as in

Where, however, this is not the case, the better plan is to apply a good top-dressing of farmyard manure, not too rank; upon the top of this some loam can be shaken. As in the case of pot plants, avoid hard pruning, particularly of strong shoots, which, if cut away, is a case of wasted energy. A thinning process is much better, especially when dealing with climbing varieties trained on roofs or back walls. When this work is done I would advise that some sulphur be applied to the pipes as a check to any early appearance of mildew, which parasite it is best by far to put a stop to at the very first. As in the case of pot Roses, so also in dealing with Rose houses, a high temperature is not advisable; they should be kept at about the same standard as Peach houses, say 50° at night as an average with 10° or 15° rise during the day. A fair amount of moisture should be maintained to encourage an even break. Any shoots that are not pulled down will probably break at the topmost bud rather than below. Sooner than let one shoot thus run away with the strength, it will be better to rub it off. See that the plants are not allowed to get dry at the roots. After growth has fairly started, chilled water will be better than



Rose Celeste. Engraved for THE GARDEN from a photograph sent by Mr. J. McWalter, Armagh.

8 feet high and as much through. The largest I have seen were clipped over annually. Probably if fed and encouraged it would grow 12 feet or 15 feet high, as the old sweet white Rose (*Rosa alba*), its near relative, often does. Its propagation is easy, the underground stems affording ready and suitable material. Some day let us hope to see Rose gardens made of old Roses, a sunny rocky dell planted on the highest parts with climbing kinds to scramble about much as the common Bramble now does in many a suitable place, with Austrian Briers and other sun-loving kinds growing on the warm ledges. By planting China, Bourbon, Gallica, Damask, Provence, Scotch (the best of the species), and Ramanas Roses, the Sweet Brier and the native Burnet, which creeps amongst the Grass, one could have everything from the last named lowly kind up to vigorous sorts

the case of Vines, to prevent bleeding. Hard pruning is not necessary; strong shoots, for instance, can be either drawn down or twisted around a few sticks. More breaks will thus be secured with a corresponding increase in the number of flowers. Plants upon which the growth is crowded in the centre should have this also drawn outwards towards the sides of the pots. This can be done by first tying a piece of tarred string around the sides of the pots below the rims; to this other smaller strings can be attached, the use of sticks being entirely dispensed with. This kind of work pays well for the doing; the shoots as they grow will not be so much crowded together in consequence, whilst a better base is formed to build up larger plants. The Tea-scented and some of the Noisette Roses are better for early forcing than most of the Hybrid Perpetuals. For instance, a few well-established plants of Gloire de Dijon or of Mme. Falcot will yield a lot of useful flowers; so also will the old Niphetos; the newer and climbing variety also bids fair to be a most productive kind. Roses that are planted out in houses devoted to their culture should now be pruned, the paint and glass well cleaned, the top soil removed, and a fresh surface dressing applied. If the top soil is sour and the surface roots few, a good top-dressing of fibrous loam will be a great assistance.

that quite cold. Any contemplated alterations in the arrangement or entire planting of Rose houses should be done in good time. Roses from pots will be much better than those lifted from the open ground for this purpose. The soil for Rose houses should chiefly consist of loam; when this is good and there is no tendency in it towards being light, it will require hardly any manure. What may be termed a stiff loam is the best; when it is light, then use some farmyard manure, but not to any excess. The manure, if too much be used, will encourage a more vigorous growth than is really desirable, leaving the soil all the poorer afterwards. The drainage should be looked to and arranged for as may be found necessary; in some cases drains would be found of great service, whilst in others the opposite would be the case, a layer of rubble or brickbats being sufficient. Whilst I am writing this we are registering from 15° to 17° of frost. This will cause attention to be given to all Roses, whether in pots or not; if in pots they should be given some protection, at least at the roots; if still out of doors by a surface covering of long litter or a banking up over the pots of ashes; anything in fact will be better than allowing the pots to become frozen and probably broken by its action. It is a good plan to have pot Roses under cover in a cold house

even if the frost is not excluded, as in the case of Peach cases. Where planted-out Roses have their roots outside, the border should be covered, as in the case of Vines, to keep the soil from freezing, particularly if early forcing is contemplated. When climbing Roses are chiefly grown upon the roofs, I would of the two prefer that the roots be outside; this would give the roots more room, as well as permitting of other plants at certain seasons being stood upon the floor of the house or stages, as the case may be, thus making the most of the room.

J. H.

ORCHIDS.

NEPHELAPHYLLUM.

THIS is a small genus of very little known terrestrial Orchids, two species of which I had under my care for several years. They are mostly natives of the Indian islands, and the kinds which I have grown, *N. pulchrum* and *N. scapigerum*, both came from thence, the first named from Java, and the other from Borneo. Both were introduced to cultivation by the Messrs. Low, of Clapton. Later on, the Messrs. Rollisson, of Tooting, imported both plants, but I am unable to state the exact locality whence these were procured. I found that the plants liked a moist atmosphere, and grew them in the frame in which the *Anectochili* were. This frame, by the way, was not such a close structure as my readers might imagine, being merely an open box with large squares of glass laid across, with openings between each square for the admission of air. These openings were only closed upon very hot and dry days, when the glass was shifted up close in order to conserve the moisture which arose from the growing *Sphagnum Moss*. The *Nephelaphyllums* were potted in small well-drained pots in a mixture composed of two parts good peat, one part turfy light loam from which a great portion of the fine soil had been shaken, and one part chopped *Sphagnum*, to which some sharp sand was added. This was pressed down tolerably firm, potting them as ordinary stove plants. They used to be watered overhead with a fine-rosed water-pot. At one time I had quite a couple of dozen of these plants growing, and many of them flowering, which they do about the months of May and June. They do not make any underground bulbs or tubers. *N. pulchrum* grows about 6 inches high, bearing at the apex some three or four leaves, which are beautifully marked; indeed the leaf to hand from Mrs. Bewley from the mountains in Java seems to be of this plant. The leaves are cordate, sheathing at the base, the upper side strongly nerved, the ground colour a pale green thickly marbled with deep green; on the under side they are pale green, more or less tinged with purple; the scape is terminal, bearing about six flowers, having the lip the uppermost part; the sepals and petals reflexed, soft green, the lip white. *N. scapigerum* is a very handsome species. Its leaves are deep green above, paler beneath; the scape rises from the base of the leaves and bears about three or four flowers, which have the sepals and petals about equal, pale green streaked with purple. The lip is white, spotted and blotched with rich yellow and purple, which gives it a very pretty appearance.

WM. HUGH GOWER.

Dendrobium formosum giganteum.—Some recent numbers of THE GARDEN contain articles about *Dendrobium formosum giganteum* not doing well after a few years' cultivation. Mr. Watson, of Kew, writes in No. 198 of the American

Garden and Forest that it fails in health after about two years' cultivation after being imported. All writers on this Orchid on your side of the water say it should never be moved into a low temperature to rest, but this is quite contrary to the treatment it succeeds best with here. A year ago I sent an article explaining Mr. McWilliam's plan of growing it, and I wish some of the Orchid men on the other side would try the same plan. The plants here have now bloomed the seventh time, and they seem to increase in vigour each year. The best one this year produced three fine growths; one by accident got broken before the flowers were formed well; the other two produced thirteen fine flowers each; one or two little growths threw out five more, making thirty-one flowers in all on the plant. This was exhibited in Boston Horticultural Hall at the Chrysanthemum show last month and was awarded a silver medal. As soon as the plants are done flowering they are put into a temperature of 45°, the baskets are hung up near the glass and get all the sun there is during the winter months, and only water enough to keep the growths from shrivelling. They stay there for twelve weeks at least. At first Mr. McWilliam gave the rest for six weeks, but on further trials he found the plants did better with as much again. In starting them into growth, he first moves them into 55° till the young buds swell up well, then their full growth is made in a maximum of 75°, with plenty of moisture, and as soon as the flowers are ready to open the plants are gradually brought into a temperature of 55° to finish the flowering season.—W. S., *Whitinsville, Massachusetts*.

Lælia Gouldiana.—I have received flowers of *L. autumnalis* from several readers, notably a very nice coloured variety from Mr. Howell, Elm House, Leatherhead, and also the same species from "J. P., Leeds, under the name of *L. Gouldiana*, but a flower of this last-named kind is to hand from "Xenia" which enables me to compare them and to pronounce "J. P.'s" flower certainly nothing else than a rather dark form of *L. autumnalis*, which the true *L. Gouldiana* resembles in growth, but the flowers are quite different. The sepals and petals of *L. a. Gouldiana* resemble those of *L. autumnalis*, and the side lobes of the lip also resemble those of that species. The front lobe has the shape and colour of *L. anceps*, and bears a raised plate of yellow on the disc, traversed by three lines of purple, the throat being ornamented with radiating streaks of rich purple, and hence comes the supposition of its being a natural hybrid between these two species. The plant, however, has been found in great numbers in its native home, which is somewhat against its hybrid origin.—W. H. G.

Diseases in Orchids.—There is no family of plants so liable to disease as Orchids. Orchids, like human beings, are very liable to diseases of various kinds. First of all, parasites are numerous and nasty: 1st, greenfly; 2nd, thrips (two kinds, black the worst); 3rd, red spider; 4th, mealy bug (two kinds—the round one, like a Stock seed, very bad, as it not only attacks the leaves, bulbs and flowers, but the roots); then there are three kinds of scale, the small white being the worst. Orchids have other four great enemies in the shape of snails, cockroaches, weevil beetles and wood-lice. Toads and green tree-frogs should lie in every Orchid house; they are splendid insecticides. The fleshy bulbs and leaves are liable to be attacked with inflammation, dropsy and mortification. A cold draught will induce a bad cold; even the now prevailing malady, influenza. When Orchids, like human beings, are kept in good health, they are little liable to disease. Bad air, too much heat, over-watering, over-feeding and dirt are the principal causes of disease amongst Orchids.—ALEX. PATERSON, M.D., *Bridge of Allan*.

Lælia anceps Percivaliana.—T. Hossack sends me flowers of this variety, saying it is, he thinks, the freest-flowering of the white varieties; this, however, is, I think, a mistake. The variety in question has been in cultivation perhaps longer than any other, and consequently has become tho-

roughly established. This, I hold, is a great secret in the flowering of the white aneeps. The sepals and petals are white, tinged with soft rose, the side lobes tipped with deep purple, and the front lobe heavily marked with deep purple, behind which it is stained with pale lemon colour, the throat streaked and dotted with purple.—W.

GARDEN FLORA.

PLATE 838.

ANNUAL COMPOSITES.

(WITH A COLOURED PLATE OF COSMOS BIPINNATUS.)*

THE majority of the summer-flowering Composites are what are usually termed hardy annuals. They may be sown in the open borders where they are intended to bloom at any time between the beginning of March and the end of April. Some few, however, may be treated as winter annuals, *i.e.*, the seeds may be sown as soon as ripe in autumn, when they will at once germinate and produce their handsome flowers in early summer. The genus *Cosmos* numbers only about ten species, and as these are mostly natives of tropical America, Mexico, &c., the best time to sow the seeds will be after all danger of severe frosts is past in spring. Indeed, it is never safe to sow the seeds of *Cosmos bipinnatus* until April. I know of only four species of this genus ever having been in cultivation: *C. tenuifolius*, named by Dr. Lindley, and figured in the *Botanical Register*, 23, tab. 2007; *C. scabiosoides*, figured in the same work, 24, tab. 15; *C. diversifolius*, figured in Knowles and Westcombe's *Floral Cabinet*, 47; and the species figured in the accompanying plate, and for the first time, I believe, in any English periodical. *C. hybridus*, of which we know very little in this country, was noted in *Garden and Forest* in 1888. The three first, so far as I know, are lost to cultivation in English gardens, but, fortunately, none of them are so beautiful as *C. bipinnatus* or so well adapted for the flower border. A glance at the plate will give some idea of the beauty of this charming annual, which as a fine-foliaged plant is one of the most elegant of all annuals. It grows from 2 feet to 4 feet in height, copiously branched, and well clothed with the most delicate thread-like leaves or leaflets. The flowers, which in warm summers are produced in great abundance, are borne on long footstalks, and are very useful for cutting. They last well in water. To get an early display, sow in pots in a warm frame in March, and when the seedlings are ready to handle treat them in the usual way. A week before planting I stand them in a cold frame to harden off, and finally place in their flowering quarters at 2 feet apart. A good way of securing a succession in the same bed is to sow seeds between those newly planted out, and by the time the early plants are over the others will be showing flower. It is a great

* Drawn in the Royal Gardens, Kew, by H. C. Jones, September 9, 1891. Lithographed and printed by Guillaume Severeys.

mistake, as I have found, to plant or sow *Cosmos* in rich ground; a light sandy soil suits it well, and the warmer the position the better will be the result. The varieties *albus* and *roseus*, with pure white and rose coloured blooms, I have not been very successful in flowering well. The plants attained 6 feet to 7 feet in height, and formed huge, though very ornamental bushes, but at the expense of flowers. *C. hybridus* is said to be a very attractive annual, 6 feet to 8 feet high, the leaves finely cut, and the flowers white or pale rose-coloured, 2½ inches in diameter. These are produced in large terminal corymbs, and in this lies apparently the chief distinction between it and *C. bipinnatus*. Near to this genus come the *Bur Marigolds* (*Bidens*), some few of which, such as *B. humilis* and *B. ferulæfolia*, are fine plants, the wealth of Fern like foliage and numerous starry golden flowers making effective groups. Of the *Coreopsis*, a large number are of annual duration, and of these, *C. tinctoria* and its many varieties are well known in gardens. *Cosmidium Burridgeanum*, which is often grown as *Coreopsis tinctoria*, is really a garden hybrid between that species and *Thelesperma filifolium*. It is exactly intermediate, and altogether a most interesting plant.

Chrysanthemum coronarium, *C. carinatum*, *C. segetum* and *C. viscosum* give abundance of variety, some few of the *carinatum* forms being very beautiful. *Layias*, *Sphenogynes*, *Zinnias*, *Venidium*, *Lasthenias*, *Bærias*, &c., may only be noted to show the vast wealth of annual composites within the reach of all who care to grow them. D. K.

FLOWER GARDEN.

HARDY PRIMROSES.

WHILST the ground is so hard frozen and the air is black with fog, it is far from being probable that even such hardy plants as Primroses will look very happy. But the frost will not always endure, and the fogs will lift, and with a return to softer weather will come the needful opportunities to lift some plants into pots or block several into pans and place them in the greenhouse for early flowering. There are many persons having greenhouses who can grow either only hardy plants or else such things as need very little artificial heat. To these, plants in pots of Primroses, *Polyanthuses*, *Pansies*, *Violets*, *Wallflowers*, or similar hardy things which will bloom fairly well in non-heated houses are perfect treasures. There are some persons, too, who have even well-heated greenhouses and plenty of fine-flowering plants who yet have a strong fancy for Primroses and like to have them in bloom early. If, so soon as the weather breaks, some of the strongest of last spring-sown seedlings be carefully lifted and put into 6-inch pots, or be blocked some half-a-dozen plants into 12-inch pans, they will soon throw up flowers, and prove very charming in any way. In ordinary seasons hardy garden Primroses begin to bloom in November if the plants be strong, and if these were lifted and potted then, they would in gentle warmth flower for several weeks. Where there are but a few plants raised, it is probably unwise to lift any

in this way, because they will do so much better later on out of doors. Where, however, it is desired to have some for indoor-blooming, enough of seed should be sown to ensure that end, as once plants have grown from seed, their later production, through dibbling out into good soil where they will grow strong, is easy enough. If we were still dependent exclusively upon the common wild Primrose for our stocks, it is certain that very few would care to give them much attention, but the hardy Primroses of to-day are so far in advance of anything the wild forms can show, that the two strains are not to be compared. It is not that all the flowers now seen on a good strain are of perfect form. That is of little consequence, although some really do seem to be perfect, but the great charm is found in the variety of colouring and the size of the blooms. How far it might be possible yet to increase the dimensions of Primrose flowers through constant selection it is hard to say, but at least we do not want them to be too large. The very big blooms are, as a rule, much lobed on the edges, but that is of no appreciable moment in reference to flowers that are required for greenhouse or garden decoration. When it is purposed to grow hardy Primroses for exhibition, such as is the case with the National Auricula Society, then some deference should be shown to flowers which have good form and substance, and are borne on plants of robust habit and very freely. So far as I am aware, there seems to be no special canons for judging these flowers, but the best from my point of view have usually won the prizes. It is to be deplored that at the James Street Drill Hall spring show, so very few persons should compete. Hardy Primroses of any good strain can be so easily raised from seed and grown on into fine clumps, that their culture ought to be far more common than it is at present. A. D.

THE GLADIOLUS.

WHEN visiting Mr. J. Burrell last summer at the Howe House Nurseries, near Cambridge, I had an opportunity of speaking to him about his culture of the Gladiolus, which he grows and exhibits in such fine character. These nurseries, situated about three and a half miles from the railway station at Cambridge, were established some seventeen years ago by a Mr. W. Farren as a market nursery and for the cultivation of Roses. Mr. Farren became famous as a successful cultivator of the queen of flowers, but had to abandon the work through ill health. Mr. Burrell succeeded him about 1884, and makes specialties of the Rose, hardy perennials, Dahlias, &c., and last, but not least, the Gladiolus. He was induced to take up the culture of this flower through finding on the nursery a few common seedlings, but growing with marvellous vigour. With this view he obtained a few of the best varieties, seeded from them, and in this way produced the fine seedlings he is in the habit of exhibiting in London during the month of September.

Mr. Burrell holds that the Gladiolus does best on the strongest soil, and a strong calcareous one is to be preferred. Apparently there is a quantity of silica in the soil of the Howe House Nurseries, and it prevails to some extent all through the county. In addition to suiting the Gladiolus, Mr. Burrell holds that a calcareous soil causes the flowers of perennials to colour better than a vegetable one.

Seed is sown broadcast in April in calcareous soil, put in a cold frame, and covered to the depth of one-eighth of an inch; the lights are kept on, and the seeds germinate in about three weeks. It is held that a great advantage is gained by sowing in a cold frame, as the corms ripen off better in the autumn. They are lifted when the foliage dies away; the lights, which are removed for a time during the summer, are placed on again in the

early part of October, so that the corms should not become saturated with wet. They are taken up in November, kept dry through the winter, and planted out in a field in March and April. It is generally found that one half of the seedlings will bloom the first year; some will not flower until the third year, but very few go so long. A beautiful pure white variety raised by Mr. Burrell, and named *Snowdon*, did not bloom until the third year, and it is not infrequently the experience of raisers of florists' flowers from seeds that the latest seedlings to put in an appearance, and therefore the latest to flower, frequently show the highest quality, though Mr. Burrell states he gets fine varieties both from the early and late blooming varieties.

The standard varieties from which Mr. Burrell obtains his fine exhibition spikes are planted out in the open in April and May. There is no need to start any of them in pots. The corms are lifted in November, and he never finds they put forth growth, as some have stated, when left in the ground until that late period of the year. Indeed the plants, or many of them, keep green until frost comes and causes decay. The corms are then lifted, placed in a greenhouse to dry off, and stored in a dry cool room for the winter.

The spawn obtained from the corms is sown in drills under walls in the open; sometimes no growth appears for two years. In 1890 Mr. Burrell sowed the spawn in the ground as usual, but allowed it to remain uncovered, and the action of the sun on the uncovered spawn appeared to cause it to germinate sooner than it otherwise would have done.

In reply to a question as to whether he found it necessary to cut up the large corms, Mr. Burrell said he did so, but only to divide them into two parts, not more, and then he obtained two of about equal strength. It is well known that the old bulb dies, but renews its being by forming new ones upon the radical plate. The splitting or cutting of a corm needs to be done very carefully, so as to ensure that each division shall throw a flowering stem. R. D.

FLOWER GARDEN NOTES.

WHEN weather will permit and circumstances compel such attention, herbaceous borders can be gone through, replanted, and rearranged where the height of respective members of different families is at fault. Such strong growing and rapidly increasing plants as many of the *Asters*, *Pyrethrum uliginosum*, or *Chrysanthemum maximum* may also be lessened. These and many others increase very quickly, and unless kept within bounds are apt to take up more room than they ought and to crowd out dwarfer and weaker plants. The system of grouping in such borders is a good one, but it should not be conducted on too hard and fast lines, or formality (the very thing one wishes to avoid) is apt to be displayed too clearly. If no alterations in the planting are required, or they have already been done, advantage may be taken of frosty weather to mulch these borders throughout. I find a heap of stuff composed of one part stable manure and three parts leaves that have been turned until thoroughly decomposed well adapted for the purpose. The workmen should be instructed to break it well up with the fork before putting it on, so that it neither lies in cakes, through which young growth has a difficulty in finding its way, or in patches, here an inch, there perhaps nearly 3 inches thick. Rose beds and isolated patches of good herbaceous things in shrubby borders can be mulched with a richer and rougher compost. Where new borders are in progress it is well to be very particular as to varieties employed and to avoid the inclusion of anything likely to be from its spreading propensities a future nuisance; indeed I think advice as to the well-being of herbaceous borders may be briefly summed up in one or two short sentences, viz., to prepare the ground well at the outset, to plant carefully and judiciously, to give a good annual mulching, and to keep the spade out of them as much as possible. It is not advisable to introduce bulbs in any great

profusion into these borders, but a few nice clumps of Daffodils are acceptable, as furnishing a display of bloom when there is little else. After the decay of foliage, or rather to provide against such decay, the spaces can be dotted over for the summer months with plants of the dwarf-growing *Mesembryanthemum* and *Koniga variegata*, a dwarf *Lobelia*, or the old *Cuphea platycentra*, as the surroundings may require. Where hardy things enter extensively into the summer planting of formal flower gardens, it is well early in the year to overhaul the stock of such things as Carnations, tufted Pansies, ribbon Grass, hardy carpet plants, and the like, and, indeed, to mark out the places they are to occupy so that as soon as the ground is in a fit condition after the break up of the winter frost they can be immediately planted.

Although the bulk of plants, both from cuttings and seeds, where large quantities are required, can be propagated later in the season, it is well to give early attention to those things required for special purposes, or that are supposed to make a show early in the season. Seed of the Sweet Tobacco, of the silvery *Centaurea* and *Cineraria*s, of bedding Beets, as well as *Acacia lophantha*, of Cannas, and, indeed, the majority of things of the latter type should be in early. Turning for a moment to those plants required for special purposes, I may note that where pyramids of colour built up of small stuff are in request the *Geraniums* must be struck early, grown on sharply in single pots, so that they are strong stocky stuff by say the second week in April. They can then be hardened off and planted by the beginning of May, their situation enabling ample protection to be given if the weather prove unfavourable. I do not admire these pyramids or advocate their adoption, but if they are required, the gardener has to furnish them, and in such positions the plants must be both well established and well hardened off. It is a woeful experiment to do such planting with thin weakly stuff that will lose half its foliage and leave only the bare earth or rough Moss visible. Four good sorts for this purpose, old varieties, but bad to beat in their respective colours, are *Warrior*, *Lucius*, *Amaranth*, and *Flower of Spring*.

Plants for vases and window boxes also demand attention. It is best to have two sets of the latter, but where these are not at hand the one set ought always to be filled with first-rate stuff that has been well hardened off. *Harrison's Musk* and the white and blue trailing *Campanula* are amongst the useful hanging plants, and early division and propagation of these are to be recommended. For a similar purpose a mixture of the small-foliaged *Ball of Fire Tropæolum* and the woolly *Gnaphalium lanatum* is decidedly effective, and these, together with plants designed for centres of vases or back rows of boxes, as small standard *Fuchsias* and *Heliotropes*, *Marguerites* and other things, may be advanced as advised above. Indeed the list of plants required early in the season for various purposes might be extended to a great length. Every gardener, however, is best acquainted with his own requirements, and will naturally make special provision for the same. These remarks are also applicable to another rather important feature in connection with flower garden management, viz., the selection of seeds for this particular department. Thus, if it is desired that (what may be termed) the bedding annuals enter somewhat extensively into the summer arrangements, the varieties of dwarf *Mari-gold* in their respective colours, with *Tagetes signata pumila*, *Phlox Drummondii*, also in separate colours if required, *Petunias*, *Verbenas*, and the one or two forms of the Golden Feather *Pyrethrum* are easy of culture and will last well right through the season. If a quantity of white flowers is required at a special season of the year there are few things more useful for cuttings in quantity than a good breadth of white *Aster*, whilst the white *Princess Alice* stock is a charming button-hole flower or to assist in the making of bouquets. Three of the best annuals for summer cutting considered alike in the wealth of flowers they furnish and the length of time they stand in a cut state are *Sweet Peas*, *Godetias*, and the summer *Chrysanthemums*. It is rather unfortunate that the colour of the majority

of the taller annuals should run so much in yellows; various forms of the *Sunflowers* and the big *Mari-golds* are useful for rough cutting, but they should not be planted too largely in any one border, or this colour will certainly preponderate above all other. If *Everlastings* are valued for winter work they may be grown rather largely; on the other hand, there are plenty of annuals that make a brighter and better display during the summer and that may be grown in preference to them if they are not to be cut and dried for vases.

Claremont.

E. BURRELL.

Daffodil disease.—Being probably the largest holder of *Narcissi* in Scotland, I am very much interested in this question, and for several years have given it a good deal of attention. As far as I can see, Mr. G. H. Engleheart is on the wrong tack in regard to this disease. With valuable bulbs, few people care to be at the expense of cutting up such; but if they did so, they in most cases would find that diseased bulbs had a maggot inside, and if one was not inside at the time of examination, traces of its former ravages would be found. The life-history of this maggot is pretty fully described by Dr. J. Ritzema Bos, Professor of Agriculture in the Government School of

appear to be with it, I am disappointed, as, in the first place, out of a good batch of plants quite two-thirds of the flowers came perfectly single and were worthless, while others were poor in shape and colour, so that after weeding them out I am left with just six that are passable. These are pretty much of the same colour, and that shades of red, not bright, but dull, and therefore I do not see much beauty in them. They are useful, however, through coming in at this dull season and so quickly from seed, and I have no doubt but that this *Carnation* will be the forerunner of a new race of winter bloomers, and that good things will result from crossing the perpetual kinds with it. Hybridists are generally on the alert, and no doubt some have been busy crossing the two, and as this new-comer is so free-flowering and seeding, we shall, I hope, not have long to wait for improvement.—S. D.

EDELWEISS.

The Edelweiss (*Leontopodium alpinum*) is more easily grown than many of the so-called rare alpine we cultivate on our rockeries. It is very much rarer in gardens than it need be,

and this is in a measure due to the summer tourist, who picks up and sends home the merest scrap, oftentimes with only traces of a root, fully expecting on his return to see it flourishing. To any but those well up in the peculiarities of alpine it is a waste of time to collect and send home plants, which after being some time in boxes are often more dead than alive, and require care and experience in handling them. The tourist, however, may do good work in collecting ripe seeds of everything found at high elevations. These sent home and part sown at the time and part kept back until spring will generally give good results and save much unnecessary trouble and expense. The hue and cry about the extermination of the Edel-



The Edelweiss (*Leontopodium alpinum*).

Wageninger, in his paper to the Horticultural Society of Haarlem in 1883. M. J. H. Krelage was associated with the doctor in his investigations, and he may be able to throw more light on the matter than I can. Dr. J. Ritzema Bos says that about the end of May or beginning of June the maggots appear as flies, coloured illustrations of both male and female of which accompany his paper. These flies lay their eggs between the leaves at or near the crown of the bulb. In due time the egg becomes a small maggot, which generally enters the bulb near the top on one side and works its way down to the base. Dr. Bos made a great many attempts to kill the maggot while in the bulb without at the same time injuring its vitality. Many of these methods were very ingenious, but, unfortunately, only the best of them partially succeeded, so that at the present time we are practically without any reliable cure for this disease. Those who think that the disease is entirely caused by climate would do well to study Dr. Bos's book and that of several others on the same subject.—JOHN SPEIR.

Carnation Marguerite.—Seeing this so very favourably noticed in most of the gardening papers, I, like many more, tried it; but instead of being so satisfied as Mr. Burrell and others

weiss in Switzerland at any rate is premature, as I have seen localities where this plant was much more abundant than any of its neighbours. High up on the Swiss Alps and within a few hours' walk of perpetual snow the Edelweiss was the predominant feature; the turf was studded so thickly with tufts of this curious alpine that it was difficult to walk without treading on its flower heads. In Boner's "*Chamois Hunting in Bavaria and the Tyrol*" mention is made of the Edelweiss, which is said to be valued by the natives on account of the difficulty with which it can be procured, and that only a brave climber has the smallest chance of obtaining one of its blossoms. This and many such stories, which are mostly inaccurate, give this plant a peculiar value in England. All the localities visited by me in Switzerland were of comparatively easy access, plants or flowers being collected with the greatest ease and comfort. I have often seen better specimens

of Edelweiss in the garden than on the high Swiss mountains; the flower-heads, however, are never so white, which is to be accounted for by our moist climate. If the Edelweiss can be established on an old crumbling brick wall, either by setting young plants or sowing seeds, it will do much better, and more nearly resemble native specimens than if grown in ordinary soil on the rockery. In such a position it is less liable to damp, and with an annual top-dressing of fine rich soil will soon make large tufts. *Leontopodium himalaicum* is merely a geographical form of the European plant. The same may be said of *L. transylvanicum*, which I can in no way distinguish from *L. alpinum*. *L. alpinum* is very variable, and from the very dwarf tufted forms growing near by tall, weakly-stemmed ones, one could pick out many varieties that would doubtless be constant. K.

ALPINE PLANTS IN THE OPEN.

WHY this strange and unaccustomed wail from "Delta?" Knowing him only through his interesting notes to THE GARDEN, I have come to look upon him as "among the prophets" in regard to the matter in hand, and since his pronouncements would constitute a guide for many, he will wish them to be challenged if they can successfully be so. He is "beginning to doubt whether really alpine plants can be grown in our climate in the open air with any degree of success for any lengthened time;" and not only so, but his doubts extend (unless, as looks possible, the reader or copyist has misread him) to sub-alpine plants, *i.e.*, to plants growing only upon the lower slopes of the Alps. As regards the latter (*i.e.*, the sub-alpine) class, I will only say that, with a pretty extensive knowledge of it, I do not at the moment think of a single sub-alpine species which cannot be grown even with ease in our climate and in the open air, or whose normal longevity is impaired by being so brought into cultivation. Likely enough "Delta" may be able to correct me to the extent of naming one or two difficult species, but if he can do no more, he will not be thus helped. The explanation of so much of this difference between us (if it be not a clerical error as suggested) may be found perhaps in the fact of his having numbered among sub-alpine species some more or less difficult dwarf plants which are in no true sense alpine or sub-alpine at all. I have in mind American plants like *Lewisia*, *Rhexia virginica*, and *Spigelia marylandica*. I might perhaps add the *Oncocyclis Iris*, or some of them, as a possible illustration from another quarter. But to return to the perhaps more important class of true high alpine plants. The one which "Delta" calls in evidence, *viz.*, *Eritrichium nanum*, may be really turned, upon cross examination, into a witness against him. For why does this witness appear almost alone "in the box" as a typical illustration of the difficulty of alpine culture? Surely because, and only because, it is widely known as an excep-

tionally difficult plant to grow? An exception from what? Surely from the general ease of culture which goes with the tribe of plants to which it belongs. I may just say in passing that this plant, *Gentiana bavarica*, and *Ranunculus glacialis* (and it would be difficult to name a second trio as difficult) I have grown for two years successively, with the assistance of glass *in situ*. But this is nothing to my present purpose. Admittedly, some few plants like these are very difficult to grow; perhaps impossible to grow well and perennially without glass assistance, and in some cases even with it. Admittedly, too, a far larger number (and here I am quite on the same side as "Delta") profit by glass winter protection, and in bad seasons would or might perish for want of it. My experience, however, would point to the general sufficiency for this purpose of Mr. Ewbank's plan (of fixing squares of glass over the individual plants *in situ*), although I myself on various grounds prefer a larger and more wholesale mode of covering. But it remains to emphasise my dissent from "Delta" when he suggests that no number of really alpine plants can be well grown perennially and in the open air without some such protection. In the first place, there are at least a few which even resent and dislike the protection. *Gentiana verna* does better without the protection than with it. The opposite-leaved Saxifrages do much better without it. If these are not high alpine plants, what are? I doubt not that "going the round," I could add largely to the list of those which, by being protected, lose (for want of free air) more than they gain (by being saved from damp and cold). I have large beds of these *Saxifraga oppositifolia* (notably the *superba* variety) which increase year after year in quantity, health and vigour. Yet these are studiously left without winter covering.

Such protection, however, is quite necessary even in their case for the "original establishing of newly imported or collected specimens, for in regard to that matter a wholly different set of considerations evidently comes in. I cannot help thinking that many reputed failures of alpine plants are solely due to this distinction being forgotten, and to that being expected from an exhausted and travel-worn plant which can only be reasonably looked for from a healthy and vigorous home-grown specimen. Normally, I find that fresh collected or imported alpine plants want on the average a year's care in the nursery (and to be glass-protected during the first winter) before they can be sent or put out. If this care cannot be given, it is better not to trouble to collect them nor to spend money in buying them.

In the second place, and this is my main point, if there are not many alpine plants which object to protection in winter judiciously given (and there are very many which resent it wholly if it is given injudiciously, *e.g.*, at the price of sufficient air and even moisture), there are, on the other hand, a great number which in no sense need this protection. It is almost extraordinary that in pre-

sence of unanswerable facts the contrary opinion can be entertained—entertained, I mean, as a general truth and not merely as a casual experience under particular circumstances.

Now let me contribute my personal evidence of such facts. I have no doubt at all that the experience of others is similar and confirmatory, but it is evidently better to confine one's self to facts within one's own knowledge; and therefore, and therefore only, I name some (only) of the alpine plants which I grow here perennially in the open air without glass protection, and which so grown thrive well and increase. Of course I must summarise—

1. At least fifty, probably eighty species, or very distinct varieties of Saxifrage. I take it that most of the *e.*, at least, are true alpine plants—nine out of every ten. *Sempervivums* and *Sedums* must be added.

2. Many species of alpine *Primula*. Others I have hitherto given glass protection to, because they were valuable and I wished to make sure of them. But the indications here are that the greater number with a little judgment used in the planting would do as well, or better, in the open as under glass.

3. *Dianthus alpinus*. Pieces here in the open (far better than any I ever had under glass) must be four or five years old. They never looked better or healthier than now. I have no reason to doubt that *D. neglectus* and *D. glacialis* will also succeed without the protection of glass, but I am not sure that I do not happen, accidentally rather than purposely, to have protected them in the past. I shall this year only protect part. Other alpine *Dianthus*es (*e.g.*, *superbus*, *caesius*, *suavis*, and the like) would evidently, if they could, laugh at the suggestion of anything like a winter covering.

4. *Gentiana acaulis*, *G. verna*, *G. asclepiadea* and others—all the most admirable of alpine plants, in many kinds of ordinary soil—grow here almost with the ease (though not at all at the rate) of weeds, and certainly would do worse rather than better if given any kind of protection.

5. Edelweiss, *Onosma taurica*, *Linarias* of all sorts; *Arnebia echioides*, *Carlina acaulis*, alpine *Daphnes*, the lovely *Aquilegia pyrenaica* (a true alpine), *Anemones alpina*, *sulphurea*, *Pulsatilla* (and indeed all other mountain species which I know of that genus) grow here without any kind of winter protection, and if I may add my belief to my evidence, I should say that all such *Anemones* would only suffer by being sheltered. If these are not mountain plants, what are?

Probably I could enumerate many hundred kinds of alpine plants to which my evidence in this matter would extend, but it is needless for the purpose in hand, and would probably be tedious to your readers. "Delta," like myself, has, I see, his garden on the chalk. My puzzle at his failure is, therefore, greater. For though that soil may be necessary for no alpine plant, I cannot doubt that it is very useful to most, and that upon it they will thrive without that care (*e.g.*, for summer watering and careful drainage) which, off it, they exact. Does "Delta" realise that most plants, alpine or otherwise, have but a limited term of life in their native habitats? The fact is only not noticeable for evident reasons, a chief one being that multiplying themselves readily by seed, the last generation is not missed. I greatly doubt whether under cultivation in fairly favourable circumstances their average length of life be not longer than in a wild state.

As regards many species at least, a larger average size of plant is reached under cultivation. Be this as it may, there is nothing to show that the plant's life is shortened (if it be once made to grow well) by being brought under culture.

Probably "Delta" will agree that his proposition which I quoted was all too sweeping, but lest others should be misled by it, I have thought it worth while to send you this reply.

H. SELFE-LEONARD.

Guildford.

Lily of the Valley.—I wish Mr. Jamoch or some other professional or amateur cultivator of Lilies of the Valley would give us the benefit of a few notes upon this flower as grown out of doors. The points of interest would be—

1. Varieties and their history so far as it is known; also whether any careful attempts have been made to raise seedlings in order to improve the race.
2. The best methods of cultivation in the open ground; how and when to plant for the best results.

It would be well to confine the remarks to the single white kinds with green leaves, as the double variety, the varieties with parti-coloured leaves, &c., are not of much real merit.—G. H. ENGLE-HEART.

KITCHEN GARDEN.

NOVELTIES IN VEGETABLES.

CULTIVATORS who are well acquainted with the various types of vegetables are not likely to consider all novelties of the highest merit and superior to existing kinds. This is certainly what they are supposed to be by the vendors. To look through a seedman's catalogue of the present time makes one think that we have gained the highest possible types in every class of vegetables. Many so-called novelties are but old friends under new names, or carefully selected types of the same. There are many people, however, who will have nothing to do with novelties of any class, and those who will do this can never be pleased, or if they can see an improvement they will not admit it, so dear are old associations to them. This certainly is a very one-sided view, for without doubt there is not a class of vegetable which has not been vastly improved during the last decade. Take, for instance, the various types of early Cabbage. Everyone must admit that young Cabbages can be cut earlier now than a few years since, the quality also being first-rate in every way. With early Peas it is the same, and certainly if young Peas are not gathered earlier than formerly, the quality is vastly superior and they are also much dwarfer. A most decided advantage is this dwarfer habit, for not only are tall sticks done away with, and which alone is no mean advantage, but a greater quantity may be grown on a given space. These dwarfer kinds are equal to any of the old taller and round-seeded kinds, although the latter may have greater length of haulm. With the maincrop kinds we are certainly over-done. The great fault with many of these maincrop kinds is their want of constitution, for they will not thrive equally so generally. I have often been struck with what undoubtedly appeared a good type of maincrop Pea, but upon giving it a trial it has failed, and my experience is certainly not singular, and this upon a soil which is particularly rich in those materials which are necessary to the growth of good Peas. A list

of too many new varieties sent out by one firm is bewildering, and this is wherein lies the fault in the introduction of novelties. As long as they are selections of good kinds it does not so much matter, for after all they are only the original kind kept true. It must not be inferred from the above observations that there is little improvement in maincrop kinds, or that I am so one-sided as to think that Ne Plus Ultra amongst Peas is the very best, and that no other need be grown excepting this and the earlier.

Amongst Cabbage Lettuces the advancement has been particularly noticeable within the past few years. At one time it was principally for winter use that the Cabbage varieties then in use were particularly adapted, but in many establishments these are now relied upon solely, the Cos forms not being particularly cared for. This, however, is a matter of taste, as in many places these latter are preferred. In this form the novelty is not so great, or rather if the names are numerous, they are carefully selected types of the Alexandra White Cos or the Paris White. Another advantage the Cabbage forms have over the Cos is their adaptability for forcing. At one time it was feared that the true type of Brussels Sprouts was being lost, as with the advent of the Aigburth the craving for the time being was for this class, but the flavour and also its large size were against it, and those who had to grow produce for the tables of those who knew what a Brussels Sprout was, quickly found out that these larger sprouts would not do, for even where the size was not objected to the flavour was too strong. Amongst the later novelties the ideal standard of what should constitute a first-class Brussels Sprout appears to have been reached. The old lanky kind, although the quality of the sprouts was very good, is now superseded by those with stems more sturdy and also more thickly studded with sprouts. The advancement in the quality of the early Celery is very marked, but the later kinds are about as they were. Those who will set their faces against the best of the early types, and these are the latest introductions, are certainly depriving themselves of good things. Sandringham Dwarf White has had its day, and the flavour and also the texture of the best of the later or midseason kinds are now blended with the earliest of Celeries. Another point with these good early kinds is also their keeping qualities. Amongst Carrots, there are now some fine stocks of the Intermediate. The new kinds of Potatoes are legion, and however symmetrical in shape, it is astonishing that amongst the large number introduced so few find their way into general cultivation. The difficulty appears to be how to select what are supposed to be the best.

As might be expected now Tomatoes have become so popular, there are several novelties, but the best of them are of the Hathaway's Excelsior, Perfection, or Hackwood Park Prolific types. Conference and Ham Green Favourite have proved first-class in every way. There is also a marked improvement in the golden-fruited kinds, Golden Queen being very satisfactory. As recently pointed out by a correspondent, Tomatoes should form a good adjunct to the dessert. The golden-fruited kinds are very pleasing, and also the small Pear-shaped variety, this latter really having a very pretty appearance when ripened up so that clusters of fruit could be gathered. The novelties amongst Onions are on the side of the large exhibition kinds, and for this purpose they are particularly adapted, but medium-sized bulbs of the older well proved kinds are sufficient for every purpose, and as long as the selections are rigidly

adhered to, good Onions for home use will be forthcoming. In the Radishes adapted for early use there is a marked improvement, some that I have tried being wonderfully short in top growth, and having the merit also of coming quickly to a usable size. The Lily White Seakale is well worth growing, and the improvement amongst other kinds of vegetables is well to the fore. The number of kinds of Broccoli in certain quarters is bewildering. The best of the older kinds with Model and Late Queen are sufficient for any purpose. In the foregoing remarks I have endeavoured to show that it is of no use setting one's self against novelties or buying them indiscriminately. Someone must try them, and if found worthy, they will most surely be in the future largely grown.

A. Y. A.

Brussels Sprouts.—I was interested to learn that the large Brussels Sprouts now seen in the market and in shops are not in such favour with the general public as are the older small-sprouted samples, which, in addition to being so green, are so firm and sweet. We made a great mistake in giving encouragement to these large sprouts on exhibition tables, and it would be well if judges would in the future resolutely decline to grant full points to any which are unduly big. It does not at all follow that large sprouts are the most profitable, for if the small sprouts do not so readily fill the bushel, they are produced on the stems in greater abundance. I observe that the growers, let the bulk in the bushels be what it may, always top-dress the contents with specially selected hard sprouts of moderate size. We found Brussels Sprouts of the greatest service in furnishing a supply of vegetables for the Christmas season. Probably more of these will be found at dinner tables during the hard weather than will any other vegetable; indeed what Peas are in the summer, these sprouts are in the winter. Frost is apt to make them taste rather strong, and it is well to have the sprouts boiled in a net, so that they can be lifted out of the water, after a short boiling, and be dropped into fresh boiling water in another saucepan. That plan greatly helps to get rid of the strong flavour which the first has generated. Up to the present time, in spite of the hard frosts which have prevailed, no appreciable harm has been done to the stems or heads. As long as the tops are safe the stems suffer very little indeed. Frequent snowfalls with some of the snow thawing during the day, then freezing during the night, constitute the chief dangers to Brussels Sprout plants, except intensely keen winds, which very much wither the foliage. Generally there is not in all the Brassica family a more profitable and perhaps more hardy member than is the Brussels Sprout.—A. D.

Celery.—It is not often that we are much troubled with slugs, as our soil is naturally dry and tolerably free from them. But in a newly broken-up portion of the garden that used to be orchard with Grass under the trees, we have had a great many of the small black kinds. Unfortunately, we have nearly the whole of our large crop of Celery on that ground, as I used it for Peas, and I always make a practice of having these, which are tall, 10 feet apart, and plant a row of Celery between. This is a system of growing the two I can most strongly recommend, as both crops are greatly benefited, and it is no exaggeration to say that anyone pursuing it will get double the quantity of Peas from a row so exposed to full sunlight and air than can be obtained from another the same length grown in the ordinary way. It was not Peas, however, I meant to speak of, but slugs in Celery, which I see and hear many besides myself have been afflicted with, and for which the wet season is in a great measure responsible. Had I been aware of their presence at the time of earthing, I should have used dust lime before soiling up. I have seen soot applied, but that discolours the Celery too much, and the better way now is to put a bag of it and some lime

in a quantity of water and pour this, after it has cleared, down the stems and hearts of the Celery. It will do no harm to the Celery, as when heavy rain falls, much of it runs down the leaves.—S. D.

Ripening of vegetable seeds.—I fear this season has been disastrous to the ripening of all kinds of seeds, so that more care will be required when storing not to place in damp places, and also in sowing to use more seed than in a favourable ripening season. Peas, I fear, will be a short crop, and though in many places they yielded abundantly, those grown for seed mildewed before they were ripe, unless where thoroughly exposed on high dry sandy soil. When we get such seasons it is bad for all, as the scarcity tends to high prices, and the gardener who is restricted in his seed order (and there are many such) is obliged to omit good kinds, and often grows cheaper varieties that he does not care for. I would advise early purchasing of seeds in all cases, as with limited stocks popular kinds will soon be exhausted. Indeed, I fear some stocks of newer varieties that are much in favour in many cases will be kept to supply seed next season. With a short supply careful sowing is imperative, and though recommending some seeds to be sown thickly, it greatly depends upon the time of sowing and the condition of soil, as when good seed is sown thickly it is wasteful and causes poor weakly growth and thin crops.—G. WYTHES.

QUALITY IN CELERY.

AS far as the quality of Celery is concerned, the present has been an ideal season for bringing out any latent merits of the many varieties now before the public. The past season has been as good as any I ever remember for the plants making a clean and healthy growth; therefore good Celery should be the rule throughout the remainder of the season. The only difficulty in the way of this being maintained is whether the present very wet weather will cause the stems to decay prematurely. Where the mistake was not made of earthing the stems up too early, and which I must say is a very common error, Celery should not rot to any serious extent. We are often reminded, where the operator may have heavy soil to contend with, of the injury which will generally arise if the earthing is carried out with the natural soil, as with such material the quality of the Celery will not be very first-rate. Such certainly is not borne out by facts, as according to my experience the flavour of Celery grown on heavy soil is better than of that grown on light land. The heads are more solid and destitute of that hollowness in the stalks which is found in Celery from hot and sandy soils. The quality of Celery is often depreciated by high feeding, the result being that varieties which have any pretensions to high quality are considerably marred by being grown, or forced, as it were, out of character. Celery is one of the few things that the art of the cook cannot improve, excepting, of course, when cooked as a vegetable, as by being sent to table as a salad, it will depend upon its own merits whether it is appreciated or not. The quality may depend to a certain extent upon the varieties cultivated. Celery to be appreciated must be solid in texture and also have that sweet nutty flavour so desirable, credentials according to published descriptions which all varieties possess, but which often fail lamentably when put to the public test. A year or two since a variety was introduced which was supposed to be self-blanching without earthing, but which has now passed into obscurity. However desirable large heads of Celery early in the season may be from an exhibition point of view, I do not think anyone will differ from me when I state that these are not useful in any way. Varieties are often condemned when the system of culture pursued has led to the poor quality. For many years the Sandringham Dwarf White held the palm as the best early white Celery, but this has now given place to others superior in form and flavour, and however useful the above-named old variety may have proved, it also had a tendency to bolt, which evil the newer varieties are not nearly

so prone to. These also appear to have the quality of the midseason or even later varieties. Amongst the newer earlier varieties, Superb White has maintained the good character it was stated to have when first sent out, and after two years' experience with it, it will have to be a good one to displace it. White Gem is the most compact Celery I have yet grown, but the flavour is not quite so good as that of the one previously named. Major Clarke's Solid Red still maintains its reputation as a good type of Celery for all purposes. I have had it for early, midseason, and late use, and after undergoing the rigours of last winter it was good until the season was far advanced, proving that the adaptability of a variety for late use is more often a matter of culture. The comparatively new variety Standard-bearer keeps sound until a late period, but as a winter or midseason variety it will not replace Major Clarke's for quality. No doubt many of the varieties now offered are merely selections of standard kinds, proving in this respect that extra care is taken in keeping them true to name and distinct. To show how rigid the selection is, each plant appears as if turned out of a mould, so regular is the growth. With the earlier varieties this is especially noticeable. Instead of the quality of the newer early varieties being poor, as it used to be, this is really first-rate, being in this respect equal to that of the best of the standard kinds. The reputation of a variety depends more upon its edible qualities than mere size, which is always obtained at the expense of quality. A. Y. A.

CHRYSANTHEMUMS.

CHRYSANTHEMUM NOTES.

I TAKE an early opportunity of discussing the points raised by Mr. Douglas (p. 591) respecting the size of stands for Japanese Chrysanthemums and the separating of the two sections—incurved and Japanese.

SEPARATING THE TWO CLASSES.

Speaking generally, societies in making up their prize schedules consider the class which is the most suitable for their purpose. Committees are often blamed for their want of taste and judgment in making classes which do not meet with the approval of all, but there is, I think, no absolute rule for any society to follow. Committees have to consider the best method of inducing the public to take an interest in their exhibition. Without support from the outside public and their subscribers, it would be impossible to have an exhibition; therefore it is more a matter of catering for the public than encouraging any particular method of staging Chrysanthemums, whether it be as a combination of the two sections or in separate classes. There is no denying the fact that the question of £ s. d. has to be considered. It is all very well for those not interested or responsible for the funds of any particular society to find fault with methods pursued. When a society can do without outside support, then will be the time to arrange the classes to suit individual taste. If a society can obtain an increased number of entries annually, and thus maintain public interest under existing arrangements, then such can hardly be expected to forsake the beaten path. It is too much to expect such societies to make so important a change as the parting of two sections in the leading class. To illustrate my views on this question I will quote two instances. For many years the Birmingham Chrysanthemum Society has offered its principal prize in the cut bloom department for a mixed class of incurved and Japanese sections, with the result that nowhere else have so many entries been received. In 1890 there were seventeen com-

petitors, and in 1891 there was but one less in this particular class. Now I would ask, Would it be wise on the part of the management to separate the two sections? If they did so, surely the wish of a few individuals would hardly balance the present brilliant success achieved by the combination class. In addition to a large entry, this society can point to a most successful balance-sheet. The other instance is that of the Hull Society, who last year tried separating the two classes with the idea of obtaining increased competition, but it did not succeed in spite of the magnificent prizes offered in both classes. Another point against the separation scheme which ought not to be overlooked is that of arrangement. Complaints are at present loud enough about the long lines of formal blooms without any break at the principal exhibitions, but if the separation scheme were adopted, I fancy it would then be worse than it is now. What could be more objectionable on the same grounds than, say, a dozen exhibits in the principal incurved class of, we will suppose, twenty-four, thirty-six, or forty-eight blooms? For comparison, not only for the judges, but for the public also, the entries ought to be placed alongside of each other. At present the stands of Japanese blooms give some change, be it ever so small. Instead of stipulating for all the varieties in the principal class to be distinct, many societies consider that allowing say twelve duplicates in forty-eight blooms increases the number of entries. Under such circumstances, committees conclude that they are doing that which is best.

There is no disguising the fact that exhibitors go to shows to win prizes. Sentiment regarding general arrangement enters little into their thoughts; a conformation to the rules is their object, and this they vigorously intend to keep. To them it is not a question of what are the whims of onlookers—which are generally those from whom the complaints emanate. Exhibitors of experience know well that it is easier to win one first prize in the combination class than it is to secure two of equal merit when the sections are separated. The reason is this: points are gained perhaps on the incurved blooms, which are lost on the Japanese, and so the one balances the other; whereas in the separate classes such assistance cannot be obtained. It is obvious, then, why exhibitors prefer the combination classes. As to the difficulty judges sometimes experience in awarding the prizes, as named by Mr. Douglas, I agree with him it is at times difficult to decide properly, but I should say he who fails to see why the incurved should have priority over the Japanese for the reasons stated cannot have had much experience in growing or showing this section, assuming, of course, that representative blooms of each section are shown.

THE SIZE OF THE STANDS.

Regarding the suggested increase in the size of the stands for Japanese blooms, I am decidedly of opinion that such a step is not only necessary, but that it would meet with universal approval. The risk will be (in the absence of a definite rule) in making the stands too large, whereby the blooms appear dwarfed. I do not mean blooms of the Etoile de Lyon type, but those of the Mme J. Laing type, which are extensively cultivated, and many others which do not require more space than the present size of stand admits—Avalanche, for instance, which is one of the most popular kinds we have. Certainly more space is needed for the back and middle row blooms, but to increase the size of a stand for twelve blooms to 30 inches by 24 inches, as some have suggested, would be going too far. There are other considerations as well

as enlarging the bloom space. Many societies cannot at the present moment afford space to all the exhibits they would like; hence their shows are shorn of some interesting classes.

I will go no further than the Birmingham Society, which I have quoted earlier, to point out the difficulties which must be incurred. I cannot see how they could in the large class accommodate even the same number of competitors that they get now under the present rule. Their space is all too limited now to give that effect which such a splendid exhibition demands. Even the extension which Mr. Douglas suggests would require at Birmingham over 11 feet run more of table space than at present. The alteration would extend to all Japanese classes, as well as the large ones. It is no uncommon occurrence there to find sixteen competitors in the class for twelve Japanese. This alone means an increase of 5 feet. I could go on quoting other classes where extra space would be needed; therefore before a compulsory change is effected it would be wise to consider all the circumstances.

There is still another point which I have not touched upon, and that relates to the exhibitor himself. I do not allude to the increased expenditure in obtaining new stands and travelling boxes, but to the inconvenience of transit if the size is increased too much. It does not so much matter to those persons who go to but one or two shows in the neighbourhood of large towns in their own district, but to the country exhibitor, who has many miles of road to travel before a long railway journey is taken, it would become a serious matter if the stands were extended considerably. My idea is that a corresponding increase in the width of the stands is not necessary to the same extent as is the length, for the reason that the smaller blooms in the front row would suffer. What is required is sufficient space for each bloom to stand clear of its neighbour, and no more.

I think in the near future such varieties as *Meg Merrilies* and *Baron de Prailly*, which have but little to recommend them beyond size in diameter, will not be grown nearly so numerous as in the past; they will make room for varieties of the *Belle Paule* type, which do not require so much width. There will not, I think, be the need for such an increase as some imagine. The stretched-out examples of *Etoile de Lyon* we very often see do not represent the variety in its true form, and on that account ought not to be taken into consideration. As time goes on these washed-out examples will be fewer; cultivators will find it is the deeply-built, highly-coloured blooms of this which exhibit the most merit and win prizes. If the present stand for twelve blooms were increased 3 inches in length and 2 inches in width, I think ample provision would be secured for even the finest exhibits, although I would not object to the addition of another inch both ways. It is not absolutely necessary that all the largest blooms, should be arranged at the back of the stand; if this method were modified, the increase in the stand need not be so great. In the case of the large classes for say forty-eight blooms, the increase which I suggest means 1 foot more space in the length, and throughout a large exhibition even this moiety runs up pretty quickly. Again, in conclusion, I would advise the responsible parties to thoroughly well weigh all the points which I have raised before coming to a final decision; undoubtedly an increase is necessary, but to hit upon that which is correct is the question. —E. MOLYNEUX.

— Mr. Douglas does well to call attention to exhibiting the Japanese and incurred sections to-

gether. Such an arrangement is certainly discouraging to many exhibitors, especially the younger ones. The Japanese Chrysanthemums are certainly the favourites with the general public, and this being the case, I do not think that judges should lay so much stress upon the incurred division of the stand, as many are undoubtedly in the habit of doing. The stand which would take first at one show would probably be awarded a lower prize at another with a different set of judges. When a prize is given for a mixed stand, in my opinion the whole set should be judged, and no favour given to the stand which may be strong in incurred according to the judges' ideas, but yet be considerably below par with Japanese. Many good growers of Chrysanthemums, I am sure, would gladly hail the change Mr. Douglas suggests, and then each section would be judged on its merits, and not, as is now the case, according to the individual taste of a particular judge. Anyone who has had the growing of Chrysanthemum blooms for exhibition is well acquainted with the fact that the incurred flowers take a deal more finishing to get them to an exhibition standpoint than do the Japanese.

Of later years it has also been apparent that the stands for the Japanese section were too small, the blooms being simply huddled together, and the merits of the flowers could be hardly seen individually. To get fair judging the stands should all be alike, although, as Mr. Douglas truly states, a sudden change would entail inconvenient expense on the part of exhibitors. If the stands were in two sizes, I am afraid the same dissatisfaction would exist, or at any rate for a time. At least, the judges would have to take more time over the smaller stands, so as to find out the inferior blooms. Often the crown of the bloom of the drooping-petalled varieties appears perfect, while the ends of the outer florets are damaged.

As recently pointed out by Mr. Taplin, the method of exhibiting Chrysanthemums in America is well worthy of consideration by the framers of schedules for the coming season. I do not say that all Chrysanthemums should be arranged and exhibited in vases and cut with long stems, but I am sure that if classes were set apart for the arrangement in vases of the Japanese or any other section with long stems, they would form a very pleasing feature, and become popular. Some time ago I had the arrangement of the floral decorations at a large public banquet where bold effect was needed, and for the purpose I used large blooms of the Japanese cut with long stems and foliage attached. These were arranged in large vases with the addition of sprays of *Berberis*, highly-coloured *Cotoneaster Simonsi*, autumn-tinted sprays of the *Guelder Rose*, with trailing sprays of *Veitch's Ampelopsis*. The number of blooms in a stand, or rather vase, may range from half a dozen to a dozen, taking care to either arrange one variety by itself or not more than two or three, guarding against putting those together where the colours will at all clash. Large blooms shown off in this manner have a really artistic effect; a deal better, for instance, than when growing upon the plant, and why should not the pompons and the singles be shown in vases? Of the latter there are now some most charming varieties, so this section need not fail for the want of variety. Disbudding the pompons, so as to get two or three large blooms, is against this section showing itself off to the best advantage. The Japanese *Anemones*, again, have also a grand effect when several of the blooms are arranged in a large vase, the drooping outer florets showing off to advantage. —OBSERVER.

A specimen Chrysanthemum. I have no doubt the plant referred to by Mr. Edward Handley was a very fine one, and although we have made great strides in the cultivation of Chrysanthemums as cut flowers, I am not so sure that our specimen plants have improved in the same proportion. I am not old enough to remember the triumphs of cultural skill in the early days at Stoke Newington, but the great reputation of Robert James, Mr. Oubridge, and later Mr. Hutt

for specimen plants is traditional among the present members of the National Chrysanthemum Society. Mr. Shirley Hibberd, in his pamphlet on the Chrysanthemum published in 1857, shows to what an extent specimens were grown in those days, for he says, "Away from London, Mr. H. Bowler, of Ipswich, may be said to have made the greatest progress in the culture of the Chrysanthemum. His *Vesta* exhibited last year at Ipswich measured not less than 27 feet in circumference, and was furnished with a thousand blooms of the most snowy whiteness, every single bloom being in itself a specimen. The foliage was fine and healthy, feathering the stems to their base, and the plant was exhibited in a 16-inch pot. Mme. Camberson, also exhibited by Mr. Bowler, was almost equal to his *Vesta*." Grand as was the Bath specimen, it does not appear to come up to those of forty-five years ago. —CHRYSANTH.

CHRYSANTHEMUMS, NEW AND OLD.

In the case of many other flowers some of the oldest varieties are still among the best, but with Chrysanthemums there is no such thing as clinging to the old favourites—at any rate as far as the grower of large blooms of Japanese sorts is concerned. Even those who do not care for extra large flowers cannot well resist giving a trial to the novelties, many of which have such beautiful form and colour as to quite eclipse the bulk of the older varieties. The weeding-out process will, perhaps, be more pronounced this winter than ever before. There is no avoiding this, and, on the whole, I am of opinion that it is to the advantage of the Chrysanthemum grower that this should be so, as the constant change of varieties sustains the interest almost to fever heat, the enthusiast looking forward most anxiously to the time when the various novelties shall unfold their gorgeous blooms, and the worst part of the winter is gone before the excitement is fairly worn off. Only a very few years ago no collection would have been considered complete unless it included *Agrements de la Nature*, *Album fimbriatum*, *Bend'Or*, *Comet*, *Dr. Macary*, *Dormillon*, *Ethel*, *Fulton*, *Hiver Fleuri*, *James Salter*, *La Nympe*, *Margot*, *M. Henry Jacotot*, *Oracle*, *Peter the Great*, *Roseum superbum*, *Sam Henshaw*, *The Cossack*, and *Bouquet Fait*. In their day they were well worthy of being cultivated, but where are they now? They may be found in some few old-fashioned places, but, as far as the majority of growers are concerned, they may as well be expunged from the catalogues at once. The next to go were *Bertier Rendatler*, *Comtesse de Beauregard*, *Duchess of Albany*, *Edouard Audiguier*, *Elaine*, *Fair Maid of Guernsey*, *Fernand Feral*, *Florence Piercy*, *Grandiflorum*, *Jupiter*, *L'Adorable*, *L'Introuvable*, *L'Ebouriffée*, *La Triomphante*, *Mlle. Lacroix*, *Maiden's Blush*, *Marguerite Marroux*, *Martha Harding*, *Mons. Astorg*, *Mons. Tarin*, *Mr. Garnar*, *Mr. H. Wellam*, *Mrs. J. Wright*, and a few other well-known varieties.

This winter will, unless I am much mistaken, have seen the last of several varieties in the premier collection of blooms, more especially those that are either of a weakly constitution or are too flat and spreading, the latter presenting but a sorry figure among their newer rivals, most of which are remarkable alike for the great depth as well as breadth of bloom. It may, to an outsider, seem a rather bold assertion that *Meg Merrilies* and the two sports *Ralph Brocklebank* and *Countess of Lytton* are not desirable any longer for exhibition, but such is really the case, and the same remarks apply to *Baron de Prailly*, *Carew Underwood*, *Stanstead Surprise*, *Gloriosum*, *M. J. Pigmy*, *Pelican*, *Moonlight*, *Annie Clibran*, or *Pink Lacroix*, *Soleil Levant*, and *Val d'Andorre*. Nor is there now any need to take extra pains with *J. Délaux*, or *F. A. Davis*, *Criterion*, *Triomphe de Châlets*, and *Japonais*, though as yet there is nothing to supersede *Golden Dragon*, still one of the most attractive when shown at its best. I am not one of those that complain of the decadence of Mme. C. Audiguier or *Belle Paule*, but they can both be well dispensed with. The former is too tall grow-

ing, while the latter is very difficult to manage, the early buds disappearing in a very annoying manner. Even the very popular Mons. Bernard will not long hold its own, as in a cut state it keeps badly, flagging very quickly. Comte de Germiny is also fast disappearing, and it is doubtful if Thunberg, beautiful as it is, will be grown much longer. While the rage for hairy-petalled varieties lasts, room, doubtless, will be found for Louis Boehmer, but it has a very washed-out appearance, the centre also being faulty in many instances where shown. Mrs. Alpheus Hardy is by far the more beautiful, and now that its requirements are better understood, it will, no doubt, be more frequently seen in good condition.

After weeding out nearly all of the foregoing there is yet a bewildering number of varieties to select from, and that, too, without taking cognisance of either the untried French or American novelties. All who would be successful in winning prizes ought certainly to grow Beauty of Castlewood, Beauty of Castlehill, Bouquet de Dames, E. G. Hill, Edwin Lonsdale, Gloire du Rocher, John Lane, Mlle. Marie Hoste, Miss Anna Hartsorn, Mr. A. H. Neve, Mrs. B. Harrison, R. C. Kingston, Violet Rose, D. B. Crane, Aida, Vivian Morel, W. H. Lincoln, W. W. Coles, William Lane, Mme. E. A. Carrière, W. Fricker, Florence Davis, Volunteer, Coronet, Lilian S. Bird, Mrs. E. W. Clarke, Mrs. Irving Clarke, Cesare Costa, Puritan, and Mrs. J. S. Fogg. With very few exceptions the foregoing were given a good trial in the garden of Mr. W. H. Fowler, Taunton, last season, several of them being also shown by several other enterprising growers, and a grand lot of varieties they are, too. Other better-known varieties still worthy of being grown for exhibition are E. Molyneux, Sunflower, Etoile de Lyon, Avalanche, Eynsford White, Mrs. F. Jameson, Sarah Owen, Mme. J. Laing, Mons. Bernard, G. Daniels, G. Atkinson, Boule d'Or, Stanstead White, Golden Dragon, Mr. C. W. Wheeler, Mr. H. Cannell, Lady Lawrence, and Mme. Baco. What adds greatly to the value of most of these selected new, or comparatively new, varieties is their comparative sturdy habit of growth, the flowering height averaging nearer 3 feet than 4 feet or more, as in the case of so many of the older sorts. Several of them have already proved serviceable for conservatory decoration, their bright and rich colours contrasting favourably with those of the older favourites.

When we come to discuss the Chinese or incurved section fewer changes have to be noted, though even in this case novelties of superior merit have been added to the list in greater numbers during the past two seasons than ever before. I must confess to a great weakness for the Princess of Wales family, the latest additions in the form of sports being perfect in every way. Mrs. Coleman is the most beautiful in the family, Miss M. A. Haggas and Violet Tomlin also being equally distinct and good. Of Matthew Russell I have had no experience. All the additions to the Princess of Teck family are also most welcome, especially as I observe that they improve with culture. When Mrs. Norman Davis was first distributed, the flowers produced were far too rough, but now they are as well formed as those of the type, the rich yellow colour being very effective. Charles Gibson, a bronze sport from the last-named, was somewhat rough this season, but I expect to see this and the other bronze sports become more refined and beautiful after they have been in private growers' hands for some time. Lord Eversley, Mrs. Heale and Hero of Stoke Newington complete the Teck family, and it is to be hoped both this and the Princess of Wales group will be specially distinguished at important shows by having classes provided for them.

The Queen family are quite indispensable to the exhibitor, though not of much use for conservatory decoration. The later additions, notably John Lambert, John Doughty, and Mrs. Robinson King, are all distinct and good, and no exhibitor will think of discarding Queen of England, Empress of India, Golden Empress, and Lord Alcester; but neither Alfred Salter nor Emily Dale are very firmly established as first favourites, while Bronze

Queen and Golden Queen of England are both very difficult to produce in a presentable state. Prince Alfred and the sport from it (Lord Wolseley) are deservedly popular, and John Salter is still worthy of being grown. Novelty and its sport (Alfred Lyne) pay for good cultivation, as also do Jeanne d'Arc, Nil Desperandum, Nonpareil, Refulgence, Empress Eugénie, Mrs. W. Shipman, Cherub, Beauty, Barbara, Lady Hardinge, and Jardin des Plantes. Those that most exhibitors can well afford to dispense with are Angelina, Baron Beust, Eve, Golden Beverley, Golden Eagle, Inner Temple, Isabella Bott, Bronze Jardin des Plantes, Lady Carey, Lady Slade, Lord Derby, Miss M. Morgan, Mr. Brunlees, Mr. Bunn, Mr. Cobay, Mrs. G. Glenny, Mrs. Rundle, Mrs. Dixon, Orange Perfection, Prince of Wales, Princess Beatrice, Rev. J. Dix, Sir Stafford Carey, Venus, Pink Venus, White Globe, St. Patrick, and Yellow Globe.

A GROWER.

GROWING LARGE BLOOMS.

MAY I venture through THE GARDEN to ask a few questions concerning the first bud that appears on the Japanese and incurved Chrysanthemums? I have for some years tried to grow large specimen blooms like those annually staged at different shows, but I have failed. Am I to allow the first bud that appears on the plants in July to grow or those that appear later on in August or September? The only thing I fear is that by allowing the first in July to remain, it will be too early for the October and November shows. Should I cut all the branches or shoots and leave only one branch? and from this said branch or shoot is the supposed specimen bud to come? Ought the specimen plants intended for large blooms to be cut or stopped during their growth? What is the best month for propagating? —HENRY CANNELL, *Douglas, Isle of Man.*

*** To obtain large blooms such as are seen at exhibitions, the plants which produce them need considerable attention from the present time until they flower in October and November. Propagation should commence at once, as the plants require a long season of steady growth, so that the wood becomes well matured, as without this, blooms of the finest quality cannot be obtained, especially in the incurved section, which appears to require even more maturity than the Japanese section. Where the incurved varieties especially are not propagated so early, the blooms may be large enough in diameter, but they will lack depth and consequently solidity. They will be loose and flabby, one petal appearing too weak to support that above it. Stout cuttings 3 inches long are the best taken a few inches from the main stem of the plant which flowered during the current year. Insert them firmly in sandy soil singly in small pots 2½ inches in diameter. A cool house under hand-lights is the best position to strike the cuttings in; failing this convenience, a cold frame sufficiently protected from frost will answer very well. Do not top or pinch them in any way. Allow the single main shoot to grow uninterruptedly until the first flower-bud forms in April, May, or June, according to the variety and the manner in which the plants have been treated. When this bud is forming at the point of the shoot, a temporary check takes place in the growth of the plant; to compensate for this, numerous other growths spring from the joints in the main stem below the bud, which is at once removed, as well as all the shoots except three of the most promising, which are generally those nearest the point and immediately below the bud. These three additional branches are those which will provide the flowers eventually. As fast as these growths extend, secure them to supports to prevent their being broken, and remove all side growths which will continuously push out from the nodes below. This restricts the energy of the plant into the three selected growths; to allow other shoots which must eventually be cut off to extend is a waste of energy. Thus it will be seen that each plant is intended to bear three blooms. Flower-buds will form at the point of the three shoots, as in the case of the one previously noted. About the

right time for the flowers of each variety to set in, in the Japanese section, from the first week in August to the end of the third week in the same month, and in the incurved section from about the middle of August to the same time in September. From the foregoing short note H. Cannell will learn that three shoots or branches are to grow from each plant, each branch to bear one bloom only, and by promptly removing all superfluous shoots as fast as they grow, the whole energy of the plant will be concentrated in the three shoots and blooms selected.—E. MOLYNEUX.

TREES AND SHRUBS.

VERONICAS IN FLOWER.

FOR a cool greenhouse or conservatory the various garden forms of *Veronica speciosa* are well suited, as protection from frost is all they need, and with a little heat they will flower more or less throughout the autumn and winter months. These Veronicas are very accommodating, for neat little bushes that will bloom well may be had in pots 5 inches or 6 inches in diameter, while if needed they will quickly form large specimens a yard high and as much through. Of course, such plants need a considerable amount of root room, and where there is a bed in the conservatory they do well planted out, provided the situation is light and airy. Few plants are to be seen in greater numbers hawked about the streets of London during the winter months than these Veronicas, and the cheap rate at which they are disposed of would indicate that little trouble is taken with them. That is indeed the case, for the cuttings are struck in the spring, and when frosts are over planted out. Little attention is needed during the summer except to pinch out the points of the growing shoots once or twice to ensure a bushy habit, as well furnished plants are necessary for potting. By the end of summer they will be neat little bushes, and if lifted and potted carefully will scarcely feel the check. These Veronicas form such a mass of roots when planted out that it will be absolutely necessary to reduce them before potting; however, if not carried to excess, it can be done without injury to the plants, or at most with only the loss of a few older leaves. When lifted and potted they should be placed in a frame and kept rather close till root-action recommences, but it will not be long before the fibres are again active in the new compost. Though Veronicas were in a good many cases greatly injured or killed outright in the open ground last winter the injured plants recovered so quickly that soon all traces of the frost were obliterated. They will strike root readily from cuttings at nearly all seasons of the year, but the best time for that purpose is in the spring, the cuttings to consist of the young shoots of the current season. They need to be kept close and shaded till struck, which will not take long, but if the cuttings are allowed to flag the action of rooting will be much retarded thereby. A few garden varieties that are especially good are Imperialis, bright amaranth-red, a vigorous variety of free branching habit and with large closely-packed spikes of blossoms; Celestial has pretty light blue flowers; Reine des Bleues, deep blue; Maie Antoinette, pink; Jardin Fleuri, deep carmine. Blue Gem, as implied by its name, has blue blossoms, but in habit it is totally unlike any of the preceding, forming a little dense Box-like bush, that when in good condition is hardly ever without flowers. T.

Scarcity of Holly berries.—It seems a little singular that, in a season like the past has been for fruits and berries of nearly all and every description, there should be such a lack of Holly berries, and yet so it is; but the fact of their having been so abundant last year no doubt accounts for it, as Holly trees, like Apples, do not bear heavy crops two years in succession. It may be, however, that the flowers suffered from the late spring frosts. In a good season or general way we get immense quantities, as the Holly abounds all over the estate

here, and trees in hedgerows or by the sides of roads in the open are, during the autumn, very beautiful. This year we sent far and wide to get what we wanted for home decoration and sending away, but even the best we obtained was poor compared with what we usually find, as the berries were thinly set on the twigs.—J. SHEPPARD, *Woolverstone Park, Ipswich*.

GOLDEN CONIFERS.

PLANTED with discretion, and in well chosen positions, the numerous Conifers having their foliage suffused with a golden yellow tint are capable of producing admirable effects in the home landscape, such as can be obtained by few other ornamental trees and shrubs. They are at various seasons of the year particularly bright and cheerful, and, unlike variegated Conifers, they do not become disfigured under the influence of the hot summer's sun. At no time do the Golden Conifers look better than in autumn and winter, and these are the seasons they are most required; hence their value. The now numerous list of these Golden Conifers includes some superior to others as regards the depth of colouring and its persistency. Among the principal varieties to be recommended are the following:—

ABIES EXCELSA AUREA.—This is a variety of the common Spruce, in which the young growths are of a bronzy yellow, but as the season advances the whole plant assumes the normal tint. Planted in bold groups among park scenery, the Golden Spruce is capable of producing a very fine effect.

BIOTA ORIENTALIS AUREA.—This is the old and well-known Golden Arbor-vitæ, which is often met with under the name of *Thuja aurea*. It forms a dense globular bush, with the young growing shoots of a bright golden colour, but as the season advances they lose their yellow tint, and by the autumn or winter the whole plant is quite green. The variety elegantissima is distinct and handsome, of a narrow pyramidal habit of growth, very different in all respects from the preceding. It retains its deep golden yellow colour during the summer months. *B. orientalis semperæscens* is a variety in which the golden tint is retained throughout the year, but is at its brightest during the season of growth. It is rather less spreading in habit than the common Golden Arbor-vitæ.

CUPRESSUS LAWSONIANA LUTEA. This is by far the best of the golden varieties of Lawson's Cypress. It is free in growth and of a very graceful habit. The colour of this Conifer is a deep golden hue, which becomes more intensified as the summer advances, and never to my knowledge has the foliage been singed by a hot scorching sun unless the roots were suffering from drought. In short, it is a very desirable plant from an ornamental point of view. *C. thuyoides aurea*, also known as *Chamaecyparis sphaeroides aurea*, has the young growth of a golden colour, which tint is retained into the winter.

JUNIPERUS CHINENSIS AUREA.—The golden variety of the Chinese Juniper is surpassed by no other Conifer of this class as a bright yellow-foliaged shrub, for, like the golden variety of Lawson's Cypress, full exposure to the summer's sun only tends to heighten its colour. *J. japonica aurea* is a golden form of *J. japonica*, which is somewhat in the way of a dwarf plant of *J. chinensis*, but the colour is neither so deep nor so lasting as in the golden variety of the Chinese Juniper.

LARIX KEMPFERII.—The Golden Larch forms a moderate-sized tree of pyramidal habit. The leaves are arranged as in the common Larch, but they are much larger in all respects. Their colour when first expanded is of a yellowish-green, but as the season advances they gradually become deeper in hue till autumn. This is the only deciduous species among golden Conifers, and, at the same time, one of the largest in growth. It is also known as *Pseudo-Larix Kempferi*.

PINUS SYLVESTRIS AUREA.—The Golden Scotch Fir is a very ornamental variety forming a dwarf bush, which towards the end of autumn assumes a deep golden tint and retains that colour throughout the winter till the return of spring, when it changes

to the normal green tint, and remains in that condition throughout the summer till autumn again sets in.

RETINOSPORA OBTUSA AUREA.—The Golden Retinospora is of a more fastigate habit and dwarfer than the typical form, from which it also differs by reason of the young growth being of a deep golden yellow. *R. obtusa gracilis aurea* is a very open graceful habited plant, which during the growing season has the young shoots suffused with a yellow tint, but as the growth is matured it becomes green. *R. plumosa aurea* is a striking contrast to the last, having a somewhat pyramidal and upright habit of growth clothed with pale golden soft feathery foliage. As the season advances a good deal of the golden character is lost till the following year's growth commences. *R. pisifera aurea* has the foliage of a deeper colour than the preceding, and it is also of a more open habit of growth. *R. tetragona aurea* forms a dwarf compact bush of very slow growth, very suitable for rockwork or spots where slow-growing subjects are desired. The young growth is of a golden colour, which resists the sun well, and retains its tint for the greater part of the season.

THUJA OCCIDENTALIS AUREA.—This is a dwarf golden variety of the American Arbor-vitæ, and one well worth cultivating. It is of comparatively recent introduction, and at present but little known. *T. occidentalis Vervæana* is a free, slender-habited kind, in character a good deal like some individuals of the common American kind, but with foliage of a deep golden colour during the summer, changing in the winter to a yellowish brown.

TAXUS BACCATA AUREA.—The Golden Yew is too well known to need description; suffice it to say it is always brilliant and effective. There are several other varieties more or less golden or variegated, all of which are good, but this is the best. The variety of the Yew called *fastigiata aurea* is a golden variety of the Irish Yew. It is an effective plant, and a valuable addition to golden-foliaged Conifers. It forms a striking contrast as regards colour to the sombre type when planted near or alternately with it on a lawn or terrace.

T.

NOTES OF THE WEEK.

Crocus hyemalis var. Foxi (Boissier) is a pretty white flower with black anthers in its yellow throat, and a stigma cut like very fine gold wire. Lovely in open-air border at this dull season, and 1st of frost do not injure its flowers, fragile as they appear.—F. W. B.

Colchicum Bivonæ is a true winter bloomer with soft pink blooms, not large, but in clusters, very effective. It is a var. of Boissier's *C. latifolium*, I believe, but sent to me by Mr. Ware under the above name. It is, no doubt, a truly winter bloomer here after three or four years' trial.—F. W. B.

Adenophoras for cutting.—I notice these plants are recommended for this purpose. The Campanulas are proverbially bad for this purpose, but this section is the worst of the lot. I have often tried them, but they do not last an hour. As border plants, however, they are very elegant and lasting.—T. SMITH.

Lilium speciosum Krætzleri in bloom.—I have now in my room a *Lilium speciosum Krætzleri* in bloom with six good-sized, well-formed flowers and two buds—one of many such—showing how easily this group of Lilies may be had in bloom from September to Christmas or even later, while I doubt not that *Lilium Harrisii* in some places is fast coming into flower.—A. W.

Hardy flowers at Christmas.—Here we could have cut a very beautiful bouquet on Christmas Day from the open air (after the thermometer had gone down to 20°) of Christmas Roses in variety, some as white as *Eucharis* and nearly 5 inches in diameter, Golden Winter Jasmine, *Smilax*, *Eurybia* or Musk shrub, Myrtle, *Chrysanthemums*, *Garrya*, and berries, such as *Euonymus* (red and white vars.), Holly (scarlet and orange), *Cotoneaster*, *Skimmia*, &c. *Berberis* or red-brown *Tellima* leaves with Christmas Roses alone on long stalks make a charmingly fresh winter bouquet, or same foliage

with *Chrysanthemums*, and there is none of the disheartening brittleness or hay-like shrivelling, as is the case with hothouse Maiden-hair.—DUBLIN.

The early-flowering Irises.—Before we can say definitely when these ought to flower, no doubt we require to have them in our gardens for several years. Hitherto I. Histrio has been first, followed by I. Vartani. This year I. Danfordiæ is first, opening on one of the early days of December, followed a fortnight later by I. Bakeriana, while the flowers of I. Histrio are now (Dec. 28) only showing colour. I am writing about bulbs growing permanently in open ground, and not potted bulbs flowered under glass. Should we have mild weather, quite a crowd of kinds will be shortly open. I. Rosenbackiana, I. reticulata cœrulea, and others are showing their spathes; so are some of the Squills and Narcissus Tazetta. All the Daffodils are well above ground. T. SMITH, *Newry*.

Plants in bloom at Dublin.—The following are in flower in the open air after 12° of frost: *Iris alata speciosa*, *Crocus hyemalis Foxi*, *C. vitellinus*, *C. Clusi*, &c., *Jasminum nudiflorum*, two or three kinds of *Wych Hazel*, *Garrya elliptica* (male and female), *Helleborus niger maximus*, *H. Mme. Fourcade*, *H. n. ruber*, *H. n. major*, *H. n. St. Brigid*, *H. n. laxus*, and *H. n. præcox*. The two last are seedlings raised by Herr Max Leichtlin; both flowered last July and have ripened a fine crop of seed (sown in October), after which they are now producing a second crop of flowers. Poth are slender in growth, but healthy and vigorous, and likely to give us a very free-flowering race of these acceptable winter flowers. We never had so many good *Chrysanthemums* at Christmas before as we have this year from plants cut down early in June.—F. W. BURBRIDGE.

Laurus Bernardi.—This is another variety of great excellence which ought to be added to the list given at p. 585. Its habit is somewhat similar to that of the Caucasian; the leaves, however, are a trifle larger. Its principal feature is the intense deep green colour, rivalling in this respect that of the common Holly. A word of explanation is, I think, needed in respect to what is called in the list the broad-leaved or Versailles Laurel. The broadest and largest-leaved kind is rightly named *latifolia*; it may have originated at Versailles, I cannot say, but all the same it must not be confounded with a variety called *L. versailensis*, which has leaves intermediate between the common and Caucasian kinds, and whose habit is nearly that of *caucasica*. Another good kind—*caucasica rotundifolia*—is of the same colour as *caucasica*, but with much broader leaves. *L. pyramidalis* is also a distinct kind, but the best of all is undoubtedly *latifolia*, rivalling in habit and leafage the ever-green *Magnolias*.—T. SMITH.

OBITUARY.

W. ALFRED DICKSON.

MR. WILLIAM ALFRED DICKSON, to whose death at the age of 54 years we briefly referred in our last issue, bore his full share of responsibility in the direction of the business, having had the entire management of the nurseries during the whole period of his active business life. As a nurseryman, very few men living had such knowledge of trees and plants. He had that quick discernment which enabled him to pick up a point which gave a characteristic distinctiveness and a determining feature to a particular plant, and which once seen seemed never to be forgotten. If his love for plants did not lead him into the extravagant excesses which often mark the enthusiast; it was simply because his business brought him into close contact with the economical properties of flowers, shrubs and trees. Yet the tender regard he had for plants and flowers was manifested often to those who might be brought into contact with him at his offices in the nursery grounds. At such times when his attention would

be given to some new variety, with the introduction of which he was closely identified, one would find on his table now a Daffodil, now a Rose, now a Carnation, or something of bright beauty, depending upon the season of the year when the call might happen to be made. In this particular direction many of the newly-introduced plants owe their distinctive title to the perceptive and mental endowment of Mr. Alfred Dickson. His powers of concentration and determination were very marked, and whilst he was no theorist in the common acceptance of the term, he had the courage to advance opinions which had been formed after long years of patient practical experience and thought. As an employer he was firm, without that sternness which seems inevitable to some men when brought into contact with the problems and trials involved in the employment of labour and in dealing with large masses of men. He was a strict observer of method and punctual discharge of duty. For Mrs. Dickson and her young family of six children deepest sympathy will be everywhere felt.

DR. WILLIAM ROBERT WOODMAN.

DR. WOODMAN died at Devon House, Brondesbury, on Sunday, December 20, 1891, the day following his sixty-second birthday. He has been a prominent figure in gardening, and in 1871 he succeeded his uncle, the late Mr. R. T. Pince, of the Exeter Nursery, and carried on, under the familiar title of Lucombe, Pince and Co., that famous old concern with much spirit and enterprise until 1883, when he relinquished the business. To record all his victories at horticultural exhibitions would require a whole page, for he was first prize-winner in nearly every competition wherever he went, and his magnificent collection of specimen exhibition plants was at that time unquestionably the finest in existence. From 1873 to 1877 he won in open competition upwards of one hundred first prizes and silver cups, the most notable being the twenty-guinea cup at Plymouth for twenty stove and greenhouse plants, and the fifteen-guinea cup at Weston-super-Mare for twelve stove and greenhouse plants, which victories he repeated on several occasions. After 1877 he did not again compete for prizes, but still continued to the last as an honorary exhibitor, his extensive and artistic displays being generally the chief feature of the flower shows he patronised. Moreover, his own annual exhibitions of Hyacinths and spring flowers at the Exeter Nursery have given delight to thousands.

Like his uncle, Mr. Pince, he was a leading member of the St. Thomas's Local Board at Exeter, and was the largest ratepayer and employer of labour in his parish. He was also chairman of the School Board there, and was always first and foremost in every good work. W. NAPPER.

Chelsea.

Mr. Jas. Williams.—We hear with regret that Mr. James Williams, father of the late Mr. B. S. Williams, of Upper Holloway, died on December 24 last, in his ninety-fifth year, he having been born on January 18, 1797. He went into the service of Mr. Warner, Woodlands, Hoddesden, December 17, 1817, and remained in the family until he retired, some few years ago.

Mr. Ant. Roozen.—We learn from Haarlem that Mr. Ant. Roozen, Senior, the founder of the celebrated firm of bulb growers Ant. Roozen and Son, died at Overveen, on the 16th ult., at the ripe age of eighty-six years. He was the Nestor of the Haarlem nurserymen, and known far and wide for his special knowledge of bulb culture, his untiring energy, and his great benevolence.

Shirley Hibberd Memorial.—At a meeting of the committee appointed to carry out this scheme, held at Chiswick on November 17, 1891, Dr. Masters in the chair, it was announced that the sum received from all sources was £259 9s. 6d., and that after the payment of all expenses,

amounting to £38 14s. 4d., there remained a balance in the bank of £220 15s. 2d. A satisfactory portrait of Mr. Hibberd has been hung in the Lindley Library. The balance of the moneys received is, after payment of the expenses of the deed, to be invested for the benefit of the orphan daughter in the names of Mr. W. R. Hargreave, Mr. Leonard Barron, and Mr. John Collingridge. The trust deed is to contain provisions (1) that in the event of the death of the child previous to her attaining her twelfth year, the amount then standing to the credit of the trustees shall be paid to the Gardeners' Orphan Fund; (2) that in the event of the decease of the child at any period between the twelfth and the twenty-first year of her age, then the moneys invested shall become the absolute property of her uncle and guardian, Mr. C. M. Mitchell.

PUBLIC GARDENS.

ALEXANDRA PALACE AND PARK SCHEME.

As secretary to the Metropolitan Public Gardens Association, which has worked both in conjunction with and independently of Mr. Shaw-Lefevre and the Common Preservation Society in the open space movement, would you kindly permit me to refer to two points in his letter on the above scheme appearing in your issue to-day?

First, as regards the difficulty Mr. Shaw-Lefevre anticipates in the Alexandra Park being outside the county of London, the Open Spaces Act, 1890, of which this association secured the passing last year, specially meets this case. By one of its clauses any local authority named in the previous Open Spaces Acts can now acquire open spaces outside, or partly outside, their respective areas, and exercise all the powers conferred by the Acts with respect thereto, to all intents and purposes as if the spaces were situated within their borders. Thus Parliament very properly recognised the fact that it might be needful for large towns to acquire open land on their borders, or even outside them.

Second, as regards the price. The property of the London Financial Association is in two divisions, the building estate and the park, which cannot be built on, it having been made over as "a place of public resort and recreation" by an Act passed in 1866, subject to a reasonable charge for admission. The area appears to be as follows:—

Building Estate.		
Balance of original area	177 acres	
Released from park in 1875	75 acres	
	—	252 acres
Park and Site.		
Freehold	134 acres	
Leasehold	28 acres	
	—	162 acres
Total area	414 acres	

According to Mr. Littler's scheme, the price asked for the whole area, including the palace, is £275,000, or about £660 per acre with the palace thrown in. Mr. Shaw-Lefevre considers that the 162 acres of park, owing to their statutory reservation in favour of the public, are worth very little. That, however, can hardly be the case, for as a charge can be levied for admission, it is easy to perceive they might become very valuable in the hands of some people for certain kinds of sport or amusement, however badly their present owners may have made them pay. As regards the building estate, we are informed land of that class in the neighbourhood of Hornsey is worth £800 per acre, and it is not likely to go down in value. If so, it would appear that some kind of all-round price has been hit upon in Mr. Littler's scheme for the two parts of the estate, especially when one includes the palace. Mr. Shaw-Lefevre rather deprecates the palace remaining a feature in the scheme. But one can easily see how immensely useful it would be at holiday seasons as a place of shelter alone in our changeable climate. And whether or not Mr. Littler's forecasts of possible receipts from letting out the building for concerts, entertainments, &c., were realised, all such receipts would be so much

to the good in reckoning the cost of the maintenance of this park, and comparing it with any other in London, where there are no such set-offs. If receipts are forthcoming, so much the better, and, if not, the Alexandra Park would be in no wise different to any other public open space. Mr. Littler seems to be acting entirely in the interests of the public in bringing forward this scheme, and the price he appears to have arrived at should not be too hastily assumed as extravagant.—BASIL HOLMES, in *Tim s.*

Open spaces for London.—Under Part IV. of the General Powers Bill of the London County Council, which deals with the subject of open spaces, the Council seek for powers to carry into effect an agreement for the exchange of certain lands forming part of Peckham Rye Common for certain other lands of not less area adjoining the common. Power is also sought to compel the owner of Fairseat House and grounds, which comprise 2½ acres, and form the leasehold portion of Waterlow Park, Highgate, to sell the freehold, towards which the donor of Waterlow Park gave £6000. The Council also ask Parliament to empower them to enter into agreements with the trustees of Lincoln's Inn Fields for the transfer to them of the powers possessed by the trustees, and after the completion of any such agreement to maintain the gardens for public recreation. Power is also sought to acquire for open spaces certain pieces of land on either side of Highgate Road, and to appropriate towards the expense of their purchase any balance of the £12,000 paid by the Midland Railway Company in 1889 for the appropriation of a portion of St. Pancras Burial-ground.

Wallflowers unhealthy (*G. Pallett*).—I was unable to find the small maggots mentioned by Mr. G. Pallett (if the name is correct), which were said to be attacking the Wallflower roots which he forwarded, but I expect they had escaped into the Moss in which the roots were packed. That, however, was not of much importance, as the malformations of the roots were not caused by them, but by the club-root fungus (*Plasmodiophora brassicæ*) maggots. The Wallflower, being a cruciferous plant, belongs to the same natural order as the Cabbage and Turnip, and so is liable to the attacks of this fungus. A dressing of quicklime will not be of much use; the only way is not to grow a crop of any cruciferous plant on the infested soil for at least two years, and to give the ground a good dressing of gaslime. The spores of this fungus will remain alive in the soil many months, so that until it is quite certain that there are none living in the ground, no plants which are liable to be attacked should be grown in it.—G. S. S.

Tomato roots diseased.—I am very pleased to see the Tomato roots sent by Mr. D. Clagne. They are certainly not "clubbed" in the ordinary sense of the word; that is they are not infested by the club-root fungus (*Plasmodiophora brassicæ*). The nodules on the roots are caused by one of the eelworms (*Tylenchus* sp.). There are several kinds of these eelworms; some attack plants, causing "cockles" in wheat, and what is called "sickness" in clover; others warts on the roots, &c. Eelworms may also be found in vinegar and stale paste. No doubt your Cucumbers were attacked by the same pest. I could not find any of the worms in the nodules, but I found plenty of their eggs. The best way to destroy this pest is to burn the plants and all the earth which came in contact with their roots.—G. S. S.

Names of plants.—*J. T. C. J.*—*Fuchsia procumbens*.—*Jno. Scammell*.—1, *Lalia anceps*; 2, *L. Arnoldiana*; 3, *L. autumnalis*.—*J. G. G.*—1, *Begonia metallica*; 2, *B. ascotensis*; 3, *B. insignis*.—*Cayin*.—1, *Sedum Ewersi*; 2, *Echeveria retusa*; 3, *Stachys lanata*; 4, send better specimen in flower.—*Path*.—1, *Davallia canariensis*; 2, Elk's-horn Fern (*Acrostichum alciacorne*); 3, Lady Fern (*Athyrium Filix-femina*); 4, *Doodia lunulata*; 5, *Pteris longifolia*; 6, *Nephrodium molle*.

WOODS AND FORESTS.

ECONOMIC CONIFER PLANTING.

(Continued from p. 552.)

LAMBERT'S CYPRESS (*Cupressus Lambertiana*) is a decided acquisition for seaside planting, while it is a tree of the easiest culture and its timber is also valuable. In the formation of seaside plantations and screen belts, few evergreen trees can be turned to better advantage in the way of shelter than Lambert's Cypress, and in support of this I might refer to the extensive use of the tree all around the coast of Ireland, particularly the northern and eastern parts. The southern English counties, too, afford additional proof of the value of this Cypress for seaside planting; indeed many cases might be adduced were it at all necessary. Unfortunately, however, Lambert's Cypress is not perfectly hardy in all inland situations, and this is much to be regretted, for the occasional dying out of specimens, either by reason of cold windy situations or from the effects of frost, has given to the tree a bad name and the rather uncalled-for appellation of "half-hardy." No doubt there is a great deal of truth in the statement that the tree for indiscriminate planting is not well suited, for it certainly is provoking to have established specimens killed to the ground when we are visited by unusually severe winters. From a number of observations made in various parts of England, Ireland, and Scotland, I have very unwillingly come to the conclusion that, unless in sheltered inland situations, it is folly to plant this Cypress in any quantity. For say 20 miles inland it would seem to be safe enough, but after that distance it is hardly to be relied upon during a severe English winter. But this of itself is no reason why the tree should be wholly condemned, and that, too, for the following among other reasons: First, we are short of evergreen trees that will succeed on the sea coast, and Lambert's Cypress is one of the few that does well in such situations. Second, for truly economic use, a tree that will survive in certain places only where most others fail, and by so doing allowing us to get a number of species established that without its aid would be impossible, is not to be condemned wholesale. Third, the tree in question is one of the most graceful and handsome of its tribe. It should not be forgotten that the economic value of a tree does not lie wholly in its value as a timber-producer, but must be extended to its suitability for planting in soils and situations where the majority of others would fail, and by so doing pave the way for the timber-producing class. As well as the tree in question, the Cluster Pine (*Pinus Pinaster*), the Austrian Pine (*P. austriaca*), the Scotch Pine (*P. sylvestris*), and some others might be specially mentioned. That the wood of Lambert's Cypress will ever be of great value in this country I much doubt.

NORDMANN'S FIR (*Abies Nordmanniana*) has hardly fulfilled the expectations of planters of five-and-twenty years ago. That it is a valuable tree cannot be gainsaid, but for truly economic or profitable planting it is not very well adapted, and that for the following reasons. Its inclination is to retain a well-branched stem, and this certainly it does better than perhaps any other species when allowed plenty of room, but when planted amongst the general run of our forest trees, and where partially confined I have noticed that the tree deteriorates considerably, the growth being stunted and the tree liable to become affected by disease. From

a series of measurements taken of Nordmann's Fir, I have found the average annual increase of stem to be about 2 cubic feet, while the upward growth is about 2 feet 3 inches. These figures are taken from trees that are growing under no exceptional conditions. The tree would seem to thrive well in a great variety of soils, and in reclaimed peat bog in the north of Ireland the growth is perhaps not exceeded by trees growing in any other part of these isles, not even in the deep rich soils of some of the southern English counties. Several experiments were made with the wood of home-grown specimens of this tree, and they were fairly satisfactory, at least as much so as could be expected from immature timber, for the tree has not been sufficiently long in this country for fully ripened wood to be obtained. At one time I was rather favourably impressed with the value of Nordmann's Fir for forest planting, but with extended knowledge of the capabilities of the tree it does not seem at present that it will ever turn out of great commercial value.

LAWSON'S CYPRESS (*Cupressus Lawsoni*) is generally well spoken of as a good all-round forest tree in this country. It grows vigorously on many soils, and produces a rich grained timber of excellent quality. Then it is very hardy, for in the northern parts of Great Britain it has grown with the greatest freedom, and is much thought of as a tree for general afforesting purposes. It has not been noticed to be at all subject to disease, and insects do not prey on it, this adding considerably to its value. So far as I have noticed, the Lawson's Cypress is not at all fastidious as to soil. It makes rapid progress on peat bog if well drained and aerated, and all the better, too, if the peat is mixed with a small quantity of loamy or clayey soil at the time of planting. It is readily propagated, and even when of large size it can be easily transplanted.

PINUS RIDGIA has been found a good tree for planting in waste sandy districts and for that purpose it has been turned to good account in several of the seaside counties of England. Unless for firewood and temporary fencing, the timber of this otherwise valuable Pine is unworthy of special attention.

THE MOUNT ATLAS CEDAR (*Cedrus atlantica*) is for planting on cold late soils and exposed situations a tree of at least second-rate value. I have noticed it growing freely, and been struck with its healthy appearance on a cold stiff loam bordering on clay, and where only a very limited number of trees could subsist. So far as is at present known, the timber of the Mount Atlas Cedar is preferable to that of either the Lebanon or Indian forms.

The above trees may be considered as including all such as have been found of value in economic planting, and I doubt much whether any others can be added to the list. *Pinus insignis* is certainly a most valuable tree for seaside planting, but it is not hardy inland, and does not produce timber of any particular value; neither is it to be recommended as a shelter-giver. *Abies grandis* and *A. nobilis* have been recommended for afforesting purposes, but from my own experience I am not much in favour of extensive planting of either species. The former produces nice clean wood and grows rapidly when planted in not too confined a space and where it is sheltered. From my note-book I find that a specimen of *Abies grandis* at Penrhyn Castle, in Wales, and which I had felled, produced fully 73 feet of timber in sixty years. When mixed in a close plantation, my experience is that it does not maintain the same character for timber-

production that it will when planted as a standard, but well sheltered. Regarding the *Araucaria imbricata* and *Wellingtonia gigantea*, little need be said, the diminishing demand for young trees telling its own tale.

MENZIES' SPRUCE (*Abies Menziesi*) deserves a more extended trial than it has yet received. That it will yet prove of value for economic planting in this country I am led to believe.

I have closely watched the growth and tested the timber of many other Conifers, but beyond the foregoing, few are worthy of special remark or fitted for profitable planting in this country. Some of the less known Conifers may yet turn out of value for economic planting, but those treated of in the series of papers now concluded are, in my opinion, the best.

A. D. WEBSTER.

Hollydale, Keston, Kent.

Abies Douglasi.—There is now no doubt that in this tree we have one of the most valuable additions to our forest trees, whether in an ornamental or a commercial sense. It should be extensively planted, but only in sheltered positions, as the annual growth is so rapid that the leading shoot becomes deflected under the influence of long-prevailing winds. It is perfectly hardy, and does not seem particular as to soil. There is a fine variety, glauca, with a greyish bloom on the foliage, and of more robust habit than the ordinary green kind.

Cupressus macrocarpa as an avenue tree.

In reply to J. M. Wilson (p. 552) I may say that *Cupressus macrocarpa* forms one of the prettiest and most desirable avenue trees that I know of. Of course, it does best near or on the sea-coast, but that it will succeed well in inland situations is also well known. Few soils would seem to come amiss to it, but I have had it thriving splendidly on decayed vegetable matter mixed with broken rocky debris. I would advise Mr. Wilson first of all to open pits 3 feet wide, 3 feet deep and well break up the bottom soil and that around the edges of the pits. If the soil is stiff and stubborn, substitute a mixture of well-decayed leaf-soil and good loam, and place the young trees, which should not be of less size than 4 feet high, bushy and well rooted, in this, striking them firmly at once, so as to prevent wind-rocking and consequent laceration of the roots. The trees may be placed 24 feet apart and 9 feet back from the drive; but if I were planting and had the trees to spare, I should place them 12 feet apart at the first, and in years to come and when it was found necessary, remove every other specimen, thus leaving the permanent ones at a distance of 24 feet from each other. Do not plant too deeply, but rather mound the trees and make up in summer by mulching. For elegance of growth and beauty of foliage tint *Cupressus macrocarpa* in its own way stands unrivalled as an avenue tree. A. D. W.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1890, thirty-eight vols., price, cloth, £28 4s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

No. 1051. SATURDAY, January 9, 18: 2. Vol. XLI.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ROSE GARDEN.

DISEASES AND ENEMIES OF ROSES.

To those who have not had a long experience among Roses this paper may seem somewhat premature, still a few practical hints upon how to cure, or at any rate check, most of the insects and diseases which affect these favourite flowers can scarcely ever be out of place. By the time these notes are in print there will be a great number of pot Roses in full growth. Roses are oftentimes allowed to get into a bad state, simply because remedies have not been applied in time, and this fact induces me to submit this paper so early in the year.

GREEN-FLY.

This is a very common pest among Roses. It comes directly growth commences, and it is astonishing how very quickly it increases and spreads. These little pests collect at the tips of the youngest and tenderest shoots of the Rose, and unless checked, they very quickly smother the whole of the young growths. Whether Roses are grown under glass or in the open air, green-fly seems far more prevalent after easterly winds and after any sudden changes in the temperature. The best, cheapest, and cleanest insecticide for green-fly is good soft soap. I have tried many mixtures, and although most of them were effectual, and some of them really good, when used as directed, I have never found anything to equal soft soap and the fumes of tobacco. The one great mistake so often made when attempting to cleanse Roses of any insects is applying the solution too strong. I use a solution of one 1 oz. to 2 oz. of soft soap to a gallon of rain water. "Nicholson's Dictionary of Gardening" gives the proportions as "8 lbs. of soft soap to 12 gallons of rain-water, and 1 gallon of tobacco water added after it is cold." It seems to me that there must be some mistake here, as 8 oz. of good soft soap with the addition of tobacco water would be sufficiently strong to kill fly if it was properly applied. Even if we read it that it is the black or Bean-fly to which allusion is made, three-quarters of a pound to a gallon of water is excessive and likely to do far more harm than good. If you boil the soft soap, say 2 lbs. at a time, in about a gallon of water, you will find it congeal into a jelly when cold. Reduce this to the proportion of the solution I suggest, using the full strength of 2 oz. to a gallon when syringing plants without much very young growth upon them. The foliage of Roses is very tender, and one often finds the younger leaves and flower-buds drop after being syringed with any insecticide that was a trifle too strong. I am convinced that the strength I give is quite sufficient to kill the fly, prevent mildew to a great extent, and also keep the foliage clean and healthy if you syringe frequently. When applied at this strength it will generally kill the fly and at the same time avoid crippling the young and tender growths upon the plants. This is a very important consideration, as the flies congregate around the youngest and most tender shoots; therefore, the full strength of any remedies must be directed against such parts, and at the same time not be injurious to the plants. Do not be impatient if the first application does

not kill all the aphides; it very seldom does without almost irreparable injury to the plant; rather try again with the mixture of same strength. One advantage in using good soft soap lies in its being a grand cure for and also a preventive against mildew. It also cleanses any dust from the foliage and allows the plant to feed—if I may so express it—upon the atmosphere. Where fly has obtained a hold—which is quite impossible if you frequently use a weak solution of soft soap—it is an excellent plan to fumigate the house over-night and then effectually kill the few survivors by a rather stronger syringing in the morning. I am not partial to tobacco for Roses; it is too often used stronger than one imagines it to be, and I have seen many a fine house of plants quite ruined for the season by having had a little too strong a fumigation. The chief art in using tobacco for fumigating is to keep the smoke up for some time and not to have it strong. A fumigation of double the length of time and of half the strength given by many would be quite as effectual as regards killing the fly, and would at the same time prevent injury to the tender growths of the Rose. A weak fumigation makes the flies more susceptible to the effects of the syringing in the morning, but there are one or two varieties of Roses which seem to have a great objection to tobacco in any form. That grandest of white Roses, Niphetos, has more than once sadly disappointed me by dropping its very young flower-buds after being fumigated; at the same time there were many other varieties of Roses in the house, which were none of them affected by the smoke. Seeing that the plants of Niphetos scattered here and there all through the house were affected in the same manner, I have no hesitation in attributing it to the tobacco fumes. I may remark that I have invariably noticed that this variety seems far more tender when its flower-buds are forming than at any other time.

MILDEW.

I know of nothing more discouraging in the cultivation of Roses than to find that this has gained a firm hold, more especially when the plants are growing in the open air. Under glass I do not believe anyone need be seriously troubled with it if he follow the simple directions I give in this paper. There are two things which seem to me to bring this disease and assist it to increase with most marvellous rapidity. I allude to cold draughts and dryness at the roots of the plants while in full growth. Now both of these, as well as sudden and extreme changes in the temperature, can be avoided under glass if due care be taken. After a very hot and sultry day, I have sometimes noticed this disease severely attack the plants, both indoors and out. One must avoid giving the growing plants any check if he wishes to steer clear of this annoying blight or fungus. It matters very little in what form this check is given, whether it be from drought, crippling the young foliage by too strong a solution of any insecticide, or by checking the points of the growing roots with an overdose of liquid manure, as anything which checks the health and vigour of the plant gives mildew a great opportunity of establishing itself. I find the most simple and effectual preventive of mildew to be the following: Wet a little good flowers of sulphur (black preferred, on account of its less unsightly appearance), make this into paste before adding the solution of soft soap of the ordinary strength, and it will assimilate with the water much better. Keep the whole well stirred, and use it in the same way as for the green-fly. Sulphur applied by syringing gets into touch with a great deal more of the plant than when dusted over the foliage

in any way, and when the foliage is dry it is left in a far more even coating than can possibly be secured in any other form.

SCALE.

Unless the plant affected with this insect is very valuable, by all means destroy it at once. This little pest spreads slowly, but very surely, and it takes a long time to clear a plant. Use a solution of soft soap of double strength, with the addition of a very little paraffin oil; a tablespoonful to a quart of insecticide will be sufficient. Wipe the plant over with this solution every day, taking care not to have much in the sponge or brush, as it should not be allowed to run down the stem of the plant to the roots.

RED RUST, OR ORANGE FUNGUS.

I know of no cure for this, but it very seldom attacks plants grown under glass, and as it seldom puts in an appearance out of doors until the main crop of bloom is secured, it is not so formidable as many other diseases.

MAGGOTS.

These, the larvæ of the Tortrix Bergmaniana, are very destructive among Roses; they eat out the tips of the young growths just as the flower-buds are forming, and if they do not quite destroy the embryo bud, they generally injure it enough to stop its opening into a perfect bloom. Hand-picking is the only sure remedy for these. When engaged in killing these insects, care should be taken not to disturb the tree more than can be helped; if you shake it in any way, the maggots suspended upon threads will drop from the plants and so escape. There is generally a maggot inside of the leaves that are curled up, and it is a good plan to gently and yet firmly squeeze this between the finger and thumb, and so crush it.

THRIPS AND RED SPIDER.

These give more trouble during the hotter parts of the summer than in the spring. They are very difficult to get rid of after they have been allowed to gain a footing, and should never be found upon Roses under glass. Syringing with the mixture recommended above and an occasional slight fumigation will keep the plants free from these. There is a larger and darker coloured variety of thrips which sometimes attacks the Rose blooms. All light coloured and thin-petalled varieties are completely spoilt when attacked by this insect. I have never seen Roses under glass troubled with this variety, but in some seasons out of doors I have lost immense quantities of good flowers through its attacks. It leaves a dirty brown mark all over the blooms and feeds upon the coating of the petals. A. P.

Button-hole Roses.—Where Roses are wanted for button-holes, there should be specially cultivated Ma Capucine, the loveliest of all Rose-buds for the purpose, and Mme. Chedane Guinoisseau, a beautiful long bud of a clear rich yellow colour. Most Rose-buds are too fat for button-holes, or, if small enough, do not show their colour sufficiently; but the two above-named varieties seem to have been raised expressly for the purpose.—T. W. G.

Hybrid Tea Roses.—When I gave a short article on the above (page 390) I quite omitted to call attention to one very peculiar point in classifying these Roses. The newer introduction, described as a white La France and named Augustine Guinoisseau, is a sport from La France, and yet more than one of our leading growers catalogue it among the Hybrid Teas, while at the same time they class La France among the Hybrid Perpetuals. I had hoped someone would have attempted to discuss the question, as it is only by getting the opinions of several practical men that one can see

his way to attempt a remedy for this very in-and-out classification of one of our sweetest and most useful sections of Roses. I believe this class will be very largely increased, and with such grand Roses as Viscountess Folkestone, Lady M. Fitzwilliam and many others already recognised as undoubtedly Hybrid Teas, it seems quite time we had some decision on the subject.—RIDGEWOOD.

Roses.—I was surprised to find Mr. Girdlestone in his otherwise admirable paper on Roses, published recently, advising the planting of Noisette Lamarque as a house Rose. That its buds are of a lovely nature and of the purest white if taken off just as they expand I admit, but the habit of blooming in considerable clusters on strong wood is objectionable in a house Rose, and I have always found, so far as market flowers are concerned, that everyone prefers Roses in a cut state on fairly long stems. Then being a Noisette, the variety is but a fleeting bloomer. That, indeed, is the great fault of *Maréchal Niel*, for that as well as *Lamarque* gives us a wealth of blooms for some three or four weeks, and then all is over for the year. *Lamarque* is also devoid of perfume. It is a very pretty Rose on a wall or fence outdoors, but there it also suffers from the comparative shortness of its season. Hence it is that for the production of white Roses which are also perfumed, good Teas are always best, because they are almost perpetual; indeed, as a rule, are far more fittingly so described than are the Hybrid Perpetual race. Tea Roses may be said, either outdoors or under glass in warmth during the winter, to be never out of bloom. They are cut hard when taking off flowers, then break and bloom again, and so keep on for several months. It is but needful to have plants, which have been partially rested during the summer and have made strong growth, towards the autumn got under glass and into warmth and near the glass to have plenty of flowers through the winter. When we get good blooms of *Niphetos*, *S. A. Prince*, *The Bride*, &c., what can be more pleasing or satisfactory? To have such flowers sprinkled as it were over a long season is far better than to have a glut of flowers such as *Lamarque* gives.—A. D.

CHRYSANTHEMUMS.

CHRYSANTHEMUM NOTES.

THE exchange of ideas now being carried on in other gardening journals besides your own will assist in bringing about some changes I, as well as other Chrysanthemum exhibitors, desire. With regard to the alteration in the size of boards for the Japanese blooms, I cannot agree that there is any immediate need for change. We have not yet more than half-a-dozen sorts which would look better over 6 inches apart, nor have I seen a single stand exhibited that would, in my opinion, have been improved with greater space between the flowers. We have different ways of setting off our flowers as we think to the best advantage, one exhibitor placing all the largest blooms in the back row, which possibly would be better seen if mixed evenly over the whole stand; another going to the other extreme in putting the heaviest in the front row, with a thought, no doubt, of catching the judge's eye. At the same time, I think that in the not far distant future, if the prevailing taste for something big then exists, there will be a long list of giant flowers in the field. But exhibitors themselves will gradually bring about the change.

Another thing to hasten the size of the stand, and a change which should have precedence, will be the parting of the incurved and Japanese sections. Mr. Molyneux's half measure in so slightly increasing the size of stands will not, however, do at all, and his idea of societies not being able to find space seems somewhat weak.

He has instanced that of Birmingham as being crowded, and there may be one or two others, but the great majority of the managers of Chrysanthemum shows will, I imagine, hail with delight any change likely to take up more space and thus provide more, if possible, at each succeeding exhibition, for the money of those who pay for entrance into them. I propose, therefore, a thorough alteration, if one is to be made, and should like a stand for twelve blooms to be 32 inches long by 24 inches, which would allow 8 inches between each bloom and 4 inches margin on all sides. The parting of incurved from the Japanese will, as I have said, pave the way for larger stands, for it would seem against the fitness of things to see in a forty-eight bloom class the two sections side by side, one with boards of greater dimensions than the other. I myself have more than once had cause to complain of existing arrangements, whereby, through losing points in the Japanese, I have not been so near the goal, as the incurved blooms, for which I have an especial fondness, would have carried me. The National Chrysanthemum Society leads the way in the matter, in most classes the two sections being apart, and it does not seem at all objectionable for such a class as that known as "National competition" remaining as it is, for when two or more in a locality combine, the produce of one grower can balance that of another. With challenge vases, too, there would be some difficulty, although I, for one, do not think Chrysanthemum exhibitions would lose much by their being discontinued. Contests for cups and so on have undoubtedly done a good deal in the past to foster the love for and encourage the growth of this flower, and the prestige of a society which bears the attractive name of National, and, may be, one or two others, may bring to the same a few entries. Societies offering the best prizes will be the centres of attraction and obtain the most interesting competitions.

The remarks of "A Grower" in your first issue of the year on "Chrysanthemums, new and old," were to me such pleasant reading, that I would like to supplement them by pointing out just one small error, and give my own impressions of and selection from the many new varieties grown here or seen during their flowering period. Mrs. Heale (p. 17) is placed among the Princess of Teck family; whereas it belongs to that lovely group, the head of which is the variety Princess of Wales. Lady Dorothy, to my mind the best of those known as Tecks, is not named. It is a sport from Hero of Stoke Newington, bronzy fawn in colour, and more desirable than Charles Gibson. Another sport, *Rivelyn*, from Mrs. N. Davis, has been exhibited, but it appears to be like Charles Gibson, too near in colour, and in other respects far inferior to Lady Dorothy. Then with regard to the Queen family, I fancy all who saw the blooms of the true Emily Dale, as shown by Messrs. Drover during the season, and which in several cases were the best among splendidly grown and finished blooms, would hesitate before discarding it. John Lambert may be a sport from Lord Alcester, and hence be thought more perfect, but after growing it since its introduction, I find it so much like Emily Dale, that henceforth I shall retain the old name only.

The vigorous way "A Grower" puts his pen through old names is admirable. Improved varieties, especially of the Japanese, come upon us so thick and fast that an annual weeding out becomes a necessity—that is, if one wishes to keep within measurable distance of the front line of the large army of Chrysanthemum growers. I know full well there is such a thing as sentiment among cultivators of a favourite

flower, making one loth to part with sorts which have perhaps oftentimes given a good account of themselves in many a floral contest. Mrs. B. Harrison, *Aida*, *Beauty of Castlehill*, Mrs. Irving Clarke, *Volunteer*, and *Cesare Costa* might well go, retaining the pretty Thunberg in the place of Mr. H. Cannell, without in any way weakening the select list; the Chinese sorts *Novelty*, *Alfred Lyne*, *Nonpareil*, *Beauty*, and *Jardin des Plantes* might go as well, for they hardly pay for special attention.

MRS. ROBERTSON KING, a deep yellow sport from *Golden Empress of India*, is without doubt among incurved Chrysanthemums the gain of the year.

RICHARD PARKER, the sport from *Miss Haggas*, I fully expect, will prove a fit companion to the above. I saw this by gaslight, but it was several shades deeper in colour than its parent, which is light yellow and very clear in colour. It is scarce, and, consequently, a rather prohibitive price is put upon it.

MAY TOMLIN, a sport from Mrs. Heale, is worth a trial, although when exhibited I thought it not distinct enough from *Violet Tomlin*.

MME. DARRIER AND MONS. R. BAHUANT, both seedlings from the Continent, are very good. The former may be compared to a large Mrs. Shipman, with rather more colour, that is, darker, and the latter one of the largest of incurved kinds. A fault is that it reaches perfection somewhat too early for the November shows. In habit of growth it is excellent, reminding one of *The Queen*, from which it must have sprung, and the build of the flower is good, while the colour is a pleasing shade of rosy red.

AMI HOSTE, CAMILLE FLAMMARION, MME. FREDERIC MISTRAL, AND FLORA MACDONALD I shall certainly try again, but fear they will never be so good as those above described.

VIVIAND MOREL heads the list not only of new, but old Japanese varieties. The flowers are very large, without a trace of coarseness, in form gracefully drooping, colour a clear silky mauve. The plant is of medium height and easily grown. The flowers are suitable either for exhibition or where a large number are required for decoration. It is without doubt the best in existence, and should give a lasting name to its raiser (*Lacroix*), who, I believe, also raised another very beautiful variety.

MLLE. MARIE HOSTE.—The flowers of this, which are white in colour and drooping in character, have long and broad florets, very rich in texture, the plant being of medium height and sturdy.

FLORENCE DAVIS opens with a green tinge, but as the bloom develops it fades to pure white. It is an English seedling of an excellent type. The flower is large and massive, the florets curling at the tips, giving the bloom a peculiar grace. Dwarf in growth, it is, like *Viviand Morel*, valuable for all purposes.

WM. TRICKER, of American origin, is a very handsome flower, which may be likened to a greatly improved *Mme. John Laing*. It is much larger, and to prevent its coming coarse, five or more flowers should be allowed to come to perfection on a plant. This, too, like most of the better new varieties, is remarkably dwarf in growth. A fine white is

E. D. ADAMS, from *Pitcher* and *Manda*. Drooping and distinct in build, it is very massive, and certain to find favour with exhibitors when known.

MR. E. BECKETT in habit of growth, as well as formation of flower, is like the popular *Avalanche*, so nothing more need be said. Its colour is rich deep yellow.

MRS. E. BECKETT is a white of striking purity and pretty form. The two last-named, also *Florence Davis*, were raised from seed at the nursery of Mr. N. Davis.

MRS. LIBBIE ALLEN is a large incurved Japanese, deep yellow, particularly rich.

BEAUTY OF CASTLEWOOD, although not quite new, is yet rare, owing to its being rather difficult to propagate. It is of the Mrs. Wheeler type of flower, that is, a broad-petalled incurved Japanese; rich crimson inside and old gold on the outer one is the combination of colouring. The flower is large, full, and of loose symmetrical form, and altogether one of the very best.

MISS ANNA HARTZHOORN is another scarce kind difficult to get a large quantity of, through its persistency in giving flower-buds instead of young shoots. This is also an incurved Japanese, white, faintly tinted and particularly waxy and beautiful in appearance. It is free in growth when once obtained and as the season advances, and should become popular as a decorative plant.

J. SWANBOROUGH DIBBENS may be described as a bronzy yellow flower of drooping form, dwarf and very free. It is good either for exhibition or for home decoration.

EDWIN LONSDALE is little known. The colour is a rich purple, the flowers being large, reflexed and massive. The habit of the plant is dwarf, and altogether this variety is a decided acquisition.

PRESIDENT HARRISON, like the above, is an American variety. In colour it is distinct, being salmon-red and otherwise so good, that in the future I think it will be largely grown.

HARRY E. WIDENER should also be added to the choicest collections. It has a reputation across the sea which it will retain when generally known here. In form a full reflexed Japanese of a nice shade of yellow, producing its flowers on stiff stems like W. H. Lincoln. It is dwarf in growth.

LORD BROOKE, raised by Pitcher and Manda, is worth a trial, although the colour, bronzy yellow, is not new. A decidedly new tint will be found in

COL. W. B. SMITH (Cannell), which is somewhat incurved in form, the colour being a light shade of terra-cotta; habit very dwarf.

ROBERT OWEN AND VISCOUNTESS HAMBLETON are two magnificent English seedlings from Maidenhead, exhibited just to set growers longing, for they cannot be purchased till another year has passed.

EXCELSIOR. MR. G. E. SCHWABE, AND WM. TUNNINGTON, all from Mr. Owen, are worth a trial, and a further trial should also be given to Lizzie Cartledge, Lily Bates, and Vice-President Audigier. Those persons who like the Laing varieties, as they are called, will find excellent additions to the list in

A. J. MANDA AND H. BALLANTINE; the former, a clear yellow, is to my mind the better of the two, the latter being yellow with bronzy tint. There is nothing of note to add to a dull class—I mean the ordinary reflexed type—but

DELAWARE, white guard petals and yellow centre is a first-rate addition to the Anemone section.

Shirley, Croydon. H. SHOESMITH.

Exhibiting Japanese Chrysanthemums.

It is to be desired, should some effort be made to compel exhibitors to show Japanese blooms next autumn in larger boxes, that the proposal will meet with general acceptance on the part of exhibition committees, as otherwise exhibitors will, at diverse shows, be placed at considerable disadvantage. It is doubtful whether there is time by joint action to generally enforce a regulation of the kind suggested next show season. No regulation can be binding on exhibitors which is not found in the schedules of the respective societies. If some dozen or so of the leading societies were to advertise that in 1893 all Japanese blooms shown for competition at their exhibitions must be on boards of the dimensions suggested by Mr. Douglas, then, without doubt, all the lesser societies would at once follow suit, and the arrangement would become general. That some such change is becoming a necessity there can be no doubt. The existing boards might still be worthily utilised for Japanese classes, which

were for "flowers of high quality, mere size being deprecated." It would indeed be a pity were many of our existing very beautiful flowers, which cannot be termed large, banished altogether from the show tables because inadequate to the filling up of the new boards. Mr. Douglas's attack upon the mixed system of showing flowers of incurved and Japanese in one class deserves hearty support. It is rare that really satisfactory awards are made in such cases, for all the favour of the judges is given to the incurved flowers, whilst the Japanese usually find greatest popular favour. The cup prize business is the chief factor in the existence of classes of this mixed nature. Were the money value of the cups equally divided, and a couple of distinct classes formed for each section of flowers, the result would be far more satisfactory.—A. D.

SEASONABLE NOTES.

No time should now be lost in getting in cuttings of the bulk of exhibition varieties. A much longer season of growth is required than many appear to think before success is assured. Cuttings which show a disposition to develop flower-buds at this early stage ought to be avoided. Chrysanthemum cuttings should be struck under cool conditions. Any place from which frost is excluded and damp kept out will suffice. Much may be effected in this latter direction by removing the lights every morning for an hour or so to dissipate condensed moisture. A period of from three to five weeks is required to strike the cuttings, varying, of course, according to the variety and means at command. One thing I would impress upon beginners: give abundance of light and air to the plants at all stages of their growth. In making a selection of sorts, do not harbour those which are worthless while there is plenty of others to fall back upon. Choose those the flowers of which have quality as well as size, and remember that the person who grows for exhibition is quite distinct in his ideas from him who has only a home supply of blooms to provide. In spite of all that is said against huge exhibition flowers, the exhibitor must produce them or he cannot expect to win prizes; sentiment is nothing in his case. The greatest mistake which young cultivators make is in growing too many varieties, there being such a hankering after new kinds. Better by far grow two plants of a variety that has proved itself to be desirable.

Another fortnight may elapse before propagation need be started in the case of plants required for decoration and for cutting from in either the incurved or Japanese sections. All the small-flowered sections, such as pompons, Anemone pompons, single and fimbriated varieties come under this latter head; even if they are required for exhibition the time last named is soon enough. It is wise to insert a few more cuttings than will be really needed—all may not turn out equally well—the growth is not always alike. I am acquainted with a cultivator of at least 600 plants annually for exhibition, and who has annually maintained a foremost position until this season. On remarking to him that the blooms were not up to his usual form, I was met with the remark, "No, the cuttings were bad to begin with, and try all I could I could not make the plants grow so well as usual." Here was an instance of what a good start will do with a man of experience. E. M.

Chrysanthemum William Westlake.

Quite an animated correspondence has been going on in the pages of a contemporary concerning this Chrysanthemum, which was awarded a certificate at the centenary exhibition, and described in THE

GARDEN for November 15, 1890. It was, I believe put into commerce last spring, and the point now at issue is whether it is distinct from that good old variety Aigle d'Or. As so-called new varieties are put into commerce every year by the hundred, it needs almost one's undivided attention to keep touch with the Chrysanthemums of to-day, for though there are undoubtedly some beautiful new varieties, it must be remembered they are certainly very few. It is quite useless to grow the new Chrysanthemums until they have been exhibited in this country, and if of sufficient merit awarded a certificate, as many of them by no means sustain their published descriptions, while there are always quite enough certificated varieties every year to be added to a collection. These enormous lists of varieties both from the Continent and from America are a great source of trouble to the nurserymen who make a speciality of Chrysanthemums, as they take up a deal of time and attention, and it is quite possible that owing to their number some of the best varieties may occasionally be passed over. The naming of new varieties is again as bad as it well can be, many old names continually cropping up, while, especially in the case of our Continental neighbours, they are often called after various members of a family, and when the Christian name, as is generally the case, is limited to its initial letter, an opportunity for confusion will soon present itself. An instance of this came under my notice recently in the case of Vivand Morel, which was awarded a certificate in 1890, and has this season attracted a large share of attention. It is certainly a very beautiful variety, but the name should never have been given to it, as there was a Japanese variety sent out about 1886 which received a certificate under the name of M. Vivand Morel. I know of an instance where the newer variety was asked for and the older one sent.—T.

FERNS.

FERNS THAT ARE NOT SUFFICIENTLY GROWN.

THERE are several of these to which attention might be advantageously directed, and which in any collection would be very interesting, possessing as they do many distinctive features. *Balanium* (*Dicksonia*) *culcita* is a most enduring Fern, the growth of which is compact, but comparatively slow as contrasted with such Tree Ferns as *Dicksonia antarctica*. Unlike this latter kind, it does not make a stem, but gains considerable strength and forms more of a crown with an inclination to grow sideways in the pot. It is easily grown in a cool house, its handsome shining deep green fronds lasting a long time in good condition. One of its distinctive features is the dense, pale brown, woolly covering upon its rhizomes. *Pteris tricolor* is the handsomest of all the variegated Ferns; it might be taken for a variegated form of *P. aspericaulis*, to which it bears a great resemblance in its growth. The colouring upon the young fronds is very rich and marked. When they first unfold they are suffused with red; as they gain age the midrib retains the reddish colour, being margined on either side with silvery white markings, beyond which is a deep green colour. To grow this Fern well it requires the temperature of the stove at all seasons. It should not be stood in a position where too much exposed to sunshine. I have grown it best when nearly or quite shaded by other plants and a blind as well. This Fern should be potted firmly in nearly all peat and not be allowed to become too dry. Brown scale and thrips will trouble it a great deal. *Pteris scaberula* is another of its family that is somewhat scarce in collections. This variety can be grown well out of doors where partially screened from the coldest quarter. I have seen a large mass of it growing thus in a very moist spot and shaded by some large Oak trees. It is one of the most sensitive of all Ferns to drought; hence in pot culture it requires close attention and an abundant supply of water. It is best grown in shallow pans, so that the creeping rhizomes as they extend can root

into the soil. When well grown it is one of the handsomest of all Ferns, its finely divided almost lace-like fronds being very beautiful. It never need be kept in any warmer place than a cool moist greenhouse or fernery. *Adiantum pedatum* is classed as a hardy exotic Fern; grown out of doors in a shaded and sheltered spot, where it neither gets too dry at the roots in summer nor too moist in winter, it will thrive well. Being a deciduous species, it stands a chance of being disturbed at the root when no fronds are to be seen unless the spot is marked. I have grown it well in a cool fernery under glass; it is a beautiful object in the spring-time with its pale green erect fronds. *Asplenium longissimum* makes a beautiful basket Fern; it is not indeed fit for pot culture in the ordinary sense if not suspended. Compared with many Ferns, it does not require a large amount of root room. The fronds upon strong healthy plants will often reach nearly 6 feet in length; these when they have completed their growth are often seen with young plants forming upon the extremities, which in their turn develop their own fronds, as in the case of *Adiantum ciliatum*. It should be grown at least in a moderately warm house. Another beautiful basket Fern is *Adiantum amabile*, a deciduous species when grown somewhat cool and nearly so when kept in the stove. No *Adiantum* surpasses this elegant species as a basket plant. Its growth, too, is very rapid. A good plant in a 4½-inch pot if turned into a basket 9 inches or 10 inches in diameter in the spring will by the end of the season when well cared for have completely covered the sides and bottom. Its creeping rhizomes soon appearing through the soil in all directions, root-action as quickly follows, and the plant is soon established. This Fern does not by any means receive a fair chance when grown in a pot; not only is it not seen to such advantage, but the growth is never so strong. *Adiantum concinnum* is another beautiful Fern rarely seen in good condition; it must not be confounded in any way with *A. concinnum latum*, which is a much stronger grower, that being the only point in its favour. *A. concinnum* should be grown in the stove; it usually loses all its fronds in the winter, when it should be kept nearly dry until again showing signs of growth. Its young fronds assume quite a rosy tint as they expand; as they gain age they droop down gracefully over the sides of the pot, a strong plant being very effective in a basket.

Asplenium cicutarium is a very elegant Fern in a small state; it is, I think, at its best when in pots up to 6 inches diameter; its pale green, finely divided fronds give it a very light appearance. It is a variety well worthy of attention for the margins of groups of plants, making also a very pretty vase plant when well grown. Self-sown seedlings usually come up freely enough where there is an old plant. *Cheilanthes elegans* is seldom met with in anything like good health and vigour. It is a Fern which requires a good supply of water, being one of those which soon suffer. The fronds are very brittle, and are liable to be broken down. For this reason I have grown it in baskets, although it is not altogether a good Fern for that purpose. I found, however, that I could succeed much better with it thus than when it was in a pot. It is one that does best in a rather dry atmosphere; therefore when in a basket there is more circulation of air going on around it, which is to its liking; it should not receive too much shade at any season. *Hypolepis distans* is very rarely seen in private collections; the fronds are not unlike those of a *Cheilanthes*, but the growth is more scanty, the colour a deep green when in good health. In a small state it is an excellent Fern of very free, informal growth. It may be easily grown in a temperate house, and will thrive well in a damp spot, being a variety that requires plenty of water. *Leucostegia immersa* is a *Davallia*-like deciduous Fern suited to a temperate house, with pale bronzy tinted fronds whilst young, assuming a light green later on. It is a beautiful Fern for small rustic baskets, in which manner it has been shown well. When matured the fronds would not be at all amiss for cutting, whilst the plants might then be used for vases. *Brainea in-*

signis, a pale-coloured, dwarf-growing variety of Tree Fern, is of elegant growth and quite distinct. *Davallia bullata* (the Squirrel's-foot) is one of the best of all the dwarf growing species. It is a rapid grower, and makes a first-rate plant in shallow pans. For cutting also it is extremely useful, lasting so long in good condition. Its fronds may thus be used whilst still young and of a pale green shade, yet they will stand well. *Polystichum Tsusimense* is of recent introduction, but it promises well for the future; it is of dwarf habit, with fronds of good substance, in colour a deep green. It is recommended as an excellent decorative Fern. Coming from Japan it should do well in a cool house.

Of the miniature growing Ferns, *Actinopteris radiata* is worthy of notice. In its appearance it resembles a very minute Palm, and is a most interesting variety. The *Notholaenas*, both golden and silver forms, are very beautiful dwarf growing Ferns. They are somewhat difficult kinds to keep in good condition unless one has a comparatively dry house; then they may be grown very well indeed. H. G.

NOTES OF THE WEEK.

Scarcity of Holly berries.—Referring to the note in your last number on "Scarcity of Holly berries," as probably effected by spring frosts, it may be interesting to note that in this district (on eastern slope of Dartmoor) the only Hollies I have observed with berries are two growing at the highest elevation (about 1100 feet) in an exposed situation; these, quite old trees, are simply smothered in berries. Below this elevation I have scarcely seen a berry, although Hollies abound throughout the district. ROBT. STARR.

Cosmos bipinnatus.—Truly worthy of the honour of the coloured plate you bestowed on it in last week's issue of THE GARDEN is the above lovely annual. The remarkable elegance of foliage, the soft and beautiful colours of the blooms, and the abundance with which they are produced, its great utility in a cut state for indoor decorations and the ease with which it can be successfully grown, together with the attention to it which the plate and the notes will inevitably draw, should ensure for it far more extensive cultivation than is, I fear, at present the case. Massed rather sparingly in the herbaceous borders, either in distinct colours or in mixture, the *Cosmos* contrast favourably in gracefulness of leaf and colour of the flowers with other Composites, affording a pleasing variety to the yellows, so prominent in the majority of them. Here we appear to be more fortunate in regard to the white and rose-coloured varieties than "D. K.," as they all bloom equally well, and are most effective until destroyed by frost.—J. R., *The Gardens, Tan-y-bnlech*.

Acacia dealbata.—Although this *Acacia* in the early days of its cultivation in this country was considered likely to succeed as a wall plant in favoured localities, and even as a standard tree in the south of England, it has not, I believe, been found capable of withstanding the winters farther north than the Isle of Wight, and even there it suffers severely in such winters as that of 1890-91. As a plant for the cool conservatory, however, it is unsurpassed during the first two or three months of the year. Its flowers are of a soft delicate yellow, the rounded heads in which they are borne being produced on long cylindrical racemes. The foliage, which, as the name suggests, is of a pale glaucous tint, is also beautifully cut into minute leaflets, rendering the plant of great beauty even when out of bloom. There appear to be two varieties of it in cultivation, one (which is the more valuable) having foliage of a more intensely glaucous hue than the other, and being also of sturdier growth. It may be that these represent geographical forms, as the species is a native both of Australia and Tasmania. It is necessary for it to attain considerable size before it flowers with its natural freedom, and it is therefore of little use as a shelf plant or in small greenhouses. The best position for it is

one exposed to full sunlight in a house which is maintained above freezing point in winter. An additional recommendation of it is furnished by the delightful fragrance of its flowers.

Angræcum sesquipedale.—Although perhaps this plant has been so long in cultivation now that our appreciation of its marvellous character has been somewhat lessened by familiarity, no Orchid has ever been introduced which can be said to afford a more striking example of the peculiarity of form and structure which is characteristic more or less of all Orchid flowers. It is not in this alone, however, that its sole value consists, for it is also a plant which, both in flower and foliage, may rank as one of the handsomest of winter-blooming Orchids. The leaves, which are broadly strap-shaped and about a foot in length, are of the deepest and glossiest shade of green, clothing the stem to the base in healthy plants. The flowers, which occur two to four together on the raceme, are of a beautiful ivory white, and measure 6 inches to 7 inches in diameter, the spur being nearly twice as much in length. *Angræcums* are not amongst the most easily cultivated of Orchids, but this species forms a welcome exception to the rule, thriving in any moist house, the temperature of which ranges between 55° and 70° in the winter season.

Araucaria Cookii.—This species, although not equal in a young state to *A. excelsa* as a plant for table decoration and similar uses, makes a handsome specimen when grown in the conservatory even if planted in a tub, but more especially if set out in a border of good soil. It is distinguished from *A. excelsa* by the brighter green of its leaves and by their denser arrangement on the branches. One of several plants growing in the temperate house at Kew is now bearing cones; this is about 12 feet high, so that it evidently attains maturity sooner than either *A. excelsa* or *A. Bidwillii*. It is of somewhat restricted distribution in a natural state, being found only in the islands of New Caledonia and the New Hebrides, where, however, it is said to be very abundant. It was first noted by the famous navigator Captain Cook, after whom it is named, but it does not appear to have been introduced to cultivation until about 1850, when Mr. Charles Moore, then superintendent of the Botanic Gardens at Sydney, obtained seeds from the islands where it grows. It is described as having the curious habit of shedding its older lower branches, these being replaced by others of shorter and more bushy growth; the adult tree, which ultimately reaches a height of 200 feet, forms in consequence a column of the denser secondary growth surmounted by the wider spreading branches of the original type.

Senecio grandifolius.—Not only is this one of the most striking of winter-flowering composites, but it possesses also some merit as a fine-foliaged plant, being used sometimes on this account in subtropical gardening. Its leaves are oblong, with the margin cut into several large teeth, and they are from 1 foot to 18 inches in length. The stems are succulent, and are noticeable from having a marked purplish tinge and in being covered with spots and warts. The flowers are produced in a cluster of several corymbs at the apex of the stem, those in a single cluster measuring from 1 foot to 2 feet in diameter. The colour is a bright yellow, which in conjunction with the bold habit of the plant render it most effective in the greenhouse at this season. It is a native of Mexico, and has been grown in this country now for many years. In the south of France, where of course it will grow permanently out of doors, it forms superb specimens. At Kew it is represented both in the conservatory and in the temperate house by fine plants growing to a height of 8 feet to 9 feet. It is one of the most easily cultivated of greenhouse subjects, the only important point being to treat it liberally. It may be grown in pots, but it is when planted out in rich soil that its full capabilities are displayed. It strikes readily from cuttings, and may also, if large quantities are desired, be raised from seeds, which it ripens freely.

ORCHIDS.

HARDY CYPRIPEDIUMS.

ABOUT a dozen kinds of hardy *Cypripediums* are more or less known in cultivation, and of these about half are North American. The finest of them is *C. spectabile*, a group of which, as grown in Edge garden, is represented in the accompanying engraving. The plant has a wide range in North America (including Canada), reaching westward from the Atlantic half across the continent, but not going far south. I am told by those that know these plants in their native home that they always prefer an easterly aspect, and that in dingles, which run north and south, while they often are common on the slope facing

I have not been successful in establishing the large turfs, containing a dozen or more crowns, which have been sent from America. They come mixed with a dwarf running Fern (like a *Polypody*), which grows far more quickly than the *Cypripediums*, and does not seem to help them to renew the growth of their large shaggy roots.

I have been most successful by cutting out the crowns, leaving the old roots not more than inch long round them; these crowns may be planted pretty close, so as to make an effective clump. It is better to add a rich top-dressing each winter than to bury the crown more than an inch or two at first, but with every care the plants seem to get worn out in a few years, and do not renew their

same treatment, and perhaps retains its vigour for more seasons; *C. parviflorum*, like *pubescens*, but having smaller flowers and more freely produced; *C. arietinum* and *C. acaule*, with neither of which I can claim to have been successful. Of *C. candidum*, a neat little kind with pure white flowers, one of my sons once brought me two or three dozen plants from Minnesota. These flowered well for about three seasons, after which they rapidly deteriorated, and I do not think that one remains alive now at the end of about ten years.

Several of the genus are natives of Russia, the finest of these being *C. macranthum*, which I have seen flowering in pots at exhibitions, and I have twice been persuaded to buy it at rather a large price. One plant never came up; the other proved to be the common *C. Calceolus*. This *C. Calceolus* is the most satisfactory of all the genus in cultivation. Its native range extends nearly all over Europe and reaches into Western Asia. Being indigenous, though hunted to death in England by plant collectors, it cannot complain of our ill-defined seasons, as the North American and Russian species do. In fact, it succeeds well enough under proper conditions. It would soon die out in the soil prescribed for *C. spectabile*, but on a well-drained ledge of a bank planted in stiff loam mixed with lime, in some more soluble form than limestone, say lumps of old mortar and brick rubbish, it flowers well and slowly increases. It is better for a rich surface dressing in which lime should be mixed, and I have never seen it doing well except amongst stones or rocks, though I have no experience of it as a wild plant.—C. WOLLEY DOD, *Edge Hall, Malpas*.



Group of Mocassin Flower (*Cypripedium spectabile*) in open air. Engraved for THE GARDEN from a photograph sent by Rev. C. Wolley Dod, Edge Hall, Malpas.

east, not one is to be found on the opposite side. In cultivation in England they seem unable to forget the hot summers and long winter rest to which they are accustomed in their own land, and though they become, when properly treated, very ornamental for a few years, yet they always seem more inclined to decrease than to increase, and are never thoroughly domesticated. Having repeatedly imported them (often in excellent condition), I have made various experiments to find the best mode of treatment. A sheltered easterly aspect and a moist soil (not less than 2 feet deep) of the proper material suit them best. I have found leaf-mould mixed with decayed manure even better than peat, but small lumps of peat and chopped *Sphagnum* are good to mix to retain moisture.

vigour if divided or transplanted. They may also be successfully grown in paraffin barrels cut in two, a mode which makes it easy to keep them dry in winter without bringing them into warm shelter; indeed if they could be frozen into a solid mass with the soil from October to May, they would probably be better for it. Some say they require the protection of snow against very severe frost, but no frost they can get in England is likely to injure them, as they are often subject to a cold of zero (Fahr.) in their own land before they are covered with snow, and even sometimes have to endure a cold snap of many degrees of frost without injury when in flower.

Other North American *Cypripediums* I have grown are *C. pubescens*, which seems to do equally well with the last under the

— The noblest and by far the handsomest of the hardy Lady's Slippers is *Cypripedium spectabile*. The merits of this species are now so well known and appreciated, that it is not at all unusual to see it well grown in many gardens. Most of those who see it for the first time are so impressed with its beauty, that if they have the opportunity, they attempt its culture. If we have a wet spot that can be made into a bog at small cost, what more natural than that we should grow the hardy *Cypripediums*, associated with such plants as *Trilliums*, *Sarracenias*, *Primulas*, *Pinguiculas*, *Orchis* in variety, and others too numerous to mention here. In addition to being the finest species, *C. spectabile* is also one of the easiest to cultivate, and those who will merely take the trouble to give it that which it needs and follow on with ordinary care and attention will in all probability be rewarded with fine flowers. In a rich vegetable soil, that is to say coarse peat with some good leaf mould incorporated, it will quickly spread into a strong mass. Moisture, of course, is absolutely essential, and is to be had in the bog; but many may grow this plant without a bog, in a sheltered nook at the foot of a rock or upon a border if a suitable compost is provided and water is freely applied, as any lack of this will result in a stunted growth and poor flowers. In a moist peaty soil this kind will grow from 18 inches to 2 feet in height. It may have full exposure provided it is sheltered from the cold winds of the early months of the year, and then later on the sun will help the flowers to become brighter in colour and more beautiful. *C. Calceolus* is our native form, but as a British wild flower it is now very nearly extinct, and therefore it is to be hoped that it will be cared for in gardens, for apart from its beauty a particular interest must exist in the one native representative of a very large family.

Its cultural requirements are very different from those of the showy North American kind which can do very well without loam, whilst for the kind now under notice a loamy soil is one of the first essentials to success. A native of woods, it hardly relishes full exposure, but with the shelter and partial shade of some shrubs and a loamy soil of a calcareous nature, it may generally be induced to grow, and when once it is established it increases slowly year by year, and gradually becomes a strong and free-flowered tuft. *C. parviflorum* is another easily-grown species, which in some things resembles our native species, but it responds more quickly to cultivation and increases very fast. It wants a soil somewhat similar to that required for *C. spectabile*, but with partial shade and rather less moisture. Its pouch is yellow, and the sepals, which are long and twisted, are of a peculiar brownish or chocolate hue. Other hardy kinds are *C. candidum*, *pubescens*, *guttatum*, and *acaulis*; each of these presents some little special cultural difficulty, and all of them are harder to grow than the trio of kinds first noticed.

—A. H.

USEFUL ORCHIDS TO GROW IN QUANTITY.

ANY of the following Orchids will be found of very great service in their respective seasons, both as decorative plants in the houses and for use in a cut state. Those who desire a good supply of choice flowers at any particular season, or all the year round, cannot do better than grow the following kinds. It will not require any great amount of ingenuity to have some at least in flower at all times, and more for special occasions, by previous careful management. At the present time, for instance, we have *Calanthe vestita* in variety and *C. Veitchii* also; these cannot be deemed difficult Orchids to grow where a good plant stove exists. What these Orchids require during their growing season is generous treatment with a fair amount of shade and atmospheric moisture. The chief point to aim at is that of obtaining as strong and well-developed bulbs as possible. The plants should at all times be kept in a warm house even after the bulbs are fully grown; then, however, a little less water is needed; on the other hand, they must not be kept too dry all at once. It is a pity that these beautiful Orchids should lose their foliage just before flowering. The spot at times seen on the leaves is, I think, caused by a stagnant atmosphere or too much moisture; those who are troubled with this defect should suspend their plants nearer to the glass. Of the evergreen *Calanthes*, notice should be taken of *C. veratrifolia* for the summer; it is not, however, one that can be expected in quantity, not being so readily increased. For the early spring there is *Cælogyne cristata*, an Orchid that can be easily propagated when necessary. It delights in an abundance of moisture both at the roots and in the atmosphere; it does not require too much heat. A stove is too warm a place; what some would term a cool stove or a temperate house would be better. When grown in a span-roofed house, the most shady side should be chosen. Increase as well as potting should be seen to soon after flowering before the young growth is very far advanced. Of all the Orchids grown, none probably is more popular than *Dendrobium nobile*, one of the best for all-round purposes. In the past there has been considerable discussion at various times as to its treatment. From close observation, I think the system of pruning advocated by some growers is correct. In my own case I have proved this to my complete satisfaction when not carried to an undue extent. Some of the finest plants to be found of this *Dendrobe* are in a gardener's charge who prunes, and has done so for several years. After flowering, the potting should be seen to as growth is about to recommence; then when this is fairly started the plants may have all the heat with moisture that can be given them combined with shade. The temperature and other treatment given to Pines when growing will suit them well, with shading. When the growth is completed towards the autumn, then full exposure in a cooler and more airy house

is necessary to ripen the bulbs as well as to give the plants a rest before being brought into flower. The plants should not, however, be kept so dry as to cause the bulbs to shrivel; this is not necessary. The young growths that push forth in place of flowers at times upon the spikes should be taken off when of fair size with roots of their own for a young stock. These occur more frequently when the plants have not been well rested. Failing a better place, I would both grow them suspended and rest them after the same fashion. For the late autumn and up to Christmas the fine old *Cypripedium insigne* is a most valuable Orchid. I remember a plant of this variety some years ago that was grown most successfully in an ornamental earthenware basket, being suspended within about 18 inches of the glass in a stove at the cool end all the year round. It frequently used to be dry in hot weather; then it would be given a dipping, yet it used to flower exceedingly well. For my own part when the growth is completed I would prefer to keep the plants in an airy house, not too much exposed, or in cold frames with shade from the sun, taking them back to the houses in September, doing well then with *Cælogyne cristata*. *C. Lee-anum*, a fine hybrid variety of diverse form, bids fair to be a worthy companion to the foregoing; it will, without doubt, be more and more grown, eventually becoming as plentiful as *C. insigne*. To all appearance, as far as I have been able to judge, it requires the same treatment also. *C. barbatum* in its best varieties is very useful during the summer season, but it should, if possible, have a few degrees more warmth than either of the foregoing; the stove in the winter-time is the best place for it. Here also should be grown *C. Sedeni*, another well-known hybrid; this I have grown to a large size in a few years. It is not difficult to have it in flower for six months or longer at a stretch. *C. Spicerianum*, with its distinct dorsal sepal, should also be included; it is one of those compact-growing kinds that will yield a quantity of flowers from a little compass.

Of the *Cattleyas*, there are *C. Mendeli*, *C. Mossiæ* and *C. Trianae*, with *C. gigas* also, all of which in their season flower freely, covering a period of about five months. Failing a better place, these will make and complete their growth very well in a stove that is not kept excessively hot or moist; afterwards, if more light and air can be given in another house, so much the better. When this cannot be, then do as in other cases—suspend them near to the glass until they are again coming into flower. I am no advocate for disturbing them at the root every year when they are thriving well. *Lælia anceps* and its varieties should be grown in good numbers to cheer the Orchid lover during the dull days of winter; it will thrive well with the foregoing *Cattleyas*. Other excellent *Dendrobes* are *D. Ainsworthii*, which grows as freely as *D. nobile*, and *D. Dearei*, a beautiful variety that lasts in flower a long time, thriving well when treated generously. *D. formosum* *gigantum* is not such a difficult plant to manage as some would have us believe; at least I have closely observed some plants that from year to year flower well after having made their growth in a warm stove with moisture in abundance, the plants being suspended from the roof. This variety may be had in flower from August to November without any difficulty where a few plants are grown. *Cymbidium Lowianum* is a noble growing Orchid, an ornament to any plant stove when not in flower, but much more so when it is; its spikes will last quite three months in good condition. To grow it well it should be treated liberally, being well supplied with water whilst growth is active. Another good old Orchid, and one that flowers freely, is *Aerides odoratum*, which is quite at home in an ordinary stove temperature. Like many others, it will last in much better condition whilst in flower if removed to a rather cooler and drier house. Of the *Oncidiums*, I would recommend that old variety *O. flexuosum*, a very pretty and free-flowering kind; this might fairly be grown by the dozen for cutting, for when not cut too long in the first instance the spikes will break again, thus a crop can be had from May to September if

necessary. It is easily grown and as easily propagated, and when not in flower should be kept in the stove. *O. incurvum*, although rather more difficult to grow, is a beautiful variety, and well worthy of careful attention; so also is *O. tigrinum*, a cool house variety, very showy whilst in flower. *Phaius grandifolius* is another fine old Orchid, very useful in the spring upon the plant, also for cutting. This whilst it is in flower will stand well in a comparatively cool house, being kept in heat to make its growth, when it should be treated liberally.

In only a few cases is *Vanda teres* grown in quantity, yet it may be purchased cheaply enough either singly or by the dozen. It should be kept moist at the root whilst in growth with plenty of exposure, or, in other words, should be almost roasted; then it will flower well the following season. Besides *Oncidium tigrinum* named above, there are others for the cool house, as *Odontoglossum crispum* and its nearly allied forms, as well as *O. grande*, still a fine old plant for the autumn; this variety with *Lycaste Skinneri* should not be kept very cool, an intermediate house will suit them; whereas *Odontoglossum crispum* and others that are known as cool house Orchids will, I consider, do well if treated in about the same way as herbaceous *Calceolarias*, but with a temperature not below 40° or above 50° at night during the winter months. The best plants of *O. crispum* that I have grown were during the summer-time kept in a shaded *Camellia* house on a shelf near the glass, being removed in the autumn to a cool fernery with a temperature of about 45° and still up to the glass. Frequently the moisture used to stand upon the foliage all day long, yet, although I somewhat feared the results, not the slightest harm was done. With the list enumerated it would not be difficult to keep up a good supply of bloom when grown in quantity. They are all amenable to cultivation with other plants, whether it is in the warm stove, the temperate house, or the cool house. It is a mistake to think that Orchids cannot be grown well unless they have houses specially set apart for them, although I would not object to such had I the opportunity of choice.

PLANTSMAN.

Renanthera Lowi.—This plant has been blooming for a long time in the gardens of Mr. Measures, The Woodlands, Streatham. It is carrying two spikes of flowers, which are very elegant. One of the great peculiarities of this plant is in its producing three of the tawny-yellow flowers at the base of each spike instead of two, which latter is the most common number; indeed, I do not remember to have seen a plant before with the same number as this specimen.—W.

Oncidium Jonesianum flavens.—It is curious how seldom one now sees this fine plant, for the introduction of which we are originally indebted to Mr. Horsman, of Colchester. Flowers of the yellow variety come from Germany. It was named *flavens* by Reichenbach in 1888, and later on it was figured in the *Orchid Album*, t. 360. The flowers are about the normal size, the ground colour of the sepals and petals being pale yellowish green, dotted and spotted with a deeper yellow; the lip pure white with a yellow crest. This Orchid has, I think, been greatly misunderstood, many people endeavouring to grow it in the cool house. I have seen the best results from plants that have been grown in strong heat with a nice moist atmosphere.—W. H. G.

Cypripedium festum.—This is a new hybrid, a cross between *C. chloroneurum* and *C. barbatum* Warnerianum. It is a very neat and brightly-coloured flower. The sepal is white, veined with light emerald-green, the veins all ending within the edge, leaving a marginal border of white all round; lower sepal small, white, veined with bright green; petals slightly deflexed, somewhat broad, rosy-purple on the apical portion, passing into a paler hue below, and having a few black streaks in the middle towards the base, upper edge green, having a row of hairy, black, warty spots. In some forms

there are one or two spots on the lower margins; the pouch or lip is slightly pointed in front, suffused with brownish-purple, and paler beneath. This plant comes to me from the Orchid nursery of Messrs. Seeger and Tropp, Dulwich.—W. H. G.

Pogonia discolor.—"C. B." sends me a flower from a bulb received last season from the mountain regions of Java under the name of *Rhipostemon* sp., and wants to know if it is rightly named. I think it was known under the name you give it, and under which it was first received. It was, however, afterwards named by Blume as quoted above. The flowers are in pairs, the sepals and petals spreading, nearly equal, narrow, and of a dull brownish green; the lip white, with a greenish disc. Its flowers are of little value, but later on it will develop a leaf which is very effective; so much so, that if I had several bulbs I should plant them in the same pot, choosing the sides of the pot. The leaf is solitary, somewhat cordate in shape, about 4 inches across, strongly ribbed with numerous radiating nerves of a deep bronzy red, the ground colour being deep olive-green, flushed with a bluish green hue. The whole of the upper surface is covered with reddish hairs, the under part being rosy purple. These leaves last a long time. It is not very frequently met with, but its beauty should render it a favourite. It belongs to the deciduous terrestrial kinds, which are not favourites with our Orchid growers. It should be potted in well-drained pots in a soil composed of good light loam and peat with some sand added, the soil being below the pot's rim, as for any other stove plant. It likes the temperature of the East Indian house.—W. H. G.

ANÆCTOCHILI.

WHERE can we go at the present day to find a collection of these plants? Collectors now seem to pass them by. Some years ago the Messrs. Low and Co., of Clapton, astonished the Orchid world with some new kinds from Borneo. Could they not reintroduce them? I think Mr. William Bull introduced the latest new kinds, these having been collected by the unfortunate Mr. Freeman. With *Anæctochili* are usually associated the various species and varieties of *Goodyeras* and *Physurus*, the whole forming a very bright group of variegated plants, which it would be hard to equal, and certainly very difficult to surpass. *Anæctochili* grow slowly, and it is not reasonable to expect large specimens, but they may be increased easily by cuttings. This is decidedly beneficial to them, as it prevents them from flowering, which I always look upon as being disastrous to their welfare; in fact, I consider the flowering of the plants fatal to their existence, and I seldom could save the plants after they had bloomed. In years gone by I used to grow a very large quantity of these. I do not consider that *Anæctochili* are difficult to grow. I am under the impression that naturally the plants are not long-lived, but that they flower and seed, the old plant dying and many others springing up from the seeds scattered around. The only way to preserve the plants is by frequently cutting them; this is done by taking off the top below the adventitious root on the stem. The old stool will readily put out more shoots. These plants may be kept in a separate place for cutting from. For these plants I dislike bell-glasses, unless they have a hole in the top, and then they are useful, but the ordinary bell-glass tilted up at the side I consider retains such a quantity of vitiated air, that the plants soon become poisoned with it, and it breeds a green slime on the surface, contact with which the roots resent. I prefer for these plants a shallow frame, covering it with loose panes of glass, so that they may be opened or shut at will, giving more or less air

as may be necessary to their welfare. This case or frame should occupy a position on the north side of the East Indian house. The bottom of the case should be covered with a good layer of crocks, broken small for the convenience of standing the pots upon. This should again be covered with a layer of *Sphagnum Moss* of sufficient depth to allow of the pots being quite buried in it when they are plunged. *Anæctochili* are frequently killed by being kept too warm and dry in the winter. They thrive best when plenty of fresh air is admitted and the sun's rays are never allowed to reach them. They should be well shaded during the summer months, at which season the temperature should range between 70° and 75°, or as near that as possible. At this time the atmosphere should be well charged with moisture. In the winter a temperature of 60° or 65° will be sufficient, and to maintain a humid atmosphere the panes of glass should be closed, or nearly so. The soil I have found best for these plants is a mixture of a little fibrous peat, a small portion of good leaf-mould, some chopped *Sphagnum Moss*, to which should be added some sharp clean sand, and some fine charcoal. Repotting should be done at the end of the present month or in the beginning of February, at which season a slight advance in the temperature will be advisable. The plants do not require large pots. In potting do not press the soil down too firmly, as the thick fleshy roots are clothed with a thick woolly covering and cannot easily penetrate it if made too firm. Towards the end of February a greater amount of water will be necessary both at the roots and in the atmosphere. This should be increased as the days lengthen and the weather gets warmer. About the end of September or beginning of October a great reduction in the quantity given will be necessary, but at no season must the plants be allowed to feel the want of moisture. In the above manner I have grown a very large quantity of these plants. Some of the *Goodyeras* also grow well in company with the above, but those which come from Japan grow well in the *Odontoglossum* house, while the species from North America I have cultivated very successfully in a cold frame. WM. HUGH GOWER.

SHORT NOTES.—ORCHIDS.

Dendrobium Cassiope.—This plant was said by me to have been raised by Mr. Sander, of St. Albans, but I find that Mr. Cookson, of Wylam-on-Tyne, was the raiser of this beautiful hybrid *Dendrobium*.—W. H. G.

Cypripedium Masereelianum.—"J. B." sends a flower of a beautiful variety of *Leeanum*, but it appears to me to be that of the above-named variety. The dotted lines on the dorsal sepal appear more distinctly in rows than in any *C. Leeanum* I have seen. It is a very beautiful flower.—W. H. G.

Lælia autumnalis alba.—This lovely and rare variety is now flowering in the nurseries of Mr. B. S. Williams and Son at Holloway. It was, I believe, imported by the firm, and it is very satisfactory to find that the first plant to flower has proved true, the blooms being of the purest white.—G.

Cattleya Percivaliana.—"G. S." sends flowers of this form of *labiata* saying it is the finest variety he has seen, and asking my opinion of it. It is a very pretty and good form, but it is almost identical with the variety figured in *THE GARDEN*, June 8, 1889. This *Cattleya* appears to be somewhat late in flowering this season, but a nice form like the one sent is pleasing.—G.

Cypripedium Schroederae.—I have received flowers of this species from J. McNab and from Mr. Cypher, and the varieties are identical. The plant is a cross between *C. caudatum* and *C. Sedeni*, the latter itself a hybrid. It is one of the very best hybrid *Cypripediums*, both as regards size of flower and colour.

Its upright rosy purple or pink pouch renders it very attractive, whilst the habit of the plant is very stately. Flowering now in the very dullest time of the year it is doubly welcome.—W. H. G.

The Elephant's-head (*Masdevallia elephanticeps*).—I am asked by J. Koutsinsky, of Hamburg, if this species is alive in England. Although it is, as reports go, I have never seen a flower like those I have seen figured. It is reported to have been introduced by Mr. Shuttleworth, of Clapham Park, but I cannot say if any of the plants are now living. I should certainly like to see it in bloom in this country.—W. H. G.

Cattleya luteola (Mrs. O'Keefe).—The flowers of the species you send are those of the above. It is a very good form of the plant, and is better known in gardens perhaps by the name of *C. Holfordi*. It is known also as *C. modesta* and *C. Meyeri*, but the name *C. luteola* was given it by our great authority upon Orchids, and which name it still retains. The plant does well in moderate heat. It loves shade and moisture, and now is the right time for it to be blooming.—W. H. G.

FLOWER GARDEN.

TUFTED PANSIES.

MR. W. CUTHBERTSON, of Rothiesay, who thinks Pansies are not Pansies, has been sending round for notes from people who object to our attempt to get rid of the ridiculous confusion resulting from calling what are really Pansies with a difference of habit by the old Latin name of the genus *Viola*. The plants of this genus—the natural species—are many of them good garden plants—the Bird's-foot, alpine, and other charming hardy flowers which are referred to often in garden literature. There are probably more than one hundred species of the family all entitled to this old Latin name, and many of them of some garden value. Most of the writers discreetly withhold their reasons; a few only speak distinctly.

Viola, I consider, is the proper name, and anyone with a knowledge of Pansies knows very well that a *Viola* is quite distinct from either a show or fancy Pansy.—JOHN DOWNIE.

The very first man that gives an attempt at a reason shows the error of using the Latin term instead of an English one, and talks nonsense besides in stating that a *Viola* is quite distinct from a Pansy, which it cannot be, as all Pansies come to us from species of *Viola*. All Pansies belong to *Viola*, as all Roses to *Rosa*. If Mr. Downie were to say that tufted, or, if he prefers it, bedding Pansies were distinct from show or fancy Pansies, he would be talking good sense. It was the every-day occurrence of vulgar nonsense of this kind that led me to seek some descriptive and useful English name for these flowers—certainly for the most part crosses between the older Pansy and *Viola cornuta* and other species.

We are of opinion that the name "tufted Pansies" is misleading. There is no such name. It originated, we think, in the mind of the editor of *THE GARDEN*. Bedding Pansies and *Violas* are now so much crossed and mixed up with each other, that the only proper name is bedding Pansies and *Violas*, or, if preferred, bedding *Violas*. We shall never call them tufted Pansies in our lists.—JAMES COCKER.

Happily, other nurserymen do give the name, including the old house of Messrs. Dicksons and Co., Waterloo Place, Edin-

burgh. This firm had many of these charming flowers at a time when they were very little asked for in England, and it was in their nurseries I first was charmed with the pure and delicate colours of these flowers.

Mr. J. D. Stuart, of Belfast, offers us a reason or two:—

While all Pansies are Violas, no Viola except tricolor, and such as have been derived from it, is entitled to the name of Pansy. The question as to whether Violas not "tufted," or stoloniferous, in habit are descended from V. tricolor is quite another matter.

Mr. Stuart seems to have no doubt that the Pansy is derived from *Viola tricolor*, but the man who of all I ever met knew British flowers, including our native *Violas*, best (the late Boswell Syme, author of the last edition of "English Botany," and the most precious book ever written on the subject) did not believe it, and he was a gardener as well as a botanist. Whatever species the old Pansies may have arisen from, no one can doubt that all Pansies come from one or more wild species of *Viola* growing somewhere on the mountains of Europe. From observation of many thousand Pansies in my own garden, I think all the larger hybrids of *Viola* are best called by some English name.

If Violas were all tufted in habit, we might retain the term, but in named varieties not one in twelve is tufted.—GEORGE MCLEOD, F.R.H.S., Chingford.

Mr. McLeod, like others, has not taken the trouble to find the meaning of the term "tufted," and his statement that not one in twelve is tufted is far from exact. The term "tufted" has been used, and very properly used, to distinguish plants of a spreading habit, like Pinks, Aubrietia and alpine Violets, from plants with simple erect stems, like, say, the Stock, Lupine and Aster. Sometimes the two forms of habit occur in the same family; for instance, there are *Violas* that are tufted and spread about, rooting too about the collar, and *Violas* that are not—just as the German, French, and other Pansies in our gardens do not spread at the root, as the tufted Violets or Pansies do. Plants of this "tufted" habit, very properly distinguished in all languages that treat of plants, in addition to forming eyes at or below the "collar," as perennials do, are often a mass of delicate rootlets even above the ground, so that they are easily increased. Hence when the Pansies of all other kinds die or are hard to keep after flowering, those crossed with the alpine species remain with us like true perennials, and are most easily increased. I have all the varieties worth growing, and many plants of each in which this habit is constant. It is not only by suckering and running at the root that these plants are "tufted," for the great majority of them are also more compact in habit than the ordinary Pansy, whether of English, French or German strains. Their sheets of delicate colour are nearer the earth than those of the other Pansies, as I can say from having employed them perhaps more than anyone else in large groups in the flower garden. The proof of this will also be furnished by some pictures

made in my garden in the past summer by Mr. Moon and Mr. Olivier. These will show the singular charm of colour as well as the height of these flowers when grown in large groups.

I submit, then, that the term tufted Pansies is a good name in all ways. Whatever name be adopted, it should be an English one, as otherwise we shall always have the confusion with the essential Latin name for the large number of wild species in cultivation now or at any future time. To all of these belongs the old Latin name of the genus *Viola*.

Perennial Pansies would be quite a fair name, owing to their habit, but not so good as tufted, which is descriptive both of the stature, habit, and spreading roots of the kinds.

It is now agreed by the best botanists that all cross-bred garden plants—including tufted Pansies, of course—should have popular English, and not Latin names. There is no comparison between the names "tufted Pansies" and "bedding *Violas*;" the latter name is a vulgar, because erroneous, compound of bad English and Latin; whereas "tufted Pansies" is a good English name with a clear meaning.

W. R.

DAFFODIL DISEASE.

MR. JOHN SPEIR (p. 12) makes a confusion between two entirely distinct diseases of the Daffodil—if indeed it is fitting to use the term "disease" of the destruction of the bulb by the maggot of *Merodon equestris*. Dr. Ritzema Bos very kindly sent copies of his monograph upon this fly to myself and others who are interested in the study and cultivation of Daffodils at the time he published it, and I assure Mr. Speir that the attack of this insect cannot possibly be mistaken for the basal rot. I am happy to say that this fly has never invaded my own garden, but my friend Mr. Wilks, of Shirley, tells me he has suffered from it, and I am quite familiar with the appearance of bulbs thus attacked. I regret and am surprised to learn that Mr. Speir—as would seem to be implied by his letter—is a sufferer from *Merodon equestris*, for I did not know that much damage had been done by it anywhere out of Holland except in the Scilly Islands. Mr. Speir is greatly to be congratulated upon his want of acquaintance with the commoner and far more deadly basal rot. But if he desires to distinguish clearly between this and the attack of the maggot, I have no doubt that I shall be able to send him a rootless bulb or two next season, or Mr. Wolley Dod would oblige him with a sample, I am sure.—G. H. ENGLEHEART.

—Mr. J. Speir in writing about this Daffodil disease is not quite right in stating that maggots are the cause of this disease; no doubt many bulbs are injured in the way he mentions, but others are not. Daffodils said to be affected with the disease have been submitted to me which I can most confidently assert were not and had not been attacked by maggots. I will not pretend to say what the cause of the disease is, but from what I have seen of it, it is not of insect origin. — G. S. S.

—A note on this subject appears on page 12. The writer has probably not a great experience in the cultivation of Daffodils, or he would hardly make the suggestion that basal rot is due to the injuries caused by the Narcissus fly (*Merodon clavipes*=*M. equestris*). As it is important that inexperienced growers of Narcissus should not be drawn off on a wrong tack, allow me to say that I will stake my whole reputation as a gardener, whatever that is worth, in support of the fact that the Narcissus fly has nothing whatever to do with

the case of basal rot. The life-history of this *Merodon* is well told by De Bos in a pamphlet kindly distributed by Messrs. Krelage a few years ago. The fly is of Italian origin, and I should be surprised to find that it thrives so far north as Scotland, though I have had many specimens in different stages sent from the Dublin Trinity College Botanic Garden. Here, where the ravages of basal rot are great, I have never been able to discover a trace of *Merodon*, in which I take interest as a naturalist, though I have always been sure that it has no connection with this disease. —C. WOLLEY DOD, Edge Hall, Malpas.

FLOWER GARDEN NOTES.

So soon as all danger of severe frost is over and the ground is workable it is advisable to go through all beds planted with spring flowering stuff and press firmly round those things that have been partially upheaved by the action of the frost. The majority of small plants, as Forget-me not, Silene, Limnanthes, Daisies, Polyanthus, and the like, will be the better for such attention, and a final touch-up with the rake will make all such beds presentable for some time. If clipped Evergreens, such as Box, Yew, Portugal Laurel of considerable size, enter at all largely into flower garden arrangements, they can be gone through at this season to remove any dead stuff and to fill up gaps by re-planting, tying in, &c., so that everything is in trim for the annual clipping later on. Any small members of the coniferæ family that may occupy permanent positions as dot plants in large beds can also receive attention, carefully pruning to keep them within bounds at the same time avoiding anything in the way of a uniform shearing; in fact the cutting of such things should be so performed that no indication of the operation except a slight general lessening of the size of the plants is apparent. This remark also applies to all those evergreen shrubs which require an annual pruning to keep them in their proper place. Evergreen and semi-evergreen wall plants are often in such positions that a slight annual cutting is absolutely essential to keep them within bounds, and here too judicious thinning and shortening as opposed to hedge-like clipping must be insisted on. All work of this kind in fact should be entrusted to a careful and painstaking workman. It may possibly be urged that any ordinary labourer can prune shrubs if he is told exactly what is required; but it is not so, as many gardeners have found to their cost; the plants may be clipped and mutilated, but the less said about pruning the better. The cutting of any wall plants not absolutely hardy, as *Ceanothus* and some of the Honeysuckles, had better be deferred until later in the season, or the exposure of tender undergrowth by the removal of prominent wood will be followed by disastrous results if severe weather follow the operation. Remarkable growth was apparent on all wall plants last summer, and very acceptable it proved, for many things suffered severely from the winter of 1890-91, and we had to remove a lot of dead stuff from the climbers above-mentioned, as well as from one or two of the Escallonias and the variegated Buckthorn. The extra growth made during the past summer has, fortunately, nearly filled the gaps. Any spare time (before the advent of brighter weather and longer days brings a stress of work) may be devoted to a final looking over and preparation of those things which are to be used as pot plants in flower garden and pleasure ground, and in the immediate neighbourhood of the mansion during the summer months. Such arrangements are not necessary where there is ample provision for planting out, but if this is lacking, plants in variety, either as single specimens or in groups, are much appreciated. I do not mean that the preparation of such things thus early in the year can be to all intents and purposes effected, but that the selections should be made and the culture pushed on as far as practicable. The character of the plants so required will naturally depend much on the particular position they are to occupy. Thus arrangements of graceful foliage will serve the purpose of hiding or partially relieving bare walls, iron, stone and brick-

work of various forms, whilst if there is already a preponderance of outdoor foliage, spots of colour judiciously arranged will brighten up the natural surroundings. In the latter case, take, for instance, the stretches of evergreen shrubs in variety so often found at either hand of winding walks, planted possibly for the purpose of blocking out some objectionable background. In small recesses at intervals may be grouped a few Francoas, rising from a carpet of hardy or half-hardy Ferns, some nicely grown and graceful Fuchsias above a good group of scarlet Pelargoniums, blue pyramidal Campanulas with white Marguerites, and many other mixtures that may suggest themselves. Francoa ramosa is a charming plant for this work, and seems to adapt itself and associate with any surroundings. Old stuff that has furnished a stock of cuttings can, if necessary, be transferred to 8-inch pots, and these plants will throw a lot of flower for a long time during the summer and be better for outdoor purposes than young plants with only a single spike. Two or three bulbs of Hyacinthus candicans in 10-inch pots will throw some fine spikes of flower, and a few such pots make a nice group associated with dwarfier flowering stuff.

If bottom-heat by hot-water pipes is not available, it will soon be time to prepare a bed for propagating. Plenty of Oak leaves, if they are to be had (failing these, Beech or Spanish Chestnut), with a little warm stable manure, the whole mass firmly and evenly trodden, gives a genial and enduring warmth, and a little cocoa-nut fibre for plunging will complete the bed. What a length of time the heat remains in a deep mass of good leaves those among us who remember the deep old Pine pits can testify. Before propagating begins, it is well to make quite sure as to planting arrangements. If any alteration is to be made, it should be at once decided on that there be no mistake in the quantities required. Few things are more aggravating to the propagator than alterations at the eleventh hour, and subsequent complaints of "too much of this, far too little of that." I had almost suggested that the growing taste for mixed beds had its origin in such irresolutions and procrastination, only that the elaborate way in which many are planted leads one to infer that there is generally much method in the mixture. If the stock of tender things required, as Alternanthera, Iresine and Coleus, is somewhat scarce, it is well to introduce these into extra warmth in good time to encourage early growth. Neither, however, in public parks nor in private gardens is there anything like the quantity of these grown as formerly. The favourite carpet plant is undoubtedly Mesembryanthemum variegatum, and if one could get a trailing dark-foliaged plant of similar constitution and freedom of growth I fancy we should see little more of Alternanthera or Iresine. Dahlias will be planted in quantity in all places where cut flowers are in great demand, and the stock may be overhauled some time this month with a view to propagating. Pompons, of which Guiding Star, Titania, Little Ethel, Iseult, Grace, and Admiration in their respective colours are very good, and the Cactus varieties, as the old Cactus, Henry Patrick, Lady Kerrison, Lady Marsham. Charming Bride, Zulu, and Empress of India, are perhaps most valuable for cutting, although some of the best and most distinct of the singles are often in much request for a similar purpose.

Claremont.

E. BURRELL.

WINTER-FLOWERING IRISES.

IN a garden well stocked with species of the Iris family it is almost possible to have some in flower in every week in the year, though, of course, in summer-time we are more rich than at any other season with the many varieties of germanica, to say nothing of aphylla, squalens, variegata, and others which come in quick succession. In the winter-time, even in its dullest, darkest days, we still have Irises which dare unfold their chaste and beautiful flowers, at the very moment, too, when, so far as our gardens are concerned, they are as bare as could possibly be, save for the welcome

masses of Christmas Roses that should embellish every garden in the land. These exquisite winter-flowering Irises are known and appreciated only by a very few, but why it is hardly possible to say. Take, for instance, the charming *I. Histrio*. In stature it may be compared with the equally charming *I. reticulata* that comes in the month of January, but its flowers are very distinct. In *I. Histrio* the predominant colour is lilac, though of varying shades, with approaches to delicate lavender, the falls being freely and abundantly spotted with lilac on a pale ground. Another charming and interesting species that blooms during the autumn and winter months is *I. alata*, the flowers being pale blue with a pleasing contrast in the throat of bright yellow; these two are bulbous and somewhat similar in growth to *I. reticulata*, a lovely species, and better known than those just named. Then we have an equally charming and exquisite beauty in *I. stylosa*, which is now described under *I. unguicularis*. This little gem produces its delicate pale blue flowers from amid a tuft of distichous leaves that tend not only to shelter its pleasing blossoms from the rude weather, but to not infrequently hide them from view till one is quite close to the plant, and in this manner its flowering comes as a little surprise, though always welcome. This species is of very easy cul-



Flowers of *Inula glandulosa*. Engraved from a photograph sent by Mr. T. McWalter, Armagh.

ture and succeeds well in sandy and fairly rich loam, but it should be in a position protected from the cutting east and north-east winds. In gardens naturally warm and thus sheltered it grows and flowers freely. Perhaps the best way to enjoy these dainty and elegant winter-flowering species is to grow them in masses in large pans in the cool house, where they may be sheltered from wind, rain, and snow.

J. H. M.

INULA.

THE genus *Inula* contains more than fifty species, nearly all of them natives of the temperate regions of the Old World, and none extending to America. Considering their number, the kinds which are approved as ornamental to gardens are very few, and certainly the abundance of yellow Composites makes the amateur somewhat fastidious in his selection of them. *Inula glandulosa*, however, though until recently scarce in gardens, has been cultivated in England ever since 1804. It was figured and described in the *Botanical Magazine* for 1817 (No. 1907), being then

one of the hardy plants grown in the wonderful and perhaps hitherto unrivalled collection of Mr. Loddiges at Hackney. It is a native of Georgia, in the Caucasian region, and is found at high elevations there. I have never seen it so fine in other gardens as it used to be in the town garden of Mr. Alfred Walker, at the lead works in Chester. I had it from there many years ago, and as it had a tendency to waste away rather than to increase in my garden at Edge, my stock was more than once replenished from the same source. It requires a rich, rather retentive soil to do well, and I think the coldness of the subsoil here is against it. It grows to 2 feet high at the most, and the richly-coloured orange-yellow flowers (4 inches wide) form a very attractive feature from the end of June to the middle of July. I have never raised it from seed, though I have tried to do so. There are two other *Inulas*—*grandiflora* and *Hookeri*—very closely allied to it and to one another. I have never intro-

duced *I. grandiflora* into my garden under that name, but a few years ago I had a plant from some botanic garden as *I. Hookeri*. This has stiffer and straighter rays than *I. glandulosa*, and is far more robust in growth, reaching a height of 5 feet, besides being more floriferous. Seed of it has grown readily, seedlings flowering the second year, and varying both in habit and flower. Some which I have sent to high authorities to be named have been returned as *I. grandiflora*, others as *I. glandulosa*. I cannot say positively that there has been no spontaneous crossing, but, speaking as a gardener, I should say that *I. glandulosa* (Caucasian), *I. Hookeri* (Himalayan), and *I.*

grandiflora (both Caucasian and Himalayan) are concurrent in series. In speaking of *Inulas*, the native *I. Helenium* (Elecampane) must not be omitted. Though somewhat coarse for a garden border, it is excellent for naturalising by the side of a pond, where it increases by self-sown seed. One large plant growing close to the water-side here was this year 6 feet high and at least 8 feet through, with more than a hundred flowers open at once. It lasted a long time, and was as showy as anything in the garden. It was succeeded by *Senecio saracenicus*, a good subject for similar positions.

Other *Inulas* of smaller size grown here are *I. hirta* and *I. ensifolia*, both neat plants, free-flowering and distinct in their way, growing about a foot high and belonging to early July. One called *I. macrocephala* makes a mass of large green bracts, promising a showy flower, but resulting in a wretched little patch of yellow bristles. Another named *Oculus-Christi* I have never seen true, but from the description I find probably it is not worth cultivating. The name has been

given in nurseries to plants of the *I. glandulosa* class. C. WOLLEY DOD.

Edge Hall, Malpas.

CHRISTMAS ROSES.

It is more easy to imagine than describe the great blank that would exist in our gardens at this season of the year but for the ever-welcome genus *Helleborus*, and particularly that section of it which everyone recognises under the familiar name of Christmas Rose. It is a flower that everyone may grow to perfection with comparative, if not perfect ease. Christmas Roses will grow freely in the majority of loamy soils, and frequently in the greatest luxuriance in those which are clayey and heavy, so that in these respects there is little to hinder or prevent anyone interested in their cultivation from having abundance of pure white handsome blossoms in the dulllest and dreariest season of the whole year. All who grow them for home decoration know full well their capabilities of endurance in a cut state. Few things look more handsome than these when arranged with hardy foliage in large bowls or vases. In the case of most flowers we incline to the belief that they always look better when arranged with their own foliage, and with the *Hellebores* we have ample proof of the pleasing effects of their leaves when growing in large established clumps. But it so happens that while Nature permits the wholesale gathering of the flowers of these plants, it strongly resents all attempts at defoliation, and loss of foliage, either purposely removed or from accidental causes, will be sure to be felt and seen in the time to come. This is an important item which should never be lost sight of. I was never more forcibly struck with the truth of this than when some dozen or so years since I received large quantities of imported *Hellebores*, the whole of which, evidently by a systematic thoughtlessness, had been shorn of all their leaves to very near the level of the crowns. This was productive of fatal results in two distinct ways; first, the plants had merely been placed in the boxes with little or no packing, with the result that they were heated in transit and many of them root and crown were quite rotten when unpacked, and a far greater number freely covered with a white mould that meant certain death hereafter. Those that came to hand thus were not worth the case they were packed in. But had these plants been packed with their foliage intact, even without any other material, the plants could not have lain so thickly or so solidly together, and the result, as I afterwards proved, was far more satisfactory, so far at least as their better condition and freedom from rot and disease were concerned when they came to hand. Even if the plants escaped the disease during transit, which is rare, there is the sure tendency to deterioration, if not death, of those plants so treated, for even in those cases where the foliage is quite yellow and apparently useless there is still vitality in the stalks, and even if this be much reduced and less active, what remains serves to assist in the sending forth of fresh roots and leaves for building up the future plant.

Though I have mentioned these facts, let it not be thought that I am in favour of collected plants—far from it, for many thousands of them that reach this country are very inferior to quite ordinary forms of *H. niger*, and not worth planting in English gardens as compared with the several handsome and genuine forms that can be obtained. The flowers from these cheap imported *Hellebores* are a mixture of green, rose, and dirty white, and forcibly illustrate a wholesale sort of deterioration from bad to worse through many past generations, and anyone had better be content with one really good specimen of the right sort than fill valuable ground with what is simply so many inferior seedlings. Very different things are the handsome and free-flowering kinds which are so freely commented upon from time to time in the pages of the horticultural press, for these are worth a place in any garden, and the owner of large established clumps of them is invariably justly proud of them. From such as these endless supplies are forthcoming for

a long-continued period, the earliness or lateness of which depends very considerably upon the mildness or severity of the season. Assuming that pure flowers are most appreciated, it is always well in planting to either devote beds entirely to them, in which case at flowering time they may be protected with spare lights to keep off smut and soot so generally prevalent in or near large towns, and in like manner the rains that disfigure the blossoms, or they may be planted permanently in the borders with a view to covering them with large bell-glasses or hand-lights. Some I know resort to lifting them and taking them into the greenhouse to produce their flowers, but I have never favoured the adoption of this latter by reason of the risk and loss of roots that must follow the operation. Then, again, there is naturally undue excitement caused to the plants themselves, and these latter when presently flowering shall be completed have again to be planted in the open ground to do battle with all weathers. Much the most satisfactory course to pursue if plants must be introduced into the greenhouse is to specially prepare a batch by planting them in large pots or tubs twelve months in advance, plunging them to their rims in the ground and well supplying with water and liquid manure during the dry season. Plants thus prepared would hardly feel the change and may do duty for two years in this manner without receiving very serious mischief.

There is, however, no method of cultivating these valuable mid-winter flowers so easy and so simple as that of planting them in deep well-enriched soil in the open ground; it is within the reach of all, and few who take their cultivation seriously in hand need fear failure. There is, however, an item or two of importance in the proper season for planting them and in the position they should occupy to which I will briefly allude. Of all the months in the year I consider the latter part of September the best season for planting or transplanting, because it is at this time that the new large main roots are emitted from the crowns, and it will be seen how important it is that these should be retained intact. This, however, can only be done by planting in advance as it were, the best guide being the weather at the time stated, and provided September is a dry month, the planting will be as well deferred for some time. The main roots to which I have referred are only of annual occurrence, and injury to them or loss entirely cannot be recovered for a whole year. Some times, however, these roots when broken break again on the sides of the main, in which case the check is only temporary and slight. But while I have pointed to what I regard as the best season of the year for planting Christmas Roses, it does not follow that they may not be planted at any other time, for, as a matter of fact, there are thousands of plants annually planted or transplanted in open weather from the time stated to the middle or even the end of March. Late planting, however, can only be accomplished with success in certain districts and under special circumstances. In southern districts, and particularly on light soils, it is positively injurious to plant so late as March, and much loss would follow if dry parching winds should prevail about that time. At this late season, too, the young foliage is being developed, and it is equally important that planting should be done when these leaves are dormant: in short, for general purposes, autumn planting, from an all-round point of view, will invariably give much the best results. With regard to position, provided they are away from surface-roots of trees and in a good depth of soil, they will succeed in varying positions, but best if always protected from north and east by shrubs or Evergreens. When applying manure at planting time, only that thoroughly decomposed should be employed, working it in deeply into the trench as the work proceeds. Although large plants have a prepossessing appearance in gardens, there is no gain in the quantity of flowers they yield by allowing them to get too large; in fact, the percentage of flowers (and of good-sized flowers more particularly) is rather increased by frequent division, say every third year, dividing into small plants of about three crowns each. The

planting of very large clumps intact is a mistake, and frequently involves a great loss of valuable roots and general deterioration of the entire clump. I once attempted it (some fifteen or eighteen years since) with a couple of handsome specimens, each over 2 feet across, and though every preparation was made and the plants lifted and planted instantly in 3 feet of splendid soil, they soon lost all their foliage, and the following autumn I found on examination that the roots were nearly all rotten. Had I broken up the specimens into moderately sized plants all would have been well, because these would have received immediate benefit from the new main roots. The most notable and worthy kinds are major, maximus or altifolius, the giant *Hellebore* (flowering in November and onwards), St. Brigid or angustifolius, the Riverston variety, and Mme. Fourcade. In every garden there is room for this selection of kinds, and they should be grown not only for their individual worth and distinctness, but because they afford a long unbroken season of these truly indispensable flowers.

E. JENKINS.

A SELECTION OF LILIES.

HAVING been recently asked to compile a list of two dozen Lilies for an open border in which the soil is a good friable loam, the said list to contain only those that might be depended upon to do well, and at the same time to be as moderate in price as possible, I selected the following, and have submitted the names to the readers of THE GARDEN, as some of those herein named may perhaps be improved upon, or such a list will at all events be a guide to those not well acquainted with this beautiful class of plants. The selected twenty-four are—

<i>Lilium auratum</i>	<i>Lilium longiflorum</i> Wilsoni
<i>auratum platyphyllum</i>	Martagon
<i>candidum</i>	Martagon dalmaticum
<i>chalcedonicum</i>	pardalium
<i>croceum</i>	pompiliatum verum
<i>davuricum erectum</i>	speciosum Kretzeri
<i>davuricum grandiflorum</i>	speciosum rubrum
<i>davuricum incomparabile</i>	Szovitzianum
<i>elegans atrosanguineum</i>	tigrinum splendens
<i>elegans pictum</i>	tigrinum fl.-pl.
<i>elegans Prince of Orange</i>	testaceum
Hansonii	Batemannie

In taking the above names more in detail according to the list, the first is—

THE GOLDEN-RAYED LILY (*L. auratum*).—For this such a situation is not perhaps the best position that could be found for it; still, it is such a grand Lily, and the bulbs are now so cheap during the winter, while they can be depended upon to flower well at least the first season after importation, that it must be assigned a place. *L. auratum platyphyllum* is widely removed from the common form, being altogether a stouter plant with broader leaves, while the flowers are larger and shallower, being more of a saucer shape.

L. CANDIDUM (the Madonna Lily) is too well known to need anything said in its favour, all that is necessary to point out being that the non-success attending the transplanting of it is often caused by the operation being carried out too late in the year, as the roots push forth so soon after the flowering season is over, that they should not be removed after the end of August, and a month earlier than that will be all the better.

L. CHALCEDONICUM, usually known as the scarlet Turk's-cap Lily, produces a great number of its vermilion-coloured blossoms, the petals of which are of a thick wax-like texture. It is especially valuable from the fact that it flowers towards the end of July, at which time the bulk of our Lilies are past, while the various forms of *L. tigrinum* and *L. speciosum* are not yet in bloom. This needs a season to establish itself before much of a return in the way of flowers can be expected.

L. CROCEUM is the old Orange Lily, of which some fine clumps may be occasionally seen in cottage gardens, where their brilliant orange colour causes them to stand out very conspicuously. This belongs to a group in which the flowers are borne

in an upright manner, or nearly so, and some others of this section are especially valuable as border Lilies.

L. DAVURICUM ERECTUM.—There is a class of Lilies known under the collective name of *L. davuricum*, or *umbellatum*, and of which there are several garden forms. Three good varieties are those indicated above, viz., *erectum*, in which the flowers are even more upright than in the others. The blooms of this are bright orange-red, those of *grandiflorum* of a lighter hue, while those of *incomparabile* are very much deeper in colour than those of any of the others.

L. ELEGANS ATROSANGUINEUM.—The *elegans* or *Thunbergianum* group of Lilies shows a greater amount of variation than the preceding, and of those mentioned here, *atrosanguineum* has flowers of a deep bright red colour; *pictum*, orange splashed with crimson; and *Prince of Orange*, buff-yellow. Under this head are included the dwarfest of Lilies, many of the varieties of *L. elegans* being not more than a foot high, while some are even less than that.

L. HANSONI is a Japanese species of the *Martagon* class, and bears removal better than any of its immediate allies. This Lily is one of the first to appear above ground in the spring, and very bright and cheerful the young leaves are. The flowers are prettily reflexed, but not to the extent of some of the *Turk's-cap* Lilies, while the petals are unusually thick and wax-like, their colour being bright orange spotted more or less profusely with purplish brown. It is a very beautiful early flowering Lily, rather more expensive than the others, but it increases quickly.

L. LONGIFLORUM WILSONI.—This, which is imported from Japan in considerable numbers, I take to be the best of the *longiflorum* group for the open border, and the long spotless flowers are much admired. It is certainly greatly superior to the typical *L. longiflorum* as grown by the Dutch.

L. MARTAGON is the common *Turk's-cap* Lily, not remarkable for brightness of colouring, as the flowers are of a dull purple shade, spotted with a deeper tint. The blooms are, however, gracefully reflexed, and disposed in such a symmetrical manner, as to be admired by nearly everyone. The variety *dalmaticum* differs from the type in the blossoms being of a deep blackish purple colour, while it is also a rather stronger grower. These Lilies seldom flower in a very satisfactory manner the first season after planting.

L. PARDALINUM.—The bulbs of this are, in common with a few other North American Lilies, of a peculiar rhizomatous character, and will, especially in a light soil, consisting largely of vegetable matter, travel some distance from the base. It is the least particular of the group to which it belongs, and will often thrive in a stiff loamy soil, where, however, the bulbs are more compact than they are in a lighter compost. The strongest forms will run up to a height of 6 feet or more, while the flowers, which are as a rule borne in considerable numbers, are of a brilliant red and orange colour more or less spotted. *L. pomponium verum* is another of the *Turk's-cap* section whose flower-stem, which is clothed with narrow leaves, reaches a height of a couple of feet or thereabouts, while the flowers, which reflex in a very regular manner, are of a deep bright scarlet colour. The red form of *L. pyrenaicum* (a less ornamental plant) was long called *L. pomponium*, hence the suffix *verum* to this particular Lily. It is somewhat slow of increase.

L. SPECIOSUM KRÆTZERI.—Among the later-flowering Lilies the different varieties of *L. speciosum* stand out in a marked manner, and of them I would recommend *Krætzeri* as the best of the white-flowered forms, and the deepest coloured type of rubrum that can be obtained. As a rule, those imported from Japan are much the best.

L. SZOVITZIANUM.—This is a very beautiful Lily that thrives well in loam, but it must be of a considerable depth, as the roots descend almost perpendicularly. A good specimen of this Lily will reach a height of 6 feet and bear twenty or more flowers, generally arranged in an almost perfect

pyramid, each flower standing clear of its neighbour. They are drooping, the petals being prettily reflexed and of a yellow colour spotted more or less with brown. Of this Lily but few flowers can be expected the first season after planting, and oftentimes the second year it is not seen at its best, but when thoroughly established, few members of the genus are more attractive. It is one of our earliest flowering Lilies, being usually at its best during the month of June. *L. Szovitzianum* is known under a variety of names, as *L. colchicum*, *ponticum*, *monadelphum* and *Loddigesianum* all belong to it.

L. TIGRINUM SPLENDENS.—This is much more ornamental than the common *Tiger Lily*, and should always be grown in preference to it, while the double-flowered *L. tigrinum flore-pleno* is also, I think, entitled to a place.

L. TESTACEUM.—Apart from any other consideration, this is very interesting, as being, I believe, the first recognised hybrid Lily in cultivation, while it is a very distinct and beautiful one. It is a hybrid between *L. candidum* and *L. chalconicum*—both mentioned above. It is among the tallest growing Lilies that we have, and the bright nankeen-coloured flowers are totally different from those of any other member of the genus. This Lily flowers, as a rule, towards the latter part of July.

L. BATEMANNIE.—There was more indecision about giving this a place in the twenty-four than with any of the others; still, it is a very pretty and distinct Lily. The flowers of this, which are borne in a close, compact umbel, are of a deep, bright apricot tint and without spots of any kind. It reaches a height of from 2 feet to 3 feet.

Besides the selected twenty-four there are a few others of almost equal merit, some of which, in fact, were omitted because it appeared to me rather doubtful if they would succeed under the stipulated conditions. Among them may be mentioned *L. canadense*, *L. superbum*, *L. Parryi*, *L. Browni*, and the white-flowered form of *L. Martagon*, an old, but still very scarce Lily. Many of the Lilies above enumerated have been illustrated in *THE GARDEN* by means of coloured plates, and in this way a far better idea of the flower can be obtained than by any written description. H. P.

KITCHEN GARDEN.

CUCUMBERS IN POTS.

Pot culture of Cucumbers is very frequently resorted to for the purpose of securing extra early crops, and with results so highly satisfactory, that the wonder is any other method is adopted throughout the season by those who have fully realised what can be done by this plan. In most private places, not a great number of Cucumbers is required at any one time, great gluts, in fact, being most undesirable. What is needed is a steady supply of quickly-grown, medium-sized fruit, these only being fit to eat, and these are most surely obtained with the aid of quite young plants. Those rooting in first, mounds and then great ridges of soil usually do well for a time, but they are apt to soon become crowded, dirty, and enfeebled generally, the root-action being faulty and responsible for very many failures. If Cucumbers were treated much as Melons are most generally grown, that is to say, run up and fruited quickly to their full extent and then cut out, their places being taken or the supply maintained with the help of other younger plants, partial failures would be of far less frequent occurrence than is the case under the ordinary method of culture. One, or at the most two, strong pot plants in full bearing at one time are ample to meet the requirements of the majority of private places, so that there is no real

necessity to devote a house solely to Cucumbers, especially during the spring and early summer months, or when room is often badly wanted for other subjects.

Cultural details are of the simplest description, though it is almost needless to point out that plants in pots would be the first to suffer from neglect, especially in the matter of watering and feeding. It is also of importance that there be no undue delay in raising young plants, say about every six weeks up to May, after which seed should be sown at monthly intervals up to the end of August. Not a little depends upon making a good start, strong, clean, and healthy plants naturally giving the best results. The old *Telegraph*, *Cardiff Castle*, and *Lockie's Perfection* are varieties admirably adapted for pot culture, as no fault can well be found with either the productive habit of the plants of these nor with the appearance and quality of the fruit. Sow the seed singly in 3-inch pots filled with a rather light compost, and at this early date these should be plunged in a brisk bottom heat and watered carefully. The seedlings soon appear, and being rather leggy ought to be early supported with light stakes. Keep them well clear of any insect-infested stove plants, and stand them in a light position if possible with the pots half plunged in a hotbed. Early raised plants not being very strong, it is advisable to shift them into 6-inch pots before they become badly root-bound, using a moderately rich light compost, fibrous loam being especially suitable for Cucumbers. By the time these pots are fairly well filled with roots the final shift should be given. Later on the plants may be shifted direct from the small pots in which they were raised into fruiting sizes, but in each and every case this must not be delayed till they present a starved appearance, as it is scarcely possible to properly recover them from such a serious check to both root and top-growth. They may be successfully fruited in pots ranging from 12 inches to 18 inches in circumference, or if preferred shallow boxes may be substituted for pots. Rather thin turf that has been stacked long enough to kill the Grasses roughly broken up, with the addition of a little good flaky manure and a sprinkling of half-inch bones, suits Cucumbers well, and if fibrous loam is scarce use the best that can be had, and add leaf-soil, charcoal and mortar rubbish in sufficient quantities to keep it open and porous. In order to have the compost fit for the reception of the delicate roots, place well-heated bricks in the centre of the heap, this quickly warming the mass without unduly drying it up. Pots should be well, but not excessively, drained, some of the roughest of the turf going over the crocks, and the soil be packed moderately firm about the old ball of soil and roots, good space being left for top-dressing later on.

A brisk bottom-heat would benefit the plants after the final potting, but in a well-heated house it is by no means necessary. In my case the plants are principally arranged on a front wall of a pit in a forcing house, and being within 2 feet of the hot-water pipes they appear to get all the bottom-heat needed. There is nothing to prevent the pots from being located 3 feet or more from the glass, but a roof trellis about 12 inches from the rafters is the best position for training and fruiting the plants. In mixed houses the Cucumbers might be trained either along the front or over the back part of a three-quarter span-roofed structure, though the bulk of the plants will most probably be trained up the roof in the ordinary manner, and may be arranged 4 feet or rather less apart. Pinch out side shoots till

such time as the trellis is reached, but do not stop the leader till the limit of trellis is attained. Lay in the laterals on each side of the main stem and stop either at the first or second joint, subsequent breaks from these being stopped at the first leaf. In this manner abundance of fruit, or many more than ought to be left on at one time, will be produced.

At the outset not much water should be given, but as the roots obtain possession of the soil give it to them more freely. Eventually watering two or three times on a clear day will be none too often. Give the preference to soft water, and in any case use water of the same temperature as the house the Cucumbers are growing in. Liquid manure, nothing being better than good farmyard drainage freely diluted, and failing this, one of the many advertised artificial manures, should be given directly the pots are well filled with roots and frequently during the rest of the plant's career. Also top-dress early with lumps of fibrous loam or a rough, rich compost, and keep the roots active on the surface by frequently replenishing the same, the soil being eventually mounded high above the rim of the pots, and becoming crowded with roots. Cucumbers delight in a strong heat accompanied by plenty of moisture in the atmosphere, those plants succeeding best that are shaded from bright sunshine and screened from currents of cold air. The night temperature may well range from 65° to 70°, increased 10° in the daytime, early closing being resorted to in order to run up the heat for a time to about 95°. Syringing the plants, walls, and floors must be freely and frequently done, especially if little or no air is given on bright days, this coupled with high temperature favouring a healthy growth of plants and a rapid development of fruit. Once the plants become badly infested with insects of any kind or give signs of exhaustion, turn them out, as it does not pay to attempt their renovation.

W. I.

FRENCH TRUFFLES.

THE American Consul at Bordeaux, in a recent report, gives some interesting information in regard to Truffles, of which three species are found in France—the black and most common, the white (highly prized), and the *Truffe à l'ail*, which has a flavour of garlic. They are found in all soils, but chiefly in Oak forests, or where the earth is damp and calcareous, thriving best in almost sterile soil, the best coming from Périgueux and about Angoulême. In appearance the ordinary Truffle is about the size of a Walnut, with a rough, brown, warty surface, closely akin to the Potato, which it likewise resembles in consistency, though not in colour. They do not yield to cultivation. Recently it has been found that dogs could be trained to perform the duties that are instinctive to the pig, and so great is the demand in France for the Truffle, that many dogs are now, in certain districts, possessed of this skill. Finely cut or sliced Truffles are mixed daily with their food, until at length they develop a liking for the flavour. Afterwards their owners conceal, in some portions of a field where Truffles are supposed to exist, a little tin dish of *filet aux Truffles*, covered with a few handfuls of earth. The dog is then brought out and urged to hunt for the dish, goaded by an empty stomach. When at length he finds it, he is caressed by his master, and thus in the space of a few weeks he will readily learn to hunt for the vegetable itself. Truffles are seldom found twice in the same place. A field that may yield a great quantity this year will be quite fruitless the next. Though Alexander Bornholz, a German scientist, claims to have transplanted and raised Truffles, repeated experiments to that end have proved failures. The fact that the Truffle is a rarity, and that it grows only in certain districts has been enough to make it an object

sought after clandestinely by peasants or those who carry them to market. There are poachers for Truffles as well as for game, who hunt by night with their dog or pig, a plague to landowners and to local gendarmes. There is scarcely a canning establishment at this moment in France that does not preserve this dainty. It has become as indispensable to the dinner table of the wealthy as the aromatic sprig of garlic to the frugal repast of the peasant. The annual production is valued at about £600,000. Truffles are sold in the departments where found at 4s. per pound, and at almost double that price in the larger cities. They are found in quantities in Italy, Spain and Holland, but are of indifferent quality compared with the French, lacking the delicate flavour of the native product. In the United States, especially in California, some attention has been given within the past few years to the gathering and preserving of Truffles, and a number of Western packers have gone to Bordeaux in order to obtain information regarding the canning process. It is a very simple one, the Truffles being partially boiled, as Tomatoes, Asparagus and other vegetables, and then sealed in their own diluted juice. All meat and game products are also "truffled," the vegetable being cut into small squares and inserted into the substance of the article preserved. In 1889 the imports of Truffles into France were 22,585 lbs., and the exports 452,361 lbs. Of the latter quantity 204,633 lbs. went to England, 107,276 lbs. to Germany, 38,990 lbs. to Belgium, and 24,387 lbs. to the United States.

SPOILT CELERY.

I was surprised to read "A. D.'s" note (p. 567) on the above, as in this district I have heard no complaint; indeed, the reverse is the case, nearly everyone having extra good Celery this season, with little or no rot or hollow growths. I think that in some instances early sowing in strong heat and allowing the seedlings to remain too long in the seed pans or boxes have much to do with the bad effects mentioned. I am of opinion that too much manure can be given this plant, causing a gross growth and the pithy condition often put down to the weather. I agree with a fair quantity of thoroughly decayed manure, but not in excessive quantity. I have found, after many years' practice, that when the growth of the plant is rapid, not allowing a check from the start to the final earthing up, there is little loss from rot or other causes. I cannot understand why Celery in such a season as this should be bad. I fail to comprehend why an absence of sunshine with excessive moisture should cause a thin hollow growth. I believe much of the mischief is caused by premature earthing up. I think the supervision of the garden labourers is out of the question, as many good garden men who have been in a garden all their lives would bank up Celery without much supervision. One great mistake is made in trying to secure sticks of extra size, thus fostering a coarse growth, with the result of rot and hollow stalks. To obtain large stocks, more manure, early sowing, and earthing up are required. If those who suffer in this respect would leave the banking up till the plants were more advanced, there would be less cause for complaint. I have seen Celery banked up when it was impossible for growth to be made, also great quantities of sewage used, all tending to assist the disease. The plants should not be earthed up till a firm solid growth has been formed. I grow a great quantity of Celery and allow it to make a free growth before it is touched. I am aware it is necessary to earth it up before frost sets in, but there is no difficulty, as it is the early Celery that is complained of, so that it should be in condition before frost appears. I am of opinion that a wet season is just what Celery delights in. If such is not the case, why should there be any anxiety as to watering and flooding in dry seasons? I have little faith in "A. D.'s" advice as to the sharp ridge necessary to throw off rains; it certainly is necessary with Celery banked up too early to prevent rot, but in other cases the Celery continues growing till checked by frost, and the moisture does

more good than harm, provided the ground is well drained and not clayey. It is well known this plant does best in light or well-drained land. Some time ago in the pages of THE GARDEN I saw a note, signed, I think, "Cornubian," advocating more room when sowing Celery, growing it more naturally with less heat, and advising sowing thinly in frames and transplanting direct into the trenches. It was excellent advice, as the Celery never flags, goes away at once, and is far more satisfactory than when planted in a drawn, weakly state, flagging every day till it has made new roots to support it. With large market growers it may be necessary to earth up quickly; often the work is done by the piece. I would also advise the use of fish manure. Slugs do not like it. It should be applied two or three times while the Celery is making its growth. I formerly used salt, but fish manure is much better, as it can be used in wet seasons. I quite agree with shallow trenches, these being the rule now in most gardens.

A CELERY GROWER.

Potatoes.—Evidence of the great difficulty there is found in following the advice of any one writer in relation to Potatoes is found on page 591. There Mr. Burrell strongly urges reliance henceforth upon early varieties, whilst lower down "S. H." shows how disastrously affected were the early varieties with disease in his case. Without doubt the midseason sorts are the most unreliable generally, and the grower is wisest who plants largely of both first early and late robust varieties. I was surprised to find such a coarse inferior variety as Imperator being recommended for general culture. This is a large cropper, but the tubers are invariably big, coarse, and of the worst quality, and in the market are always amongst those quoted at the lowest price. There are many very much better varieties than Imperator. The variety Covent Garden Perfection very largely enjoys that immunity from disease which characterises Magnum Bonum, of which it is own brother, for both come from the same batch of seedlings. It is not, however, in many soils a very good cropper. Really good quality in Potatoes of any description is far from being common, as it was impossible under the adverse conditions of weather which prevailed during last season for tubers to be fully matured. After such a wet winter as we are now experiencing I would strongly advise Potato planting next spring to be rather late than early, as the soil will need to be well dried.—A. D.

GARDEN FLORA.

PLATE 839.

FUCHSIA TRIPHYLLA.*

THIS pretty species of Fuchsia has a history of more than ordinary interest. It was discovered nearly two centuries ago in the island of San Domingo or Hayti by Father Plumier, a French botanist, who published a picture and description of it in 1703, founding the genus Fuchsia upon it. After this no one appears to have ever found the plant again, either in San Domingo or anywhere else, until the year 1873, when Mr. T. Hogg, of New York, brought a plant or fresh seeds of it from San Domingo, and sold it to an American nurseryman. In 1882 Messrs. E. G. Henderson and Son, of St. John's Wood, sent a plant of it in flower to Kew to be determined, with the

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. C. Jones, September 10, 1891. Lithographed and printed by Guillaume Severeys.



FUCHSIA TRIPHYLLA.

information that they had procured it from America under the name of *F. racemosa*. Its identity with Plumier's plant was soon established by Mr. W. B. Hemsley, who wrote an interesting account of it which was published in the *Gardeners' Chronicle* in 1882. Through the kindness of Messrs. Henderson plants of this *Fuchsia* were obtained for cultivation at Kew, where it was not long in attracting attention; it is now not uncommon in choice greenhouse collections.

A peculiarity of this species of *Fuchsia* is that of requiring a warm temperature; it is in fact almost a stove plant, although it may be kept alive and will produce a few flowers in an ordinary greenhouse. Mr. Hogg says that in San Domingo it forms a small round bush 18 inches high, every shoot terminated by a raceme of bright orange-scarlet, wax-like flowers. In the Botanic Gardens at Birmingham I saw in August, 1890, specimens of this *Fuchsia* from 2 feet to 3 feet through, crowded with healthy foliage and every little branch bearing a raceme of flowers. These plants were what is known as "an eye-opener" to me, for they stood in a house with such plants as *Caladiums*, *Gloxinias*, and other decidedly tropical things. On inquiry I learned from Mr. Latham that he had discovered by accident that this species of *Fuchsia* enjoyed more warmth than would be good for other kinds. We have tried the stove treatment at Kew and find it is in every way better.

F. triphylla is the only species of *Fuchsia* in cultivation which is known to be indigenous in the West Indies. There is, however, another with much larger flowers and different foliage which has recently been discovered by Baron Eggers in the same island, San Domingo, and has been named *F. Pringsheimi* by a German botanist. This is certainly a plant worth introducing into English gardens. The bulk of the species of *Fuchsia* (there are altogether about fifty) are natives chiefly of the highlands of Mexico, Guatemala, Chili, and Peru. *F. triphylla* is easily recognised when not in flower by the rich claret colour of its leaves on the under side, and by their being usually arranged in whorls of three along the branches; this latter character is not, however, very reliable, as sometimes whole branches are produced with the leaves in pairs, or even alternate; occasionally, too, one sees four leaves in a whorl.

Of course, the species here figured differs widely from the common type of *Fuchsia* of which *F. globosa* and *F. corallina* are examples, its affinity being with *F. fulgens*, *F. splendens*, *F. dependens*, &c. We have tried at Kew to cross *F. triphylla* with other species, but every attempt has so far ended in failure. If the habit and rich floral colour of this could be combined with the sturdier, freer kinds, such as *F. Riccartoni*, a most useful race of garden *Fuchsias* would probably be the result. At the same time the species as it stands is a charming little pot shrub when properly grown. It likes a light open soil and a position near the roof-glass where it will not be too much shaded. W. W.

TREES AND SHRUBS.

UNMUTILATED SHRUBS.

It is curious and most depressing to note the dreadful way in which shrubs generally are grown, or rather mown both above and below. Owing to the bad influence of habit, the very men who ought to protect and encourage this beautiful shrub-life are continually employed in taking the most direct means to make all beauty impossible; and this not merely in small places, but also in the public parks, where many acres of these dismal shrubberies may be seen. Ten shrubs stand where only one could find room to grow well, and each of the ten is so mutilated above with knives and below with the spade (wholly needless in any established shrubbery), that each remains for life in the scarecrow stage. Very often the planter is to blame for putting in six plants where one would do. That even the meanest shrub should be allowed to attain its full development unmutilated by the knife or spade, and uninjured by its neighbours, is a rule that might be safely laid down in many a garden. The one unvarying rule of procedure in pruning shrubs is to treat every plant in exactly the same way, and inasmuch as every plant has individual peculiarities and all the species have varied habits of growth, and are used for different purposes, the cast-iron rule of uniformity is fatal. No universal law can be laid down, but for shrubs grown for their flowers there are a few simple directions which no one should neglect. The shrubs which bloom early in the spring should, of course, never be pruned in the autumn. The flower-buds of such varieties are formed on the wood made during the summer, and when those branches are cut off there can be no bloom, for no buds are left to open. Early flowering *Spiræas*, for example, like *S. Thunbergi*, have buds almost ready to open now. In the warm days of early December some of them open fully. But they will pass safely through the winter and be ready to burst into bloom under the influence of the earliest genial spring days. Wait till after they have bloomed next spring and then cut them sharply in. This will encourage the growth of new wood—just the wood which will bear flowers the following year, and the yield will be abundant. Late flowers appear upon the growth made during the same year. Such shrubs can be pruned in winter, or very early in the spring. Take the *Hydrangea paniculata grandiflora*, for example. Cut back the wood of this year to a couple of eyes; then, during next summer, cut out the weakest shoots, and the result in September will be immense blooms at the extremity of every strong branch. The late flowering *Tamarisk*, which by the way is much better than the other one in ordinary cultivation which flowers in June, when cut back on this plan makes an amazing growth, and bears waving plumes of the most delicate form and colour. But shrubs are not grown for flowers alone, and the time and method of pruning must be varied to suit the purpose intended. Study the habit of each shrub, and never lift the knife against one until you can give an intelligent reason for so doing. X.

Laurels.—The note, p. 585, induces me to add a word or two in praise of *Laurus rotundifolia* when employed as a hedge plant. We have it growing alongside of the Caucasian and common varieties in this manner. Not only is the growth neater and more closely jointed, but the colour is much superior to that of the common kind. A little assistance in the shape of manure about the roots will be of great assistance. In one of the corridors at the Crystal Palace leading to the low level station is an example of common Laurel treated as a wall plant, and right well it appears to succeed. —S.

The Australian Nut Tree (*Macadamia ternifolia*).—Though this may flourish, as stated on p. 568, along the Mediterranean coast, yet it is of no value whatever in this country, except as a plant for the greenhouse or conservatory, being much too tender for the open air. It quickly runs

up tall, and on that account a good-sized structure is necessary for its development, such a place as the temperate house at Kew being well suited for such things as this. My experience of the *Macadamia* is that it is much more tender than many Australian trees and shrubs, and that is to be accounted for from the fact that it is a native of Queensland, which is much warmer than some of the southern districts. Where it would flourish in the open ground, this *Macadamia*, from its intensely deep green, glossy foliage, would be very ornamental, the hard-textured leaves almost suggesting an affinity to the Holly.—T.

THE ARRANGEMENT OF FLOWER SHOWS.

WITH the termination of the Chrysanthemum exhibitions another season comes to an end. In a few instances I have noted improvements, but in many cases there is still room for a vast advance in the arrangements. The best feature of all the year, in my opinion, and no doubt in that of many others also, was the splendid display made by the coniferous plants that were arranged in the grounds of the Royal Horticultural Society at Chiswick during the conference of the past autumn. These were a decided departure from the usual routine, and created quite an interest by the artistic groupings of the chief exhibits. Such a display becomes all the more interesting by the amount of profit that can be derived by those interested in the growth of these fine types of hardy plants as they relate to the home ornamentation of our pleasure grounds. This part of the exhibition on that occasion was more patronised than any other, and that even in spite of the heavy rains at times. The effect made by the beautiful combinations of golden and silvery variegation of the *Cupressus*, the *Retinospora*, the *Juniper*, the *Yew* and other plants with the rich and distinct glaucous tints in some instances, with deep green in others, upon the *Abies* and other *Firs* of the choicer kinds there shown all contributed to make a fine display. Then there was the variation in form of growth, the bush, the pyramidal, the erect and the pigmy forms, all excellent and valuable in their respective ways. The finish off of all with cocoa fibre still further added to the appearance, forming a most complete exhibit of this type of plants. At the same gathering and in a few other instances there has been an advance made in the method of showing cut specimens of herbaceous plants. These are now put up in larger bunches by some growers, giving one a far better idea of their individual value, adding also to the effect as a whole. There is, however, in some cases an apparent fear that the stems would be cut too long; this is a great mistake, for the more one can see of the habit of the plants by the cut specimens exhibited, the more instructive is the exhibit as a whole. The system adopted by some Rose growers of showing cut blooms in bunches commends itself to all lovers of the Rose as a garden flower, if not to those who believe the acme of perfection is only to be seen in blooms of abnormal size; for instance, what more pleasing effect can be made with Roses than by thus showing the greater proportion of the *Teas* and *Noisettes* in bunches? True, the flowers will not be so large, but most of these look best whilst still in the bud or of medium size only. There is a large number of valuable garden kinds that have no chance in a collection of single trusses, but for home use they would in many instances be preferable.

The mania that for a time existed for showing extremely tall bunches of stove and greenhouse cut flowers, mounted upon sticks in an ugly fashion having nothing in common with the characters of the flowers themselves, appears to be dying out. The bunches of *Cactus*, *pompon*, and single *Dahlias* are in all shows a most attractive feature, gaining more admirers than the show and fancy kinds with their prim and uniform arrangement upon the show boards. This plan should also be adopted with *Chrysanthemums*, amongst which there are the decorative Japanese with medium-sized flowers, the *Anemones* and the *pompons*, all of which

would make a beautiful display if so arranged with say half-a-dozen or nine blooms of each. Let these but be shown thus, and I would venture to say that the result would be the same as with the Dahlias. The Anemones would, I think, look particularly well in bunches of half-a-dozen; so would any of the reflexed Japanese that were not of extra size. The plan of showing the large blooms with an extra length of stem is at some shows gaining favour, and rightly so. At one representative exhibition there was more competition in this class than in any other, the only failing being on the part of some who had not made any provision for holding the flowers in an upright manner by means of a slender brass rod at the back of each. Now and again an exhibitor will depart from the usual rule-of-thumb practice in arranging Chrysanthemums and other flowers, but if it is in competition and the blooms, perchance, not malformed by dressing, he will not succeed in many instances, but will have to live down the prejudice. Additions to cut-flower classes might be made in favour of annuals (hardy), these making a very good show, whilst of Iris some more recognition is specially necessary of all the varieties collectively; the same also applies to Lilioms as grown in the open borders. Of plants (flowering) grown under glass there are the tuberous-rooted Begonias; of course these are grown out of doors also, but the finest examples will be as a rule from plants under protection. Amaryllids now coming so much to the front could also be shown very well in a cut state, probably better than upon the plants, certainly with less risk of injury to the foliage than tender. The hybrid varieties of Rhododendrons now coming more and more into prominence will soon have to be provided for. There is sufficient proof of this in the attraction they cause when shown on recent occasions.

Trained plants as specimens are certainly not seen so much now, nor in such good order as in years gone by. The magnificent specimens of from fifteen to twenty-five years ago are missed without doubt. When now seen in good form, as in a few notable instances, a treat is afforded to all who know what real plant culture in the specimen state means. In their place we have groups which are decidedly attractive when arranged in good taste, those with flowering and fine-foliaged plants combined display the collective features of an establishment. There is, however, room for variety in groups even; for instance, Ferns alone can be so arranged as to produce a most beautiful effect by themselves when choice is made of such as possess distinctive features. Or, again, combine Ferns and Crotons, what more *riche* effect could be obtained than by a combination of these two families? I should much like to see some enterprising society offer prizes for such groups. As another instance of combination I would draw attention to Dracænas and Palms which go together well, or again take note of such as Ferns or Palms and plants with silvery variegated leafage, as Pandanus Veitchi, Caladium argyrites, Eulalia japonica variegata, and other similar examples. If flowers are in any case added, take Orchids or Gloxinias as examples, each alone, no more being required. In such kinds of arrangements we should afford scope for varied and distinctive groups that would add to the attractiveness of flower shows in general as well as affording lessons for home work also. Classes are now usually provided for table plants, but there should be others for plants somewhat larger in size that would be useful for vases, say in pots of 8 or 9 inches diameter. Such classes could consist of mixed collections, or of individual genera, as Ferns, Palms, Crotons, Dracænas, Orchids, Ixoras, bulbous plants, as Eucharis and Pancratiums, with other things that are useful out of the houses as well as in them. Orchids bedded out in large pots, pans or tubs is a waste of labour as well as deceptive to the general public. In fruits there is also room for further advances, but not to the same extent as in plants and flowers. For my own part, although it would not be considered an advance perhaps, I would decidedly prefer to judge Melons by weight in proportion to size, combined with a good perfume and well-finished culture. We do not cut Melons

before they are placed upon the table; they have to be judged then by the points given above. It is a waste of good fruits to cut them; of course inferior ones do not require consideration. Of Grapes I consider that two bunches are always enough of any one kind; less of the trebles and more classes for single bunches, so that small growers had a better chance, would be better. Vegetables taken as a whole are, I think, fairly well staged as to arrangement, but garnishing with Parsley should be made compulsory in all collections to give more uniformity. H.

THE WEEK'S WORK.

HARDY FRUITS.

DESTROYING MOSS AND LICHENS.—Moist surroundings are principally responsible for the growth of these on the stems and branches of fruit trees, and in some instances opening fresh drains or relaying the old ones would do much towards destroying what are in existence and also prevent future growths. Where the position is low and the subsoil of a clayey nature, merely seeing to the drains is not sufficient, and in order to restore the stems of the trees to the requisite clear and healthy state, they must be thoroughly coated either with limewash or dressed with rather strong brine. The former is perhaps the best remedy, but to attempt brushing the hot lime-water into the stems and branches of pyramid and bush trees of either Apples or Pears is a far too slow and laborious practice to be recommended, though it answers well in the case of clear stems of standards. Dredging the trees when damp with newly-slaked lime is a plan sometimes successfully resorted to, but the simplest and best practice is to roughly strain newly mixed lime-wash, making it sufficiently thin to distribute with a syringe. Discharge the mixture forcibly against the Moss and Lichen-covered stems and branches, thoroughly coating them with it, and it will not be long before its beneficial effects are observed.

AMERICAN BLIGHT.—Apparently the hard winter of 1890 and 1891 did much towards ridding Apple trees of this much-to-be-dreaded pest, but enough escaped to eventually stock them as bad as ever. Ordinary insecticides are of little avail against the American blight, though if petroleum and hot water are used at the rate of 8 oz. or four wine-glassfuls of the former to every 3 gallons of the latter, the oil being prevented from floating on the top of the water in the usual way, and the mixture forcibly syringed into the affected parts, most of the aphides will be destroyed. It is quite useless to substitute cold for hot water, and the latter ought to be of a temperature not less than 120°. This remedy is perhaps the best for summer application. At the present time raw petroleum or paraffin may safely be brushed into the infested spaces or crevices formed by the unnatural bark swellings brought out by the attacks of the blight, and even coal or gas-tar diluted to the consistency of paint and well brushed in is a safe as well as very effective remedy. It pays well to take a little extra trouble in getting rid of these insects—in fact unless in many cases timely precautions are taken valuable trees may quickly be ruined.

SCALE ON FRUIT TREES.—Fruit trees, notably Apples and Pears, are liable to become badly infested with the mussel scale, these tiny insects often overrunning the stems and branches before the cultivator has taken any heed of them. If no attempt is made to clear trees in the open, it is very desirable that it be destroyed on wall trees, this being the proper time to set about cleansing operations. Scraping and scrubbing the stems and branches, brushing in a strong insecticide of some kind, would get rid of the bulk of them, but it is a rather slow process. Another time-honoured plan consists in syringing the trees with hot water during the prevalence of a sharp frost, and this becoming rapidly frozen, the stems and branches are encased in ice, the scale disappearing with the latter. Thoroughly moistening every part

of the trees with the petroleum and hot water already alluded to is, however, the simplest method of getting rid of the scale, a second application destroying all that are missed at the first syringing.

APHIDES.—There are several forms of these very troublesome to fruit growers, Peaches, Plums, and Cherries being perhaps the most liable to their attacks, the form commonly termed the black-fly being the most difficult to eradicate. A great variety of remedies has been recommended at different times, most of them being intended for application during the summer. If, however, a determined attempt is made in January and February to destroy the eggs deposited in various nooks and crevices both above and below ground, there is far less likelihood of bad attacks of insects taking place just when the trees ought to be making a healthy and clean growth. No better remedy can possibly be offered for present application than the hot-water and petroleum used as recommended for destroying American blight. This being well syringed into the branches and stems of the trees generally as well as all the wall crevices, plenty of the mixture dripping or running down into the borders, not much insect life or eggs will escape. A second or even a third application is necessary where the insects have previously been very troublesome. This simple remedy has in many instances been the means of restoring Peach, Plum, and Morello and other Cherry trees once much infested by aphides to a healthy profitable state. W. I.

THE KITCHEN GARDEN.

FORCING FRENCH BEANS.—With the turn of the year the forcing of French Beans is carried out with less difficulty than during the period preceding Christmas. Unless, however, a temperature of 60° to 65° can be assured by artificial means, also allowing an extra 5° by day, without counting the extra rise by sun-heat, forcing cannot be carried out successfully. An effort should also be made to keep up a fair supply, for unless forced French Beans can be had regularly, the room and time had much better be given up to other things. This being the case, batches of two or three dozen pots should be started at intervals of a fortnight, or not more than three weeks. Seven-inch or 8-inch pots will be large enough for the present, reserving those of larger size till later on. Four or five seeds will be sufficient for each pot, this being better than a greater number, unless these should be thinned out early. The seeds should be covered about 1½ inches, using soil that is fairly moist, as if water is applied too freely the seeds are liable to decay. To hasten germination the pots could be stood together on a bed where they may have the assistance of a little extra heat, but as soon as this takes place the nearer they are to the light the better. During the early stages not much water will be needed, but on no account allow the plants to become unduly dry, and as they commence to root freely they will take a good supply, manure water not being needed until the pots are fairly filled with roots. On mild days take the opportunity to give a little air, but avoid cutting winds. Half-filling the pots with soil and earthing up as soon as the seed-leaves are above the edge of the pot does more harm than good, and only adds to labour.

EARLY CARROTS.—There are very few establishments where early forced Carrots are not appreciated, and a two or three-light frame could not be put to better advantage than in providing a supply. A violent heat is not what is needed. A depth of about 3 feet is sufficient, taking care that this is firm, or else the heat will quickly expend itself. The frame, after being placed in position, will also need other material placed within, so that the addition of 6 inches of light soil will bring the surface of the bed up to within 3 inches or 4 inches of the glass. The seeds should be sown thinly in shallow drills 6 inches apart. A little air must be provided at the back of the frame during the warmest part of the day directly the young Carrots appear, for if kept too close they will spindle up and not bulb

properly. The frame should not be kept too close whilst the seed is germinating if bright days should unduly raise the temperature.

FORCING RADISHES.—Radishes cannot be secured too early, for they are sure to be appreciated, and now that the time of year has arrived for the commencement of preparations for forced garden produce, provision should be made to enable some to be secured. As in the case of Carrots, a mild and lasting hotbed is what is needed. One reason why I like to keep the Radishes from the Carrot frame is that there is not the least advantage gained by double cropping, and another reason is that the Radish seed germinates much more quickly, and early ventilation is needed to ensure the growth making satisfactory progress. The seeds should also be sown thinly. The soil must also be kept moderately moist, a dry soil causing the Radishes to be tough and strong in flavour.

POTATOES IN FRAMES.—It is not necessary to make up the hotbeds for these unless the sets should be sprouted sufficiently to necessitate immediate planting, for where the heating medium is composed solely of fermenting materials, the making up of the beds had much better be deferred until the sets are ready, this practice allowing the most to be made of the beds at a time when most needed. By making up the beds and planting before the sets are far enough advanced, the heat from the beds is apt to decrease, especially if a cold period should set in, unless remedial measures are taken to apply linings. The sets for planting should be arranged in shallow boxes, the crown-eye pointing upwards, and if partially surrounded by leaf-soil, placed in a moderately warm structure and kept moist, also taking care to freely expose them to the light, the sprouts will start away strongly. The time for making up the beds must be gauged by the time the sets will be ready. Sharpe's Victor is the earliest, but the quality not being so good as that of Mona's Pride or other approved early Ashleaf varieties, these should be relied upon for succession where quality is looked for. A. YOUNG.

ORCHIDS.

It is impossible to give directions as to the seasonable treatment the plants are to receive during certain conditions of the weather, for one never knows how soon a change may come. For a week or so we had severe frost, the thermometer falling to a point on successive nights of 16° to 18° of frost. All at once a change came and the frost was gone, with a mild west wind blowing, the difference of the minimum temperatures being 27°. It is uncertain even what the result of one night may be. Last evening at dusk the appearance of the sky and the thermometer falling below freezing point led one to the belief that we were to have a sharp frost, but it was all gone by the morning, and the temperature was at 45° outside. It is not possible under such sudden changes of climate to hit the exact temperature, and if the fires were banked up at night in the expectation of frost continuing, as it gave every promise of doing, it would scarcely be fair to blame the fireman for the accidental excess of temperature the following morning. This, of course, does not often happen, for the temperature and atmospheric conditions about 10 p.m. seldom alter much before the morning. If the garden operations are rightly directed, no injury will be done, a little more moisture may be had in the house with a freer admission of air than usual early the next morning. With the temperature out of doors at 45° air may be admitted freely to the cool house, but the damping must ever be done with some thought to the conditions outside; the atmosphere may be moisture-laden with scarcely a breath of wind, or a drying wind from the east may be blowing, but with a minimum temperature outside of 45°, it is evident that but little artificial heat will be needed in the cool house, and if this happens to be the case but little damping down will be needed. The result of overdampness would be to cause some of the young growths to rot off, which they will do in certain

stages of their growth at this season in a close, moist atmosphere. It is best to cut these damped-off breaks clean out at the base, and the old bulbs will start at some other point. In a well-managed collection such accidents seldom happen. The right atmospheric conditions are obtained in this, as in the other departments, by having always, when practicable, a free circulation of air through the house; although both the wall ventilators and those at the apex of the roof are open, there is no perceptible draught in the house when they are well placed, and the air from the lower ventilators is made to pass over the hot-water pipes. We had a dense fog last week, which contained sufficient organic matter to leave a thick black-brown deposit on the glass; this means extra work and some broken glass getting it washed off again, as we cannot afford to have the light obscured. The glass has needed cleaning inside and the wood-work also had become dirty; we have begun at one end and will go right through the houses, washing and cleaning. This will employ all our spare time for a few weeks.

Referring to a few special details of the requisite attention needed for special species and varieties. *Vanda cœrulea* is a very fickle subject to deal with, but when the right treatment for it has been hit upon, the plants will grow freely and continue to flower well for a lifetime. The *Cattleya* house has been recommended for it, and newly-imported plants will certainly succeed well there for a few years, producing admirable spikes of bloom, but they certainly degenerate rapidly in five or six years. We know two things about them in their native habitat, that they are exposed to a rather low temperature at night, the thermometer sometimes touching the freezing point, and the plants are found principally on isolated specimens of Oak trees, quite at the top and freely exposed to sunshine. Knowing something of this, I placed a number of plants at the lightest end of the *Cattleya* house and against the glass. They were lightly shaded from hot sunshine, but I found in this position they were not permanently successful. I moved some six or eight plants from thence to a similar position in the warmest house, and here they have remained for about twelve months, and the improvement in the appearance of the plants has been very marked. The minimum temperature has been from 8° to 10° higher where they now are. The finest specimen I have seen, and which was sold at Stevens' auction rooms for £84 some years ago, was grown in a Cucumber house for twenty-five years by a gardener who had no special knowledge. I believe the gold medal of the Royal Horticultural Society was awarded to the owner of this fine plant, but a Cucumber house in winter is usually kept at a minimum temperature of 60° to 65°, exactly like that of a warm Orchid house. In the *Cattleya* house are to be found at this season various desirable species of *Odontoglossums*, and not the least attractive are the numerous fine varieties of *O. citrosimum*. This fine Mexican plant should be grown in every collection; it is easily kept in good condition by being placed in a light position in the *Cattleya* house, and it may be grown in flower pots to be arranged on the side stages or suspended from the roof in teak baskets. The natural position of the spikes on the plants is to hang downwards, and they take this position from their first emission from the new growth. The spike comes with the growth, not, as is usually the case, after the bulbs have formed. The plants require scarcely any water—just enough to keep the bulbs from shrivelling—until the young spikes are seen pushing out from the crown of the new growths; they appear in a very early stage. This is the time to look out for slugs and the woodlice, which might destroy these slender delicate spikes in embryo. The *Miltonia vexillaria* is kept on the more shady side of the house, and seems to do very well there, but this species, instead of being kept very dry at the roots, must be kept sufficiently moist to maintain the *Sphagnum* Moss, with which the surface of the potting compound is usually clothed, in a growing state. *Odontoglossum Harryanum* requires very similar treatment, and both must be kept free from the yellow thrips, which is

a terrible enemy to them, and if once well established does much harm. *Vanda teres* is now in the lightest position we could obtain for it in the *Cattleya* house, and it seldom receives any water at the roots. The plants are in their resting period and will remain so until February, when they will have some fresh *Sphagnum*, clean drainage and charcoal to root into, a higher temperature and a fair supply of tepid rain water.

J. DOUGLAS.

PLANT HOUSES.

EARLY SEED-SOWING.—If no *Amaryllis* seed has been sown, no time should be lost, so as to make the most of the coming season by an early start. This seed pays for careful sowing. It will not be any waste of time to insert each seed separately upon its edge, so as to guard as far as possible against the seeds becoming too moist before growth commences. A soil composed chiefly of good mellow loam with a little leaf-mould and silver sand will suit very well. The seed-pan ought to be covered with a pane of glass to save repeated waterings; a steady bottom-heat will also be an assistance; in other respects the temperature of an ordinary stove will answer the purpose. Plants raised from autumn-sown seed should be kept in heat, so that growth progresses without any check. These young plants ought to be in 2½-inch pots with a fair quantity of roots. Do not repot, however, for some time to come; overpotting young *Amaryllids* is as much a mistake as in the case of older and large bulbs. If the stock of tuberous *Begonias* be short, or if an early lot of plants is needed to supply the places of older bulbs, some seed should be sown without delay. *Begonia* seed will be found to germinate well in a soil consisting mainly of leaf-mould (sifted fine) and silver sand, only a little loam being added in this instance. Bottom-heat will be found an assistance with a pane of glass over the top of the seed-pan. A little pinch of *Gloxinia* seed if sown now (or soon) will provide some capital plants by July; this may be treated like the *Begonia* seed just mentioned. A closer watch must, however, be kept to prevent the young plants damping off; the moisture suited for the *Begonias* is too much for the *Gloxinias* at this juncture. Seed of the new *Streptocarpus* hybrids should likewise be sown early to get large plants by the autumn following. These, like the *Gloxinias*, will require rather close looking after until well established either in small pots or collectively in pans. This seed comes up well with ordinary care and under the same treatment as that given to the *Gloxinias*. Those who grow that pretty plant *Torenia Fournieri* should sow seed of it at once. Seed of *Impatiens Sultani* should also be sown. These seeds do not come up so very quickly, particularly if covered anything but lightly. In any case give all the light possible as soon as the young plants are growing fairly. Do not let any be overshadowed by other and larger plants, which not only impart shade, but have a tendency to cause drip.

JAS. HUDSON

FUCHSIA CULTURE FOR MARKET.

LONG and worthily has the *Fuchsia* held a foremost position among plants grown in pots for the London markets. The memory of the oldest market grower cannot recall the time when *Fuchsias* did not constitute a prominent feature in Covent Garden, and one may safely predict that their popularity will endure through coming generations of flower lovers. More than a quarter of a century ago I had reason to admire the skill displayed by the London market gardeners in *Fuchsia* culture; but although the large specimens then exhibited at the London shows were perfect in their development, the climax of successful growth as regards marketable plants has only been reached within the last decade. The growers of thirty years ago did wonderfully well, but they were but beginning to experience the benefits conferred by cheap glass and improved methods of heating and construction. In many market gardens round London the greater portion of the glass houses and frames was heavil

timbered with small panes. These answered fairly well during that season of the year when abundance of light and air could be freely given, but it was impossible to attain perfection of growth in them at an early period of the year. It was curious to note how certain growers for market, who had for years occupied leading positions in Covent Garden, were without apparent cause put into the second rank by newer and comparatively unknown men. It was as if their skill had suddenly deserted them, but the vastly improved constructions gave the latter such an immense advantage, that no amount of skill and experience under the old conditions could counteract. The low span-roofed light-timbered structure with large panes, sufficient ventilation without draughts, and abundant equalised light with ample heating power provided Fuchsia growers with every condition necessary to render the production of high-class plants comparatively easy. Especially in early spring did these more favourable conditions influence the quality of the plants, and it was soon found practicable to furnish the London market with finely-grown beautifully-bloomed specimens a couple of months earlier than had previously been attempted with any measure of success. The Fuchsia grower's season now covers quite half the year. Highly concentrated manures also now constitute a most important factor in the perfect culture to which Fuchsias are subjected at the hands of the London market growers. They foster not only perfection, but rapidity of growth, and it is really wonderful what can be done with them in the hands of experienced men.

The Fuchsia is naturally of rapid growth, and this is stimulated to the highest degree consistent with the requisite solidity of tissue. Propagating Fuchsias is one of the easiest operations in plant culture under glass. The succulent shoots strike with freedom and certainty, but to provide a supply of good cuttings at certain seasons demands some little foresight. In order to have nice little specimens ready for sale by the beginning of May, it would, of course, be useless to propagate from cuttings formed in heat early in the year. There would not be time to bring them into a ready effective condition. For this purpose the cuttings must be struck in late summer and early autumn, and this is just the time when succulent growths cannot be had from plants grown in the ordinary manner through the warm months. They can only be got from plants specially treated, cutting them back, repotting and encouraging them to grow freely, or from young ones struck late in spring, and that do not come to blooming size by the time they are required for propagating from. It does not matter what method is adopted so long as there are plenty of succulent growths when the time comes to utilise them. When fairly rooted they are put into small pots, and from that time they are never allowed to go into a purely resting condition. In a light house they get just enough warmth to keep the roots active and the foliage fresh and green until the beginning of the new year, when they are in admirable condition for shifting into $4\frac{1}{2}$ -inch pots. The compost consists of good fibrous loam with some well-rotted manure, although this is not now-a-days considered so indispensable as formerly. Many growers at the present time do not even include this among potting soils, as they find that some of the concentrated manures answer the purpose just as well, and there is less trouble involved in their application with greater certainty as regards their effects. Mixed in certain proportions in the soil, they do all that is required until further support is advisable, and then they can be used in the form of top-dressings. Previous to re-potting the young plants are stopped this being done early enough to cause the young shoots to break as near the base as possible, that the plants when they come to their blooming stage may be well clothed with leafage down to the pots. Later on they are again stopped, and this will give the desired number of shoots to form bushy-habited, well-bloomed specimens. The tops taken off make the best of cuttings, and thus the work of growing on the plants and propagating goes on concurrently. The cuttings thus obtained

are, moreover, much better than those taken from plants that have been rested, cut back and started in warmth. In some cases a different plan is followed, the young plants being allowed to make a growth of some inches without stopping, and are then cut back, a sufficient number of growths pushing out to form the plant. The former is, however, the safest method and the one that is in favour with the best growers. The same system with but little variation is pursued all through the spring and summer; young plants are continually coming on to take the place of those sent away, although some growers do not extend their season beyond June, as from that time prices are low. The spring months constitute the Fuchsia grower's best season. From April onward there is a sure fall in value, prices gradually declining from frequently 18s. per dozen to 3s. per dozen for the same quality. Of late the Fuchsia has had to bear the competition of two formidable rivals for public favour. Bouvardias in spring and tuberous Begonias in summer have done much to lessen the importance of Fuchsias as market plants. Being so showy and produced in quantity, they necessarily lower the demand for some other things. The essential points in the culture of Fuchsias are a never-failing supply of moisture at the roots and abundance of nutriment. Formerly liquid manure was used, but now concentrated stimulants have been found of easier application. Considerable judgment is, however, required in their application in the case of Fuchsias, the roots of which are easily injured by a too strong dose, or if given at the wrong time. An instance lately came to my knowledge where the results of injudicious application were of a very serious nature. More than a thousand fine plants that ought to have made good prices were quite ruined. It was early in the season and they were coming on well, when the owner ordered the application of a dose of manure. The man in charge was unwilling to give it, the plants, in his opinion, not being sufficiently advanced, but he was ordered to do so, and "push them on" to get them in quickly, with the above mentioned result. The rule is never to top-dress until the pots are tolerably well filled with roots, and to then give a teaspoonful of some concentrated manure to a $4\frac{1}{2}$ -inch pot, which will generally carry the plants on to the blooming stage. If this is adhered to there will be no danger of any evil results. It is, however, wonderful what the use of concentrated stimulants, judiciously applied, will do, not only as regards promoting a vigorous growth, but, what is almost as important, in favouring a quick development. A week or ten days earlier frequently means an increased market value of 30 per cent., and this and more will be the difference between plants that have been fed up to the highest possible degree, and such as have been managed in an ordinary way. Although good prices are sometimes made early in the season, the guiding principle in Fuchsia culture for market is small profits and quick returns, and only high feeding will enable the grower to carry it out. The sooner a houseful of plants is disposed of the more quickly can another lot be pushed on. I have rarely seen market Fuchsias grown on staging of any description. The constant moist condition of the soil, together with a certain amount of needful atmospheric humidity is best maintained, and with the least amount of labour, when the plants stand on earth beds.

Without the constant judicious use of the water-pot, however, all other cultural details would be unavailing. From the time the cuttings are potted off the soil is never allowed to come into a dry condition. Constant watchfulness through varying weather phases forms the keystone to success in the highest culture of these Fuchsias in small pots. Looking through the houses once or twice a day at stated intervals will not do; the exact moment for supplying moisture according to the weather is taken, and Sundays form no exception to this rule. If the plants get dry only once the wood hardens, and there is an end to rapid growth. In connection with this detail, a good grower once told me that Fuchsias, with proper management, grew more at night than during the daytime. When bring-

ing them in spring with artificial heat, he made a practice of giving them a gentle watering late in the afternoon, at the same time well damping down the house. Another important matter with this grower is shade from hot sun. Without shade, he says, it is impossible to grow Fuchsias so satisfactorily as is desirable. This may easily be seen in the summer in the case of plants growing in houses exposed to the full sun; the wood hardens and buds form before the plants can be brought to a good marketable size. As soon as they begin to grow freely, each plant has a stake put to it, to which the central growth is tied. Later on each shoot is brought into place by means of pieces of raffia, twisted so that they are as firm as coarse thread. It requires considerable practice to be able to tie up quickly with this fine material. Looking through a large house filled from end to end with these admirably grown little specimens, one is struck with the fact that they completely fill the whole of the available space. The amount of room that each plant requires is so well calculated, that as they finish off they come into a solid block of flower and foliage, and yet have never, as can be seen by their condition, lacked breathing room. One may say without exaggeration that not another plant could find room, and yet there is not the slightest effect of overcrowding to be perceived. It is simply perfection of culture, both as regards quality of growth and utilisation of space. Last spring I went through half-a-dozen 100-foot houses filled with plants in $4\frac{1}{2}$ -inch pots, all bearing the mark of the highest possible culture. Some were in full bloom, others coming on to their final stage of growth, but in every condition of development there was perfect uniformity of quality.

J. C. B.

ORCHARD AND FRUIT GARDEN.

LATE APPLES.

It may be that of the vast number of Apple trees which have been planted during the past few years the trees have not become of sufficiently mature age to enable them to bear a serviceable crop of fruit, for notwithstanding the general abundance of the fruit crops during the past season, late Apples of English growth are very scarce, or at least good samples are, if we may take the condition of the markets as a sure guide. American Apples were never more abundant and good. Another reason probably why good English Apples are scarce is that planters do not turn their attention sufficiently to the later kinds on account of ample storage space not being at hand, their opinion being that it is best to plant those varieties which can be gathered and sold from the trees direct, thereby saving the trouble of storing. This is a very erroneous opinion, for late Apples of good quality are sufficiently remunerative to more than cover any expense of storing and also leave a good margin for profit. In selecting varieties for storing, it is no criterion that the fruit will be of good quality, although to outward appearance sound, for many of the comparatively early varieties will show this trait even at Christmas or later. Such being the case, Apples of this nature are not the best for storing. Instead of the texture of the fruits being soft with little flavour, it should be firm, crisp, and juicy. Occasionally collections of Apples are exhibited from the turn of the year onwards, and amongst them are always kinds which were at their best two or three months previously, as far as their cooking qualities were concerned. Such being the case, I do not think these are worthy of the comments often bestowed upon them simply because from their appearance they seem comparatively sound. Such comments are often

misleading to people who may not be acquainted with the variety or varieties, and they select them for late use and plant accordingly.

If we are to have late Apples, let us have those that will prove worthy of being cultivated as such, and not the earlier kinds which may have their skins plump, simply because they may happen to have been kept in a store suitable for thus preserving them. Amongst varieties suitable for Christmas use, the Blenheim has long been a favourite; in fact, it is in good condition for a month previous to this, but this quality is well maintained up till the festive season. Some people seem to think that the Blenheim might well be dispensed with on account of its tardiness in coming into bearing, but there is no variety that bears more freely when once the fruiting stage is reached, and there cannot be any denying the fact that it is the most popular variety of the present day. Certainly if I was only planting for market use, where the earlier the returns are the better, this variety would not find a place; but for general private use and where the land belonged to the occupier and the future was looked to, the Blenheim would certainly find a place in my selection, and I should think I was providing well for the future by so doing. From the way some people talk about encumbering the ground with a variety that is not early in coming into bearing, many are led to believe that every piece of land was so valuable as to be a matter of pounds, shillings and pence, and to encumber such with trees that may be some few years in coming into profitable bearing would be a serious loss. Those of us living in country districts know that such ideas are contrary to facts, and scores of acres might be planted with but little loss pecuniarily, the trees and cost of protection from cattle and ground game only requiring attention for the first few years. Late Apples to be profitable must be stored, for if disposed of early in the season, the prices obtained are in many cases lower than for the earlier kinds. The wide-awake dealers who know what they are buying are never loth to purchase these later kinds, knowing that if they store them themselves, they will be well remunerated for their trouble. That excellent old Apple Hambledon Deux Ans well deserves the high commendation which was bestowed upon it a short time since in the pages of *THE GARDEN*. Where it will succeed, and this is on warm soils, it is one of the most valuable late Apples in cultivation, being good alike for cooking or dessert, the flavour being something akin to that of the Ribston. I have bought excellent samples in Sussex, paying as much as 1s. 6d. per gallon at the turn of the year. According to the "Fruit Manual," it originated at Hambledon, a village in Hampshire. Alfriston is also an excellent late Apple, it bearing most abundantly in a young state. During the past season it was one of our best cropping varieties. The quality is excellent. Reinette du Canada is another grand quality Apple where it will succeed, and this should be on a warm and well-drained soil, otherwise it is apt to canker. Annie Elizabeth is also an excellent Apple; so also are Lane's Prince Albert and Bramley's Seedling. This last has probably become more generally sought after by intending planters than any other variety. I planted this variety in cottagers' gardens, and though the soil is a cold clay the growth is very free. It is one of those very few useful varieties that is equally good throughout the season and keeps very late. Dumelow's Seedling, or Wellington, as it is more popularly called, is a splendid late variety, but I was sorry to see the account a short time ago by "A. D." that

it did not succeed so well as formerly in the neighbourhood of London. Some twenty years ago, when residing in Surrey, Wellington was thought highly of by market growers, so much so, that it was the most popular late variety, always commanding a good price in the market. Surely, with such varieties to select from it should not be a reproach to us that we cannot produce good late Apples worthy the name of such. Y. A. H.

Reserve fruit trees.—These should be grown where a little additional room can be given up to their culture. It is very handy to have, for instance, a few good Peach and Nectarine trees coming on to supply the places of older ones which are going past their best. With a reserved space at command, these trees can be grown up to an extra size before being permanently placed into their fruiting positions. Thus the wall is not left bare so long as if a young tree were planted straight away in its permanent place. This is far better for the tree also as regards fruit-bearing afterwards, as the shifting after the trees have attained to good dimensions will tend to fertility, being in any case most desirable. One can never tell exactly when a tree of either of these fruits may give out; it is, therefore, all the more requisite to have a reserve of young trees to take their places. The same remarks apply to Pears and Plums, although not to such an extent, these being usually more reliable; a few should, however, be always ready.—G. H. A.

Best soil for Quince stock.—From early impressions I have of the Quince, and my recollection of the way it grew and fruited on the banks of the Colne when I was a boy, I should say that the soil most suited to the trees is one in which there is plenty of moisture, as evidently the trees I refer to must have had many of their roots in water, and it must have suited them. I have never seen any like them since, for so healthy were they, that the fruit they bore was quite double the size of any I meet with now and clear in the skin. I do not wish to be understood that such a position, or that wet soil would suit the Quince with a Pear head on it, as the Pears probably would not be good, that is they would most likely be large, but not of fine quality, which they are here on land that is light, dry and warm, but then I always mulch the ground under the trees heavily and water if the weather remains dry long when the fruit should be swelling. As the Quince is so useful for marmalade and flavouring, and so exceedingly ornamental when in flower and bearing, it is a wonder that trees are not more planted in gardens and grounds. Their gracefully drooping habit makes them suitable for the sides of lakes or ponds or positions of that kind.—S. D.

Bare spaces on walls.—One often sees spaces upon walls that might be profitably covered with fruits of one kind or another. I mean by this permanently so, not merely stop-gaps for small intervening spaces, with such as Tomatoes, which can usually be found room for, if not altogether, at least here and there. Now that cordon Pears are so plentifully grown, these supply us with first-rate trees for all aspects but the north; there even some of the earlier kinds may be grown to form a succession to those in more favourable positions. If the Peaches and Nectarines are none too plentiful, small strips of wall may be covered with cordons of these, but I would prefer to have more of such fine Pears as Doyenné du Comice, also of later kinds as Easter Beurré. For walls also there are the Calville Apples, which are more difficult to cultivate under ordinary methods than most kinds. Red and White Currants, also Gooseberries, should have room given them upon walls for late and desert use. These, too, need not take up much room, being easily run up as single or double cordons. There is really no excuse for those who do not cover their walls with either one kind of fruit tree or another when there is so much and so suitable material from which to choose. The prices of the trees can scarcely be urged as any pretext for

not doing it; these are reasonable enough for all practicable cases. The cordon system is undoubtedly a good one for making the most of our wall space, it being an easy matter to run up one here and there.—H. G.

Pear Huyshe's Queen Victoria.—As a rule the Pears produced with us from trees growing in the open garden are not of much value, this remark applying more especially to the later varieties. The only noteworthy exception is found in Queen Victoria. We have only one tree—a fine pyramid on the Pear stock, and this succeeds remarkably well. Very rarely do we miss gathering a good crop of fruit, and this season fully two bushels were stored. It is neither a large nor showy Pear, the fruit being medium-sized, much covered with russet and in season late in November, keeping good till near the end of December. The quality is not equal to that of Glou Morceau and Josephine de Malines, but is superior to that of Beurré Diel, Prince Consort and a few others fit for use at about the same time. The variety pays well for wall culture, but is most strongly recommended for the open garden.—I.

THE THINNING AND PRUNING OF FRUIT TREES AND BUSHES.

Now that the leaves are off, the sooner pruning and thinning are commenced the better. Every advantage should be taken of mild open weather to push on the work. In a general way Apple and Pear trees, when grown as standards or in orchards, are left much too thick in the head, and when they get into that state the fruit they bear is always small and poor, as they produce quantity and not quality. All branches that cross or are misplaced and too near others should be cut out at once, which may easily and quickly be done by using a suitable saw, after which the cut made by it should be smoothed by the aid of a sharp knife, so as to prevent wet lodging and help the healing over that follows.

On trees trained as pyramids, bushes, or espaliers the spurs sometimes get very thick. These should be thinned by taking out the longest and worst and shortening back others. Wall trees, as Pears, Plums, and Cherries, require just the same treatment, as walls are but little protection if the spurs stand out a long way. Anyone at all versed in gardening matters can tell at a glance which are fruit buds and which are wood buds, and will prune accordingly, while a little practice with close observation will give the required knowledge to those interested in fruit growing. Morello Cherries bear best on the young wood, and should not be spurred, but simply thinned and the shoots left full length. In the case of Black Currants the twigs ought to stand about 6 inches apart all over the bush. Red and White Currants ought always to be spurred, that is, all shoots made during the summer, except one may be required here and there for filling up, should be cut back to within an inch or so of the base, and the end ones on the branches shortened so as to leave them 3 inches or 4 inches long. If sparrows are troublesome among Gooseberries, as they frequently are, the remedy is to lime the bushes when wet, and then the buds will be safe. The prunings of Currants and Gooseberries, that is the strongest, straightest, and best shoots, come in well for cuttings, the way to make these being to form them into lengths about 9 inches or a foot long, cutting them close to a joint at the bottom, and taking out every bud except the three or four at top, after which they should be dibbled into the ground in rows, burying them half way up and making them firm in the soil. S. D.

Blenheim Pippin Apple.—"A. D." has done well to call attention to this highly meritorious Apple, especially just now when so many are planting trees, and it may be are led away from growing this fine old kind to those of more recent introduction that have been shown and talked about so much of late, and thus brought immediately under the notice of the public. That several of these latter are very valuable and de-

serving of extensive cultivation there cannot be the least doubt, but the Blenheim, taking it all round, is the Apple *par excellence*, and will pay the grower far better than any other in the long run if a suitable position and good land be chosen for planting, but the fruit must be stored and held back till a late season to fetch the best price in the market. The lack of places for storage tells much against the small cultivator, and retailers in towns, as a rule, cannot buy till fruit is ready for use, and even when they can they seem to want more than half of the profit. If growers could only pack in cheaply-made boxes or barrels and select the very best fruit, they might open up a trade direct with consumers, and then both would profit, the cultivator by getting more and the consumer giving less, and much more fruit would be used, as now no one gets anything like what he requires on account of the price. This is not only so in regard to Apples, but to all garden produce, and people in towns are kept short while plenty is spoiling. The fact is, we, with all our railways and means of carriage for distributing supplies, have not half markets enough, and it is really sad to see the waste there is of good food. Take the case of Plums this season, a large portion of which rotted on the trees or ground, and yet people could not buy them cheaply.—S. D.

ORANGES, CITRONS, AND LEMONS.

THESE, where there are any symptoms of scale, which is the chief pest that infests them, should now receive a thorough good cleansing. If the plants be extra large ones and the insects numerous, the best way will be to give first an all-round turn with the garden engine, using water of from 100° to 120°, in which has been dissolved a reliable insecticide, according to the instructions given for its use. The higher temperature of the water will do no harm, but if there are many fruits either in the ripe stage or still green, the lower standard would, in my opinion, be the most advisable, to avoid any possible risk of injury. One of the best insecticides for syringing is the paraffin oil insecticide, which is so incorporated with soft soap as to thoroughly mix in water without any fear of injury in its application. Two or three syringings with this at intervals will kill the scale and very much shake the mealy bug should there perchance be any. Some cocoa fibre would be a good material to cover over the soil whilst this work is being performed, mounding it up around the stem so as to absorb as much as possible of the solution before it reaches the roots. After the last syringing, the additional cleansing by means of sponging should be gone into. This may take some little time if the plants be large and at the same time very dirty, but it will pay for being well done. If time cannot be spared now to do it effectually, it is very certain that no more convenient period will come in the majority of cases. Every effort ought, therefore, to be made to do it well, even at the cost of time and labour. These plants are grand ornaments in large houses when well cared for, but quite the reverse when lean and bare, as they most assuredly must be if insects are not kept in check. Great care should be taken not to injure the fruits; most likely they too will be somewhat dirty. Particular care should be taken of the Shaddock, the Citron, and the Lemon, which are all too scarce as a rule. The stems will also require cleaning, as well as other parts, to make the work effectual. Where the plants are carrying a good crop of fruits, take care that they do not become too dry at the roots. These plants, as a whole, should not be allowed to suffer at any time. If excessively dry, it is difficult afterwards to thoroughly moisten the soil. On the other hand, any undue excess should be guarded against, which would also be injurious, more particularly at this season of the year. It is possible that there may be worms in the soil; should this be the case, some lime water would assist in removing them. The Tangerine Orange, also others that are fit for dessert, would be all the better in a temperate house

to ripen the fruit if advancing towards that condition. Others will be safe enough in either a greenhouse or conservatory with an average temperature.

II.

PIPPIN APPLES.

PIPPIN would appear to be simply a term applied to any variety of Apple raised from pips or seeds, this explanation being much more feasible than another suggested during recent years, viz., that it has reference to the dots on the fruit. Any way the family is a large one, comprising about eighty varieties, though with but few characteristics in common. Of this number a great proportion is but little grown, most of them, in fact, gradually, or according as the old trees die, dropping out of cultivation. There are several, however, that ought not to be too readily discarded in favour of more precocious bearing, and it may be more showy, varieties that do not come under the denomination of Pippins, and foremost among these must be placed Blenheim Pippin, or Blenheim Orange as it is more generally termed. Of the many varieties of Apples grown in this country the Blenheim Pippin is one of the few that, in my opinion, are capable of holding their own against foreign importations, and but for one fault it might safely be considered the best and most profitable variety in cultivation. The fruit is large, attractive in appearance, and at its best at Christmas, this being when the demand for good fruit has reached a climax. It is a splendid cooking Apple, but unless I am much mistaken, the bulk of the fruit is eaten raw, and with good reason too. No matter how plentiful Apples may be, the Blenheims invariably realise good prices, even in the fruit-growing districts of the south-western counties, especially if the growers have the good sense to carefully store their crops of them. The one great drawback to the variety is its shy-bearing habit, young, or comparatively young trees forming little else but wood. It is not so very long after all before the trees attain a productive state, this naturally varying from eight to twelve years, according to the soil and locality, while the trees are then of such a size as to quite eclipse nearly everything else near them. Nor is this all, as the trees continue to improve in size and productiveness for very many years, large old specimens in orchards yielding extra fine fruit by the sack. Instances could be given of one or two large trees of this variety frequently producing crops of greater value than several dozen trees of other sorts either earlier in maturing or of much inferior quality. Were I at the present time to commence planting orchard trees for profit, standards of Blenheim Pippin would be distributed about 40 feet apart each way throughout the orchard, more precocious varieties being interspersed among them and treated as supernumeraries. In the course of years the Blenheims would, if they succeeded well, and they thrive in nearly every district I have ever lived in or become well acquainted with, have the whole of the orchard to themselves, and would pay surprisingly well. This variety also succeeds fairly well under garden culture, but in this case it is advisable to have trees grafted on the broad-leaved Paradise stock.

COCKLE PIPPIN is a serviceable dessert variety, but not large enough nor showy enough for market work. For home consumption it has much to recommend it, the tree being amenable to any form of training, bearing fairly well in a young state and rarely failing when fully grown. In season from December to April, and in quality very superior.

COX'S ORANGE PIPPIN has come to the front in such a marked manner of late years, that little eulogy is required from me. All things considered, it is perhaps the most popular dessert Apple grown, and deservedly so. According to my experience, it succeeds best grown on the Crab stock and as a half-standard, and if hard pruning is avoided, this kind of tree soon attains a very productive state. It may, however, be successfully grown under any other form of training, but if dwarf, comparatively sturdy, and early productive trees are required, those on a dwarfing stock ought to be planted. The fruit is of medium size, perfect in form, often highly coloured, and of superior quality, being fit for use from November to February inclusive.

FEARN'S PIPPIN may be rightly classed as a very profitable variety, and is popular alike with private and market growers. For a strong-growing sort it is fairly precocious, and if had on the dwarfing broad-leaved Paradise stock, quite small trees bear abundantly. It succeeds well as an orchard tree, and is equally well adapted for any form of training. With me large bush or basin-shaped trees rarely fail to bear well, and the fruit is of medium size, brightly streaked with red, and of fairly good quality, either cooked or in a raw state, during December and as late as March.

GOLDEN PIPPIN no lover of dessert Apples should be without. Many years ago I frequently assisted in gathering heavy crops of small fruit, oblong in shape and of a rich yellow, from small standards in a Kentish orchard, but have met with very few such trees in other parts of the country, the preference apparently being given to miniature trees on dwarfing stocks. It is a sure bearer under any form of training, and the fruit is attractive in appearance, crisp, juicy, and agreeably flavoured, and good at any time from November till late in April. Summer Golden Pippin, from what I have seen of it, succeeds well as a bush or pyramid, and produces abundantly, the fruit being a little longer and of much the same colour as the form just commented on, but the season is short, not extending far into September. All the same, it is a very desirable late summer Apple.

KENTISH PIPPIN is one of the few Pippins that is unsuitable for dessert, but it is of good quality when cooked. The tree is of robust habit, and can be relied upon to bear well in most years. I should only recommend it for orchard planting, though our large pruned garden trees on low stems are among the most productive we have. The fruit is being used now, and will most probably be available till well into February.

KERRY PIPPIN belongs to the small-fruited and early section, being in season during September and October. It is well adapted for garden culture, small trees on the dwarfing stock commencing to bear quickly, the productive habit being constant. It is a pretty oval-shaped Apple, the quality also being first-rate.

KING OF THE PIPPINS, or what is usually grown as such, if not exactly a high-class variety, is yet a very popular one, more especially on account of its remarkably productive habit, quite small as well as fully grown trees bearing well in most seasons. The fruit is of medium size, prettily coloured, of moderately good quality, and available from the beginning of October to midwinter. As far as my experience goes, it is better adapted for garden than orchard culture, standards rarely attaining a very serviceable size.

LEMON PIPPIN, though frequently recommended for dessert, is with us much more appreciated for cooking, it being preferred in the kitchen to all others while the crops last. The fruit is of medium size, much resembling a Lemon in shape and frequently in colour when ripe, being at its best during December, though it would keep much longer. The tree is of a sturdy productive habit, or suitable for growing into bushes or pyramids, but not particularly well adapted for standards.

LONDON, OR FIVE-CROWNED PIPPIN, and of which it is my belief D'Arcy Spice is another synonym, I hold to be one of the best varieties in cultivation, this being one of the old favourites too

frequently discarded by modern planters. The fruit is of good size, round, and flattened, five prominent ridges at the crown being a marked characteristic. It is of somewhat dull colour, being pale yellow when ripe, the more exposed fruit having a dull red cheek. Eaten raw it is tender, juicy, and briskly flavoured, and it cooks admirably, the season extending from December to April inclusive. The tree is of moderately strong growth, but standards do not attain a great size, bearing well almost from the first.

RIBSTON PIPPIN may be said to be both one of the most popular and most unreliable Apples in cultivation. No fault can be found with either the productiveness of the tree in whatever form grown, nor with the quality or keeping properties of sound fruit, but it unfortunately seems an utter impossibility in many cases to prevent or cure cankering of the wood. Naturally, this evil is more pronounced in some districts than others, clayey soils and the other extreme, or very light soils not suiting it as a rule. There is, however, a considerable number of healthy standards, espalier-trained, pyramids, bushes and cordons to be met with in various parts of the country, and the variety is of such value that the attempt ought always to be made to grow it successfully. On our clayey soil what may be termed naturally grown trees are now cankering badly, lifting, dressing with insecticides, cutting out affected parts, and a sparing use of the knife not preventing it.

STURMER PIPPIN, in addition to forming a good succession to the Ribston, fully deserves an unimpeachable character, being most probably the best late dessert Apple known. The fruit is of medium size, roundish and flattened, the skin being green and much covered with russet. It is crisp, juicy, and of brisk flavour, keeping good until June. The tree is of good free-bearing habit and amenable to any form of training.

WYKEN PIPPEN, a small-fruited, free-bearing variety, is also a good keeper, and is a favourite with some connoisseurs.

NEWTOWN PIPPIN, although of great excellence as grown in America, is of no value for culture in this country other than under glass or against fairly warm walls. **W. ICGULDEN.**

OVERCROWDING FRUIT TREES.

THIS is an evil that should be carefully guarded against. It often happens that when trees are first planted the intention is to thin them out as growth progresses, but as years go by and all the trees thrive, one lacks the courage to do this work in time, the result being that all will eventually suffer more or less, the final issue being a survival possibly of the fittest, as far as growth is concerned; not so, however, as it relates to fruit-bearing and quality. This evil is more apparent in orchard-grown trees than upon walls, although it occurs also in the latter instance in the case of overlapping. The wall trees, moreover, suffer from others that are bush or pyramid grown being planted too close to them. These latter as they assume larger dimensions shade the trees upon the walls; consequently the wood of the wall trees is not properly ripened. These trees in such cases are far worse off than those in the open, for they have only one aspect from which they can derive any real benefit. Overcrowding so as to shut out light and air is ruinous to the trees, and only results in soft sappy wood. This evil happens more in restricted gardens than in those of larger extent, simply because more is attempted than can be successfully accomplished. To remedy this to some extent the Pears should all be grown upon the Quince stock rather than on the Pear, and the Apples upon the Paradise instead of the Crab. Bush fruits, as Currants and Gooseberries, are frequently planted too closely together. At the time of planting, the trees being small, they appear to be far enough apart; such, however, is not the case as growth proceeds. In gardens of limited size I prefer to plant Currants and Gooseberries upon the borders next the paths. In this way I have found that the birds are not so troublesome to the fruit as

when cultivated in quarters, this, no doubt, being caused by want of more refuge. The espalier system of growing Gooseberries is an excellent one in any case, but more so for dessert fruits, the protection by netting being easily accomplished. In larger gardens there is really no excuse for overcrowding, for when there is more than sufficient room it is an easy matter to crop with dwarf-growing vegetables or flowers for cutting. If one takes note of the practical market growers, it will be observed that the bush fruits are far enough apart to get up conveniently between each row; they are also alive to the fact that overcrowding of large trees, Apples, Pears, or Plums, is not favourable to the production of fine fruit, which, if obtained in lesser quantity, is better in quality; consequently it gives a greater margin of profit upon the outlay as compared with that which is smaller and of inferior quality. The trees with plenty of room will also last much longer in good bearing condition. **H. G.**

Fruit tree arches.—The pretty illustration of Ivy-covered arches in a fruit garden at page 593 reminded me forcibly of the far better plan in operation at Heckfield Place, where the late Mr. Wildsmith obtained such very excellent results through training Pear cordons over iron arches. There the trees are, I think, about 5 feet apart, but it is easy to have them so close as 3 feet from each other on either side, as it is very unwise to have planted near the trees any tall crops which would exclude air or light. The Heckfield path is about 5 feet wide, and thus the trees are about 6 feet from each other, being planted well within the edging. The varieties are numerous and of the best kinds, and almost invariably the crop is an excellent one. The plan answers best for walks that run due north and south. The supports at Heckfield are single iron arches, but I do not know if they are forced into the ground with single spikes or whether they have a claw to sustain them. Probably arches 6 feet broad at the base and 7 feet high in the centre would be best sustained by having simple crossbars at the base of each, a foot long or wide, from which, in addition to the central spike, projected two other spikes, each 12 inches long. Such claws would get a good grip of the ground. It is preferable to train the Pear trees rather on the outer than the inner sides of the iron supports, as the growth is then more fully thrown up into the air. Good borders, some 3 feet wide, should be made on either side, and nothing planted on them that could in any way affect the Pear roots. Mr. Wildsmith prized his Pear trees on arches very much, and often expressed a wish that they had been planted more closely together, but the original planting was an experiment.—**A. D.**

Citrons.—A fine fruit of the Citron was exhibited at the meeting of the Royal Horticultural Society on December 8, and is the subject of a note in *THE GARDEN* (p. 530) last volume on the usefulness of this fruit as a preserve. It certainly is very useful when preserved green or in a ripe state. The green, I consider, is the best, but that is a mere matter of taste. Those who can spare room should certainly grow a few Citrons for dessert, as when preserved green they make a valuable addition to this in the winter months. They require careful treatment and some patience when preserved in large pieces. The variety shown was, I think, a form of *C. medica*, a very old fruit, much like the Shaddock, but more ovate in shape, often in well-grown fruits lemon-shaped or oblong. The fruits are often of large size and are rather acid, with a thick yellow rind. The leaves are oblong, large, and thick, and the wood is covered with spines. It is not so free-setting as the Shaddock. I used to grow it in quantity at the back of a late viney, not shaded, but was obliged to be careful when in bloom not to damp the blossoms, which usually come in bunches, and not regularly over the trees. When growing the plants require plenty of heat, but at the resting period those I grew were fully exposed with the Vines, and received no injury. The trees bore fruit more or less every year. The wood should be thoroughly ripened

if plenty of fruit is required, and the stems trained or tied close to the wall. Those who plant Citron trees for this purpose will not find they give the same returns as Peaches or Nectarines, but they give variety. I have seen them grown in vineries much shaded, but when grown under the shade of Vines they bear little fruit.—**G. W. S.**

THE PAST YEAR.

I CONSIDER it is always a wholesome plan to take stock, as it were, at least once a year of past doings, learning lessons by failures and partial successes, lessons that should be of assistance in an improved condition of affairs during the coming season. By close observation, it is possible to overcome obstacles that probably at first sight appear insurmountable in very many instances. It is only by exercising our mental faculties and powers of observing what others do who succeed better in any individual case than ourselves that we can hope to attain to a higher standard of culture. It is scarcely possible for a gardener to visit any garden without gaining some knowledge which he can turn to a good account afterwards. It does not matter whether the place be a large or a small one; whether it be well manned or short of this all-important factor in gardening; there is always something that can be turned to a profitable account in one's own case. It is far better to impart any knowledge we may respectively possess than to keep it, so to speak, in a nutshell. It is to our mutual good to do this, so as to give encouragement to others in cases where our own opportunities have been more favourable than theirs may perchance have been. By questioning others who in their cases have succeeded well, it is possible to add to our own strength and position by putting the information gained to a practical test as we may have opportunity. Not only can we see and take note of what is successfully accomplished, but it is quite as possible to learn lessons of what to avoid in our own practice. None of us are perfect; very far from it; at least I have never yet seen a perfect gardener, and do not expect to meet with one. We have all of us got a deal to learn; in fact, we are never done learning as long as we are following our profession. There is so much minute detail in respective cases, with also such a wide field of subjects to be dealt with, embracing subjects widely apart and most divergent in their issues, so much so as to perplex the best of us at times. Those gardeners who are known by the cognomen "single-handed," I feel, often, in cases of well-managed gardens, set us an example for tact, perseverance, and industry that might be turned to a good account. We are undoubtedly profiting to a large extent by the many horticultural societies about the country, inasmuch that these tend to foster and increase the interest taken in matters pertaining to gardening in general, and thus produce a wholesome spirit of rivalry in various districts.

Taking notes of work done at the time of its performance, comparing one year's results with those of another, thinking over the past and arranging for the future may occupy our attention during these winter evenings. Schemes for future experimenting can thus be evolved, at least, in the brain, if not committed to paper. I do not myself believe in following upon the same lines year after year; by this I mean that if any special feature has been made the most of one season, or perhaps for two or three, it should afterwards give place to something else, so as to add to the interest, not only when at its best, but in its expectation also, for the anticipation itself is an enjoyment when the best of our interests in any one object are employed. I do not believe in making such hobbies of a few things as to exclude the fair share of time and attention that are needful to bring other things to a successful issue. An all-round mode of culture, giving all plants their fair proportion of labour and room, without an excess of one thing or a scarcity of another, represents a greater amount of attention the year round. Specialities are in many cases grown, and that most

creditably, but it does not seem to be, in my opinion, the best way of making the most of the room at one's command. In cases of failure during the past year, particular attention should be given to prevent a recurrence, especially if it were an important case. After several seasons of success, there is at times a kind of lax method adopted, whence failures occur, causing surprise when it was nothing more than one might have expected. Of course, I know full well that permanent hard-wooded plants have to be kept on from year to year; it is not to such that these remarks apply, but more to those that are easily propagated from year to year, either from seeds or cuttings. Fresh features with such as these in their respective seasons can be made. Growing too many plants, so as not to have room enough to accommodate them when arriving at a useful size, is a great mistake. This causes a waste of labour and of material; a less number can be grown far better, giving more credit to the grower with a saving in both ways, as aforementioned. In cases where insects are troublesome, this unsatisfactory state of things is still further aggravated, probably causing a total loss in the end.

J. HUDSON.

STOVE AND GREENHOUSE.

THE AFRICAN LILY.

(AGAPANTHUS.)

It is now nearly two hundred years since the blue African Lily was introduced, and yet it cannot be called a common plant, nor is it seen nearly so frequently as one would suppose, judging from its exceeding beauty. The way to have good specimens is to grow them in tubs. It roots so freely and strongly as to burst the strongest pots, but on no account should this lessen its cultivation. Large pots are expensive, but tubs are cheap and easily obtainable. For smaller specimens 4½-gallon and 9-gallon casks cut in two, and a few holes bored in the bottom for drainage, do very well, but for larger specimens petroleum or tar-barrels treated in the same way, but charred inside previous to use, will hold specimens quite large enough for any place or purpose, and capable of producing from thirty to forty spikes of flower each season. The beauty of a well-flowered specimen of this African Lily can hardly be exaggerated. There is no garden that would not be improved by the addition of a few specimens of this noble flowering plant. Beside formal terrace walks, at the top or foot of steps near the house, and even in simpler gardens, near and beside the dwelling house, it always looks well. The culture of this plant is very simple, as, given a free sandy loam, well drained, abundance of water in the growing season, and protection from the severest frost in winter, it is sure to grow well and flower freely. Once a good specimen is made up, it is not advisable to disturb it at the root. Give stimulants freely in the shape of liquid manure throughout the summer, and the reward will be from ten to forty spikes of bloom each year, according to the size and strength and liberal treatment of the plants. Some call this a hardy plant, and as a matter of fact it does withstand the winter in a few favoured southern and western gardens, but even in these it would thrive better and flower more freely if housed for the winter. It will stand unharmed from 10° to 12° of frost, and in any shed, cellar, or room where the severe frost can be kept from it, it will be safe.

VARIETIES.

The commonest variety is *A. umbellatus*, which was introduced from the Cape in 1692. There is a form of it named *maximus* which is larger in all its parts than the type, and a

truly noble kind, worthy of good cultivation. The flower-spike of this kind grows 4 feet high and bears an enormous head of bloom. There is a double-flowered form of *A. umbellatus* which is very beautiful and long-lasting, but whether it succeeds in pots in the open air I do not know. As seen under glass it is very good, and worth growing for the greenhouse or conservatory. *Agapanthus umbellatus minor* is smaller in all its parts, with narrow leaves and elegant slender spikes of deep blue flowers. *A. umbellatus Mooreanus* is a very dwarf kind, with narrow, rather erect leaves and heads of deep violet-blue flowers. It is said to be hardier than any other kind.

their shades of blue, and there are also two variegated-leaved kinds, one with silver bands and the other with golden bands running the entire length of the leaf. Both are pretty, but, of course, not so generally useful as the vigorous, noble, green-leaved kinds. A.

Asparagus decumbens.—Since the advent of *Asparagus plumosus* and its variety *nanus*, a good deal of attention has been directed to the ornamental qualities possessed by several members of the genus, and for some of them a considerable demand has sprung up. *A. decumbens*, however, though quite an old plant and a very pretty one, is never likely to attain the degree of popularity



The white African Lily (*Agapanthus umbellatus albus*). From a photograph sent by Mr. Troup, Uplands, Wrington, Somerset.

These two dwarf kinds should be more extensively grown in pots, as they are less liable to burst them.

WHITE-FLOWERED KINDS.

Of these there appear to be three distinct varieties. One, named *A. umbellatus albidus*, with full-sized spikes of fine white flowers, has the peculiarity of losing its leaves, which during the winter turn yellow and die off. It appears to be a natural characteristic, and the plant should, therefore, be carefully dried off for the winter. *Agapanthus umbellatus candidus* is a white variety of the type and evergreen, but the finest kind is the form of *Agapanthus umbellatus maximus*, which has a tall scape and a large head of the purest white flowers. Those who wish for a full and complete collection will find, in addition to the above named kinds, a few others, varying slightly in

that some of them have reached, owing, in the first place, to its being deciduous, and secondly, to the fact that the foliage is altogether less firm in texture than that of the forms of *A. plumosus*, and consequently not so useful in a cut state. The usual habit of *A. decumbens* is to form a thick mass of short tuber-like roots, from whence a profusion of fibres is pushed forth. It is, as indicated by the name, of a drooping habit, and is seen to the best advantage when so situated that the pendulous shoots hang down for a length of 5 feet or 6 feet, as they will do in the case of a vigorous specimen. Several shoots are produced from one base, and as they all branch freely, a good specimen forms quite a mass of peculiar soft green foliage. This *Asparagus* flowers very freely, and the blossoms are succeeded by oblong-shaped berries, which are comparatively large and add quite a feature to the plant. It starts into growth in the autumn, and continues growing throughout the winter; then in the summer it becomes totally deciduous, and rests

in that state till the autumn. *A. decumbens* was introduced from South Africa towards the close of the last century. I have lately in several places seen an *Asparagus* under the name of *A. scandens deflexus*, which appears to be identical with *A. decumbens*, and is certainly a totally different plant from the typical *A. scandens*.—H. P.

EUPATORIUMS.

THESE are, I consider, some of our most valuable winter decorative plants, and though the cool house varieties do not make a great show of bright colours, they make up for any deficiency by the quantity of light graceful flowers they give in the dull winter months. Of the indoor section or cool greenhouse varieties, *E. riparium*, *E. Weismannianum*, and *E. odoratum* are very useful. They are easily grown. *E. Weismannianum* bears white, sweet-scented flowers, and blooms at a time when the other varieties are on the wane. It may be grown from cuttings or division, and if propagated yearly early in the spring, good-sized plants may be had by autumn. Many growers cut the old plants back and repot. These make large plants, but do not give such fine blooms as when grown every season from cuttings. Some grow these plants from seed. *E. riparium* can be freely grown from seed sown one spring to flower the next. *E. odoratum* is equally useful for cool house decoration; indeed, this variety and *E. riparium* are the two kinds most largely grown. These last-named are readily raised in the spring from cuttings in a sandy compost and potted on, finally placing in the open in the early summer months, plunging the pots in cocoa fibre or ashes, as they suffer from drought if not plunged. They are gross feeders and require plenty of moisture. I use 8-inch pots at the final potting, but if extra large bushes are desired, they may get 10-inch or 12-inch pots, as they soon fill the root-space allotted them. At the final potting, more loam and less leaf-mould and sand should be used, as if the compost is very light it is difficult to keep them supplied with water when the pots are full of roots.

It is a good plan when labour or water is deficient to plant out the two dwarf kinds, viz., *E. odoratum* and *E. riparium*, placing in rows a yard apart and 2 feet from plant to plant, leaving a basin or cavity to hold the moisture round each plant, and in dry weather mulching the surface with decayed manure. When planted out they make large bushes, but should be cut round the roots with a spade and well soaked with water a few days before lifting, which should be done about the middle of September. *E. riparium* requires little stopping in the growing season. *E. odoratum* requires the opposite treatment to get bushy plants, also *E. Weismannianum*, which I do not plant out, but grow in pots, shifting on as required. When these plants are cut back and grown on a second year they make large bushes; on the other hand, they take up a lot of space and require large pots, so that I do not advise growing in this way, except for large houses. They make capital plants for a cool house when lifted with a good ball and planted indoors when room can be given them, as if picked over and old, faded blooms removed as they get discoloured, they give a succession of bloom. For spring decoration to succeed *E. riparium* and *odoratum*, *E. Weismannianum* is most valuable. Some may object to it as taking up room, but it is useful, its erect-growing Willow-like shoots being terminated by dense corymbose heads of sweet-scented white flowers. I give this last a little

more warmth than the two others, and find by so doing the flowers come of a purer white. During the summer the plants are plunged in the open, and on no account should they get dry. *E. ianthinum*, the violet-coloured, and *E. atro-rubens*, dark red, are oftener called *Hebecliniums*. They belong to this class of plants, and are useful winter bloomers, but require more warmth than the others named. I well remember years ago they often had the warm corner of the stove allotted them, but this is not necessary or good for them. An intermediate house temperature is most suitable—that is, 55° in the winter months; they then flower longer and are much stronger than if grown in a stove temperature. They can be struck readily from cuttings in the early spring, and should be propagated often in preference to using old cut-back plants year after year. These should be pinched once in the early spring if good heads of bloom are wanted, stopping so as to leave from six to nine shoots, and potting into good-sized pots according to the strength of the plants. Nice sized plants with three heads may be grown in 6-inch pots. These latter are useful for grouping or room decoration, and may be grown in cold pits during the summer, transferring to a warmer house in the autumn. Eupatoriums are not subject to insect pests, but when allowed to suffer from want of moisture they are liable to be attacked by red spider. G. WYTHES.

HARDY HERBACEOUS PLANTS FOR THE GREENHOUSE.

APART from the plants of a herbaceous character that are commonly forced into bloom, such as *Spiræas*, *Dielytras* and *Lily of the Valley*, there are a great many other subjects available for the embellishment of the greenhouse, which even though they may not be amenable to hard forcing, will flower finely under glass. Among the number a place must be given to the Day Lilies (*Hemerocallis*), the narrow-leaved forms especially being very satisfactory when treated in this way. A general favourite is *H. flava*, whose agreeably-scented trumpet-shaped flowers are of a clear golden-yellow colour. The flower-spikes will, in the case of a vigorous specimen, reach a height of nearly a yard, and though the individual blooms only last a day, a succession is kept up for some time. *H. Thunbergi*, with flowers of a softer tint, is one of the best for the above-mentioned purpose, while another favourite of mine is *H. Dumortieri*, with deep orange-coloured flowers. In this the exterior of the bloom is tinged with bronze. Being thoroughly hardy, these Day Lilies can be lifted and potted while dormant, and if required be plunged out of doors till the blooms are on the point of expanding, when they may be removed to the greenhouse. Being gross feeders, they must never be allowed to suffer from want of water, or the foliage will quickly lose its healthy tint. The variegated-leaved varieties are in many cases liable to revert to the normal green form, but at their best they are very beautiful, the variegation being so clear and distinct. As foliage plants, too, some of the *Funkias* are very attractive, particularly when they have been pushed forward in a gentle heat, and are then in full leaf before their relatives out of doors have appeared above ground. The beautiful white-flowered *F. grandiflora*, or *japonica*, will bloom well in the greenhouse towards the end of the summer. The hardy *Primulas* are, as a class, amenable to pot culture, and very handsome when in bloom. Of these, especial favourites of mine are the members of the *P. Sieboldi* or *amena* group, of which there are now a great many varieties in cultivation, differing from each other not only in the colour of the flower, but also to a great extent in the shape thereof. At this season of the year it is easy to select the crowns that will flower, and they may now be grouped together in a pot or pan, or if preferred potted singly in small pots and arranged when in

bloom. Solomon's Seal is now forced to a much greater extent than was formerly the case, and very graceful it is so treated. Again, several Composites are available for flowering under glass, and the garden varieties of *Pyrethrum* make a goodly show in this way. *Heuchera sanguinea* and the *Francoas* suggest themselves as suitable for this purpose; indeed, such a list might be considerably extended, but enough has been said to show that the flowering plants of the greenhouse need not consist solely of *Pelargoniums*, *Fuchsias*, *Calceolarias*, and two or three others of this class, as we often see. The large-leaved or *Megasea* section of *Saxifrages* is also amenable to this mode of treatment. I have not mentioned any of the beautiful little alpinas, but have confined myself to plants that will flourish in an ordinary mixed border, with the exception, perhaps, of *Primula Sieboldi*, which is less vigorous than any of the other subjects herein named. H. P.

Erica hyemalis alba.—We have forwarded to your office this afternoon a plant of *Erica hyemalis alba*, of which we have had some grand plants. Most of them have been cut, and the specimen sent is the best we have left. We had one plant some six years ago which bore pure white flowers, and we have since kept propagating it, as we find it most useful for cutting from at Christmas-time. We have enclosed a few spikes of the old variety to show how much whiter the sport comes.—W. BALCHIN AND SONS, *Hassocks Nurseries, Hassocks, Sussex*.

* * This looks to us identical with the variety shown by the late Mr. Kinghorn, Richmond, at a meeting of the Royal Horticultural Society on January 10, 1882, and awarded a first class certificate. It differs from the type only in the colour of the flowers.—ED.

LEARNING GARDENING.

TO THE EDITOR OF THE GARDEN.

SIR,—I am surprised to find a humble statement of mine appearing for the third time as a subject of comment. It is worth while putting it exactly as it occurred in my lecture—"A gardener's education, like most other people's, should simply be as good, as full, and thorough as it is possible to acquire. . . . Here the prime difficulty may rise in some minds, what is to be understood by the term education? In the present connection let us define it to be, in a general way—(1) *Mental training*, to be derived from books, lectures, meetings of societies, &c.; and (2) *manual training*, to be derived from the practice of professional duties." What is there to protest against here? Where is there anything "misleading or false" (p. 455) in this definition? I never said that "mental training is best had from books" (p. 409). My lecture contained the following passage—"But after all, it is *manual training* that makes a gardener. However well his mental training may have been attended to, he can by no means dispense with the practical part of his profession. The condition of a gardener's knowledge in this sphere depends on two factors; one is the opportunities of varied practice presented to the learner, the other the desire of the learner to take advantage of his opportunities. The object of the learner should be to try his hand at every sort of work, so as to know how to do it thoroughly and smartly. He ought not to shirk putting himself in the way of every class of work. He should find pride in feeling that there is no operation in gardening his hand is not trained to perform. The sphere of operations may be restricted in one place; then let him proceed in due time to another where his knowledge may be supplemented. He ought not to allow himself to believe that he has completed his education because he has the position

of master in a small place, when, the fact is, he would have been much better a foreman still in some first-rate establishment where he might continue to acquire experience."

I have not hitherto had opportunity of referring to your strictures on p. 455. What subjects in the Heriot-Watt College Horticulture syllabus are of "no use or interest to gardeners!" You give the list of subjects which gardeners are invited to study at the college, and state that "not one is in any way necessary for the general gardener." The "general gardener" will find them all constantly under tribute in the garden press. Whoever is responsible for the phrase "technology of horticulture" has much to account for. I never used it—not even the word "technology."

Coming to detail, allow me to depict my class at last lecture. A fine body of young gardeners and nurserymen, many from Dalkeith Palace, Newbattle Abbey, Morton Hall, and other less distant places, were assembled in a lightsome class-room at 7 p.m. We spent a happy and profitable hour, studying scale, thrips, red spider, aphids, mealy bug, currant-bud mite, &c., using eight fine microscopes to see the actual specimens, after we had noted the nature of their depredations on the plants. I shall be told that a gardener can kill these pests as readily without knowing their structure and habits. My informant belongs to a race that will happily soon be extinct; meanwhile, my students enjoy good fellowship at least one evening a week, and I have the great satisfaction of helping them to appreciate "the dignity and real importance" of gardening. Action and encouragement, not cavil at words and definitions of education, are what we ask for. In spite of stagnation and prejudice, the solution of the problem of the technical education of gardeners goes on apace in Edinburgh. JOHN H. WILSON, D.Sc.

THE GOOSEBERRY.*

THE Gooseberry is undoubtedly the most generally cultivated of all our hardy fruits. In the humblest gardens of our poorest peasantry, in the most remote and outlandish districts, a few Gooseberry bushes are found where no other fruit is attempted or cared for. Being indigenous in Britain, as well as in other parts of Europe, it thrives and ripens in latitudes and at elevations where none other of our hardy fruits come to maturity. It succeeds in a latitude 16° north of London, but not in a latitude so far south of it. Hence much finer Gooseberries are grown in the cooler climate of Scotland, and in England north of York, than in the hotter and drier parts of the south of England. Owing to the cooler and moister climate of the north, the season of ripe Gooseberries is much longer than it is possible to make it in the south. This fact alone indicates the desirableness of choosing as cool a situation as possible for the culture of this fruit in the southern half of Britain. The usefulness and the refreshing deliciousness of the well-matured Gooseberry render it a most popular fruit among all classes, from the humblest cottar to the peer; and in a green state it is most important to our toiling thousands in towns, supplying as it does a most wholesome and agreeable ingredient for tarts at a season when no other fruits are largely available for the purpose. For this reason, if for no other, the Gooseberry has long

been the most popular of fruits in the densely populated midlands, the working classes of which parts have long been famous for their interest in and devotion to the culture and production of new varieties, especially large show sorts—a result that has been amply attained, but, as in the case of other fruits, it is to be feared at the expense in flavour. The Gooseberry competitions of Lancashire in particular have long been famous, and in Scotland, during the Gooseberry season, Gooseberry or Grozzer fairs used to be common in the small county towns, and are so in certain of them to this day.

PROPAGATION.

Of course there are various ways of propagating the Gooseberry—by means of seed (a method only adopted when new varieties are the object), by layers, suckers, and cuttings, the last being by far the most generally adopted, and also the best method for the production of symmetrical and fruitful bushes. The simplicity with which propagation by cuttings is effected renders it unnecessary to dwell at any great length on the minute details of it. There are some points of much importance to the future well-doing of the bushes that must be pointedly referred to. Any time after the wood is ripe and leafless, onwards till the buds begin to burst into growth, may be termed the season for putting in the cuttings. Still it is better not to delay after the end of November, for soon after the turn of the year Gooseberries begin to move. Stout, well-matured growths, and as straight as possible, of not less than 1 foot and not more than 14 inches long, should be selected. These are generally best got from comparatively young and vigorous bushes. All the buds on the lower half of the cutting should be carefully removed, especially where there are clusters of small buds round the base. If these are not effectually removed they become troublesome in after years as sucker-producers, a growth that should never be allowed. Three or four good buds should be left at the top of the cuttings to form the first growths for a foundation to the bush; and there should not be any buds left between these and the base of the cutting, for it is most desirable to have a clean stem of at least 6 inches or 8 inches above the ground before any growths are allowed, because when the first branches start at just the surface of the soil the bush is sure in after years to get more or less soiled up, and the points from which the first branches start become a nest of sucker growths that are most troublesome and injurious, crowding the centres of the bushes and robbing the primary fruit-bearing portions. The cuttings root freely in any light, moderately rich, loamy soil. An open situation should be chosen in preference to one that is shaded with trees. The cuttings should be firmly fixed in the soil, always bearing in mind the clean stem of at least 6 inches between the soil and the first bud. The rows will be wide enough apart at 14 inches, and the plants at 8 inches in the rows.

YOUNG PLANTS

The cuttings should produce three or four growths about a foot in length (according to the sorts) the first year; these at pruning time should be cut back to three or four buds, which will the following year produce sufficient growths to form the main branches of the bush. In spring, before growth commences, they should be run out into nursery lines, 2 feet by 2 feet between the plants, it being undesirable to allow them to remain crowded in the cutting lines to make attenuated and ill-matured growths. The ground should be moderately manured if the soil be heavy, giving more

in lighter and drier soils. Keep them free from weeds, and apply some mulching material in summer to prevent over-dryness, of which the Gooseberry is very impatient. If the plants have thriven well, the stronger-growing sorts will be large enough the third year to be planted in their permanent quarters. But, as a rule, the fourth year is soon enough to move them, particularly if ground is scarce, so that they may be allowed to make their third year's growth before being planted out permanently. The second year's growth should be carefully examined when the plants have fairly started into growth, and assuming that the cuttings the first year sent away three to four shoots for foundations, as already referred to. Should these foundation growths be sending away more than three to four young growths they should be reduced to that number, leaving the stoutest and best placed. The young bushes will thus the second year produce twelve to sixteen growths, which are quite sufficient for the framework of a sufficiently large bush. At the third year's growth these framework growths should not be cut too hard back—say to about 1 foot each.

THE FRUIT-BEARING SITUATION.

In selecting quarters for permanent plantations the locality and climate should determine whether an open or a partially shaded situation is best. There can be no doubt that in the warmer and drier parts of England, especially on light soils, a partially shaded situation is best. In the north, where the climate is cooler and moister, I prefer for the main crop an open situation. In my own experience I have had Gooseberry crops rendered quite useless in England in hot, dry, open quarters, the bushes suffering severely, the fruit being parboiled and nauseous. The method frequently carried out by growers for market of planting rows of Gooseberries between rows of standard Apple, Pear, and Plum trees is as good a system as can be adopted in such localities as are warm and dry. In private gardens a border behind a north kitchen garden wall is a good situation. In the north, again, I should always prefer an open quarter of good loamy soil. In all cases a rather deep, cool soil is best. Before making a new plantation it should be well manured and trenched, for in after years the manure applied should at most be only forked into or laid on the surface of the ground, as it is injurious to dig or fork deeply amongst the roots of fruit-bearing bushes. The distance at which the bushes should be planted ought also to be regulated by the locality, soil, and the consequent vigour the plants usually attain. In England I found 5 feet by 5 feet sufficient, while in Scotland, where the bushes grow more robustly, 6 feet by 6 feet is not by any means too much room to give them. In planting the bushes it is very undesirable to plant deeper than they were in the nursery lines. Deep planting is an evil, and has a tendency to produce suckers, always to be avoided. For the formation of symmetrical bushes, if labour can be afforded, it is a good plan to fix a hoop to three or four stakes round each bush, about 2 feet from the ground, when they are planted, and to these hoops to fix or tie the outer shoots of the plants, so as to get them into equidistant positions. Not more than three leaders should occupy the centre of the bush.

PRUNING.

The pruning of these bushes during the time of their fruit-bearing existence is very simple. Supposing the bush when permanently planted to consist of twelve to fourteen leading growths or branches shortened back to about 1 foot of

* Paper read by Mr. D. Thomson, Drumlanrig Gardens, before the Royal Horticultural Society, July 8, 1891.

the previous year's growth, at next pruning time there are to be dealt with a leading growth and a number of laterals on each limb. The leader should be shortened back a little, according to the vigour of the variety, and the lateral growths spurred or cut back to two or three buds. This process of pruning goes on yearly till the leaders are the desired height—say 4 feet to 5 feet high—when they also are cut back closely the same as the laterals. In addition to this winter pruning, the bushes should be carefully gone over about the beginning of June, if time can possibly be spared, and the superfluous lateral growths disbudded or removed, so that the bush does not become a thicket of young growths that do not, in consequence of being so crowded, get properly ripened. Strong growths that over-master others should be stopped or removed altogether. As they get aged and the bushes past their best, whole limbs often die back, and young shoots must be encouraged to take their place. But when plantations show unmistakable signs of giving way it is well to be ready with their successors.

MANURING.

If the ground has been well manured before planting, and is naturally good, very little or no manure will be needed till the bushes get into heavy bearing, when rich farmyard manure should be laid on as a summer mulching, and be forked in after the bushes are pruned in winter. This is especially applicable to England and warm, dry soils and climates.

PROTECTING THE FRUIT.

The protection of the fruit from birds in almost all gardens is indispensable, and my method of doing this is to drive stakes into the ground 12 feet apart all over the quarter. The stakes stand 5 feet out of the ground, and light rails 12 feet long are fixed on the tops of these stakes and nets drawn over the whole quarter, and at such a height as to completely clear the bushes and admit of the fruit being gathered and the bushes being otherwise cared for without removing the net. The stakes and rails are permanent, and if of Larch will last many years.

ENEMIES.

In wet localities such as my own (Dumfriesshire) the bushes soon get covered with Lichen, unless it be kept down, which is effectually and easily done by dusting the bushes with caustic lime after pruning and when they are damp. Caterpillars are very troublesome in some seasons, and the easiest and most effectual remedy I know of is to dust the bushes when damp with Hellebore powder, and to syringe it off after it has served its purpose. A very good practice is to remove in winter a few inches of the soil for a radius of 2 feet round each bush, and to replace the old with fresh loam. This removes the larvæ and nourishes the bushes as well, for they root freely into the fresh soil.

PROLONGING THE SEASON.

Nice fresh Gooseberries are always appreciated at dessert, or more especially for breakfast and luncheon, and to prolong the season is therefore desirable. This in the northern part of the country can easily be accomplished, even to the end of October. It is quite usual to see fine fresh Gooseberries at Scotch shows about the middle of September. These, as a rule, are gathered from ordinary bushes that have perhaps been shaded with mats or canvas after becoming ripe. The best way to prolong the season of Gooseberries is to plant a portion of a wall with a due north aspect with some Warringtons, training them on the multiple-cordon system, and keeping the laterals spurred in precisely the same as is adopted with Red Cur-

rants on fences or walls, or in fact with Gooseberry bushes grown in the ordinary way. The main shoots should not be closer than 10 inches. If a coping of wood be placed on the wall to throw off wet, using a net to protect the fruit from birds, the fruits can be kept fresh till far into October, and are then very useful and acceptable.

VARIETIES.

As to the varieties of Gooseberries, their name is legion, and I do not profess to be acquainted with such as are now grown by some for prizes offered for mere size. Their flavour, I believe, in inverse ratio to their size, and, so far as I am aware, the older varieties have never been superseded for flavour. These are, among others:—

Red.	White.
Ironmonger	Bright Venus
Keens' Seedling	Hedgehog
Red Champagne	Mayor of Oldham
Red Warrington	Whitesmith
Turkey Red	
Wilmot's Early Red	
Yellow.	Green.
Early Sulphur	Gleaton Green
Leader	Green Gascoigne
Perfection	Green Overall
Yellow Champagne	Pitmaston Greengage Model

The 29th of frost we had here (Drumlanrig, N.B.) on March 17 so crippled our Gooseberry bushes, that I doubt if they will ever recover. I never saw Gooseberries suffer from cold before, but then they had grown considerably when this unusually severe frost for the date occurred.

SOCIETIES AND EXHIBITIONS.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE annual meeting and election of pensioners are now close upon us. All who are subscribers will have received their voting papers ere this is in print. If any subscriber has not already done so, I would earnestly advise a close examination to be made of the particular claims of each candidate. Such an examination cannot but prove conclusively the needs there are for a much more extended support than at present is given to the institution, particularly by gardeners themselves. Many gardeners who do not now subscribe would, I feel fully persuaded, be induced to do so after a review of the cases as presented (each in a condensed form) upon the election papers. With so many appeals for help therein given, it seems very hard to have to reject such a large proportion of the candidates. Yet the institution cannot do otherwise, unless the annual subscriptions and donations are considerably increased. The executive have, in determining the number to be elected at the ensuing meeting, gone quite as far as it is wise for them to do. It is not for want of sympathy that more are not elected; far from it; the state of the funds and the present role of subscribers and donors forbid a further advance. It is to those who take an interest in horticulture, not only for the enjoyment they derive, but for the healthy pastime also secured, to those who are engaged in it as a means of trade and profit, and to those who in such numbers are employed in the profession as gardeners that the claims of this excellent society press home, particularly as the election is pending. To all such who have not hitherto joined the institution as subscribers or aided by donations I would now appeal, so that a larger number may be placed upon the list as pensioners. There is no denying the fact that this deserving institution does not receive the aid it should from the trade and gardeners themselves. Many names amongst the former are not to be found in the lists annually issued, whilst of gardeners themselves the number who subscribe should be at least doubled to do them any credit as a community. If any are induced to aid this charity

by these few remarks, it is not yet too late to render assistance at the coming election, for all who pay their subscriptions by the day of the annual meeting will have the opportunity of aiding some deserving case by their votes. Should this occasion be allowed to slip by, it will be another twelve months before any new subscriber can thus assist some one or more most deserving applicant for election.
J. HUDSON.

Royal Horticultural Society.—We are asked to state that the Royal Horticultural Society will hold its first new year's meeting on January 12 in the Drill Hall, Westminster, where the fruit, floral and Orchid committees will assemble at 12 o'clock, as usual, and the scientific committee at 4 p.m. in the council room. Mr. W. Iggulden, Marston Gardens, Frome, will read a paper on "Winter Vegetables" at 3 p.m. Arrangements for 1892 and a list of the Society's Fellows have now been issued, and non-Fellows may obtain all particulars on application to the secretary, 117, Victoria Street, S.W.

Gardeners' Orphan Fund.—A meeting of the committee took place at the Hotel Windsor on the 4th inst., Mr. William Marshall in the chair. The hon. secretary, Mr. A. F. Barron, announced the following special receipts: The Reigate Chrysanthemum Society, per Mr. W. Brown, secretary, a donation of £10; and the following from collecting boxes: the Leeds Paxton Society, per Mr. J. W. Frankland, 15s. 6d.; Mr. J. Hughes, local secretary, Birmingham, £2 3s. 4d.; Mr. J. Lemmon, Chichester, 6s. 3d.; the Bradford Gardeners' Mutual Improvement Society, per Mr. R. Scott, 12s. 4d.; and Mr. A. Read, The Gardens, Grittleton, 17s.—the total proceeds from boxes being £5 12s. 11d. Some further applications on behalf of orphan children were examined and admitted, bringing the total up to nineteen, the 4th being the last day upon which applications could be received. The annual meeting and election are fixed for Friday, Feb. 5, and will take place as usual at the Cannon Street Hotel. The committee will meet on Friday, the 22nd, to make the necessary arrangements.

PUBLIC GARDENS.

Bethnal Green Poor's Land.—On the recommendation of the Parks Committee, the following report was adopted: "That the council do make an offer of £5000 for the land known as the Bethnal Green Poor's Land, comprising approximately six and a half acres, in accordance with the terms of the new scheme prepared by the Charity Commissioners."

Suggested new open space.—Mr. Fletcher, for the Parks Committee, reported that an offer had been received from Mr. T. Turner, of Maud Road, Leyton, to sell to the council twenty-five acres of land near Finsbury Park, between Hermitage Road and St. Anne's Road, for the sum of £20,000. The land referred to was outside the county of London, and inasmuch as Finsbury Park was within a few hundred yards of the spot, the committee recommended that the offer be declined. The council adopted the recommendation.

A Palm house for Battersea Park.—Mr. J. S. Fletcher submitted a report of the Parks Committee, which contained the following paragraph: "We have had our attention called to the desirableness of providing a Palm house in Battersea Park, not only for the accommodation of the Palms, which have out-grown the existing greenhouses, but also to be used as a winter garden and for the exhibition of Chrysanthemums and other flowers. We submit a plan of the building, and propose that the central portion of it should be erected, leaving the wings to be added if necessary at some future time. We recommend that the council do authorise an expenditure of £1500 on capital account for the erection of a Palm house in Battersea Park, in accordance with the design submitted." Mr. Campbell considered that the council would not be justified in spending £1500 for a Palm house, and moved, as an amendment, that the recommendation be disagreed with. After some discussion the amendment was rejected.

WOODS AND FORESTS.

HEDGEROWS IN MIDWINTER.

HEDGEROWS at this season of the year present many beauties. To the unobservant it may seem that the winter is the one season of the year when they offer no attractions. Many a writer has dilated upon their varied charms in spring, summer, and autumn; but comparatively few seem to appreciate those of this season, which are not less numerous, though more subtle. Where evergreen trees or bushes form the greater proportion of the lines of fences, their characteristics are so apparent, that they are at once seen; so it is to the deciduous trees and bushes, or where the evergreen element only shows itself occasionally, we must go to discover the real, but unobtrusive, variations which have been spoken of. To some there may not seem to be much worth directing attention to in the bare stems of the various trees and shrubs of which hedges are ordinarily composed, yet there never could be a greater mistake. It does not require the eye of an artist to feast upon the inimitable gradations of colour in the Lichens which cover the stems of a single bush of Blackthorn. It may be that there are many other trees, or shrubs, upon which vegetation of this nature is equally at home; but it is seldom, I think, to be found more varied in hue than upon bushes of this species. In many of the hedgerows near my place this occurs very frequently, and from the brightest tints down to the more sober, but not less beautiful grey, its stems are almost entirely decked with these unpretending plants. The Mosses which adorn the banks cannot claim so much diversity of colouring as the Lichens which clothe the trees, yet the difference in form and growth which they show makes them not the less interesting. In many places the Bracken has lost its greenness and become withered; but in more favoured situations masses of Ferns stand out boldly from their habitat on the Moss-covered stumps of trees and bushes which have years ago fallen a prey to the axe.

Apart from any extraneous colouring, the stems of many hedge shrubs have much in their normal condition which is worthy of observation. The wood of the Hawthorn, though somewhat sombre in hue, is peculiarly rich, and when standing in proximity to the light green of the Privet stems, and the rugged and still lighter bark of the common Maple, it is seen to great advantage. Where, as hereabouts, the Traveller's Joy occurs over long stretches of country, it may fairly be classed as one of the characteristics of the midwinter hedgerows, as its grey tufts of winged seeds seen in masses and in a suitable light, if not a "joy for ever," are certainly a joy to the traveller who cares to admire the works of Nature. Even at this advanced season in many places the Bramble may be found, with, so far as its appearance goes, its leaves practically intact, and this with the Ivy, which nestles alongside or underneath, is another feature of the winter hedgerow. The wood of this bush, too, in many cases is very rich in colour, and unlike that of almost any other species. Here and there where an Oak bush occurs the russet of its withered leaves helps to enhance the general effect. The hedge fruit has almost disappeared, but now and again one finds a stray branch of Hips and Haws, and in situations near dwellings, where the birds have not been sufficiently courageous to begin the onslaught, it is not unusual to see an Ivy-covered Thorn bush crowned with Haws, and this fruit, by the way,

was last season abundant and large in size. Another feature in hedges where the tree exists is the swelling buds of the Goat Willow. These may be looked upon as a link between the seasons, as there are few other things which tell more plainly of the coming spring. Amongst the seeds still to be found upon their parent branches may be mentioned the keys of the Ash and of the Maple. Trees proper, though they often abound in hedgerows, are a little beyond the scope of this notice, as they generally tower to too great a height to be seen to advantage at close quarters; but some which are almost grotesque in their habit of growth, and do not grow to a great height deserve mention. The dwarf and gnarled Oak comes within this category, and the strangely knotted branches of some old Crab Apples, with here and there a fruit remaining, must complete this slight picture of what our hedgerows are in midwinter. **RUSTIC.**

THE ALDER.

THE Alder, as its name indicates, is essentially a riverside tree, and although in its ornamental character it cannot be compared with the Birch, it could often with advantage be substituted for the Willow, or selected in connection with it. The Willow in its maiden form is very commonly highly ornamental by the waterside, but the great danger of its use is that it will sooner or later be pollarded and its beauty destroyed. This is hardly likely to occur with the Alder, as when it is cut down, a mere stool is left, and the new growth will spring from nearly the ground level. In this way it is most generally cultivated, but here and there some fine examples occur of its reaching the dimensions of our larger forest trees. This, however, is not usually the common species (*Alnus glutinosa*), but the cut-leaved tree (*Alnus glutinosa laciniata*). Some writers assign the Alder to a position in a marsh or a bog, or some place where it cannot be seen; but although it may not be so ornamental as some species, I cannot agree with the idea that it should be so disposed of. Whether grown as a tree, or cut down periodically as poles, the Alder is certainly nothing to be ashamed of. I recently noticed a small plantation of Firs in a waste spot by the margin of a river. As was to be expected from the nature of the soil, these were gradually dwindling away, and will never be worth the sum they cost to plant. Had this site been planted with the Alder, by this time there would have been a thriving growth, and in due course a little belt of wood formed quite in character with the surroundings. It seems almost impossible now that so much is said and written upon trees, and the positions best suited to their propagation, so little regard should be paid to making a selection of subjects. The value of the roots of the Alder in binding up the banks of rivers has often been referred to, and there is no doubt that in many cases they are very useful for this purpose. As all know who have wended their way much along by the riverside, it is very common to find spots which are of no use for culture or for pasture, and where, from a bend or some other cause, the action of the water is gradually widening the channel by washing away its banks. It would be absurd to suppose that the planting of the Alder, or any other tree, would entirely prevent this; but it is certain that when the roots become thoroughly established they will do much towards holding the soil above the waterline, which would otherwise, from being undermined, be continually falling away.

THE USES OF THE WOOD.—The Alder in the market, as regards price generally, gets classed with the Birch and the Poplar, and consequently does not command a very high figure. For its class, however, it is a very useful wood. According to old writers, it has a quality which appears to be but little regarded at the present day, viz., that of enduring a long time under water or in moisture. It is stated that in the past it has been considerably used for piles. Assuming its

properties to be as good in this respect as has been represented, there would now be a great difficulty in getting a supply of wood large enough for works of any magnitude, and whatever it may be worth in this direction, it is more likely to be used for small works of a private nature than in anything where material would have to be bought in the market. The Alder has been suggested as a suitable wood to cultivate for pit and mining props. Looking at the present position of the supply of this commodity, it does not seem as though there is much chance of the growth of Alder for props being successful; the idea may be recorded for what it is worth for districts where props are not very plentiful, and where the soil is not fit for the growth of the woods which are more commonly used. In the districts where they are required, Alder of a suitable size is sometimes prepared for Hop poles, but on the whole it is more the wood for the turner than for any other handicraftsman. The smaller wood in the turning industry goes for bobbins, of which vast quantities in the shape of cotton reels and similar articles are annually consumed. Another use of a similar nature is the manufacture of brush backs. The toy broom of the drawing-room and the scrubbing broom of the scullery are alike prepared from this wood. Another use of the Alder, which was referred to some time ago by a writer, is the manufacture of clog soles. Here, in the south, very little of this work is seen, but for the soles of pattens it is occasionally cut up. For charcoal burning the Alder is regarded as of considerable value, and in some districts the better portions of the wood are turned to account for the staves of dry casks. As has been stated, the wood is more generally grown in the form of poles than in that of timber, so the majority of the manufactures from it consist of small articles. Where the tree grows to what may be regarded as a timber size, the uses to which the Willow and the Poplar are generally put would as nearly as anything represent what may be ventured upon with the Alder. It is a wood which is spoken of as being used for wheelwrights' work, such as the lining of carts and wagons, but where Elm is to be had, and at the present prices, it certainly seems inadvisable to use Alder. For work where a soft and non-splitting material is essential, it may now and again be advantageous to use it, but the general lines upon which its value may be determined are those previously given. **J.**

The common Juniper (*J. communis*) is chiefly found growing in England on sandy or chalky soils or on open downs, while in Scotland, its native home is amongst the granite or trap hill and mountain sides. It is, with us, usually low and small, seldom much larger than the Furze, but where it attains some size the wood is very fine and compact.

Soil for Black Walnuts.—I have come to the conclusion that this tree, about which so much has been written, must have good and stiff soil in which to grow well and to a large size quickly. A dry, light, poor soil is quite unsuited to the Walnut. Wherever Apple and other fruit trees abound and prosper there the Walnut may be planted with tolerable certainty.—**W.**

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1890, thirty-eight vols., price, cloth, £28 4s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade collected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

No. 1052. SATURDAY, January 16, 1892. Vol. XLI.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ORCHARD AND FRUIT GARDEN.

COLOUR IN APPLES.

My attention has been called to some complimentary remarks made by "R. D." in THE GARDEN, January 2 (p. 1), respecting the high colour of some Apples grown at Madresfield and set up, not for competition, at the Manchester fruit conference in October last. Another writer made similar comments in the pages of THE GARDEN also respecting a collection of Apples I staged at the Chiswick Pear Conference, and as these are the only occasions on which I have exhibited (exhibiting being prohibited), a good many inquiries have privately reached me as to whether Madresfield has a larger measure of sunshine, or is in some other way specially favoured for the production of highly-coloured and well-finished fruit.

Be this as it may, I attach the greatest importance to well-coloured dessert Apples. Doubtless colour in Apples, as in Grapes or other fruit, is equally important. I have never accepted the theory of those who will persist in telling you that foxy or indifferently coloured Grapes are better flavoured than jet-black ones; the same of Muscats. Are not the best amber-coloured the best? Colour with moderate size is the very object we have in view, but although we never expect with our climate to produce such grandly coloured, but otherwise mawkish-flavoured, samples as we receive from abroad, yet our Apples, especially in some seasons, can compare favourably in colour, and are of far superior flavour. How high colour is produced I am not prepared to state positively; but I do know that thorough exposure of fruit to sun and atmospheric influences, by having healthy trees on carefully prepared Crab stocks, with an abundance of fibrous roots, which being well fed always ripened their wood thoroughly, are important factors in laying on this finishing touch of high colour.

As regards the transmission of colour from stock to scion, my previously expressed opinion must be understood to be partly conjectural, otherwise I should be able to produce red Golden Noble or red Lord Suffield *ad lib.* I get all the most highly coloured fruit from dwarf bush trees that have been worked on prepared stocks raised from pips of highly-coloured cider fruit, whilst older and larger trees of the self-same kinds growing quite near, but whose only difference is that they have been worked on ordinary free stocks, and whose roots have penetrated deeply, fail to give anything but very ordinary fruit, which is deficient in colour. Last season I planted two long rows of high-class dessert Apples on the broad-leaved Paradise stock in order to solve this problem of colour. I hope the experiment may throw a little light on this question.

I do not imply that the highest coloured fruits, irrespective of kind, are the best flavoured, but I maintain that the best quality is always found amongst those kinds noted for superior flavour, such as Cox's Orange, Ribston, Blenheim, Claygate Pearmain, &c. (Cornish Gilliflower is such a bad grower). These ought to be highly coloured if during their growth they have been exposed to sun and light. Others grown on the same tree under the shade of the branches and leaves are always devoid of colour and flavour also.

My late noble master, who took the keenest interest in these things, and who always wished the very best of everything grown, was very fond of showing his guests the fruit room, but always insisted upon the gardener selecting samples for any who desired to taste them. He never would have any of the high mahogany coloured Worcester Pearmain.—W. CRUMP, Madresfield Court, Malvern.

— Whatever be the causes which lead up to the colouring of Apples, or why one variety should be almost destitute of colour, or another take on a brilliant red when growing perhaps side by side, is one of those questions which probably very few, if any, can answer. As observed by "R. D.," colour does not denote high quality, for often varieties of very poor quality indeed show this trait of colour to a remarkable degree. The cider varieties are often very brilliantly coloured—the renowned old Foxwhelp to wit—as in the case of this variety the colour extends into the flesh. It is very interesting to walk through an old cider orchard during the closing weeks of the Apple harvest, and note the colouring of the different kinds, from a black blood-red through the shades of crimson until we come upon varieties with bright golden and russety skins. Here are varieties all growing under the same conditions, but yet amongst them may be a variety almost perfectly green. I never met with Apples of higher colour than in the orchards of Herefordshire, and which forcibly demonstrate to me that high colour in Apples, where colour is peculiar to the variety, is due more to the influence of soil than any other cause. In the matter of particular stocks I think the Crab conduces to colour, but I do not think the theory of special manipulation of the roots tends to this, although we must make full allowance for good culture. The question is, Would this special manipulation conduce to extra colour on soils where the colouring is taken on but very sparingly?

In the "Herefordshire Pomona" some of the varieties of Apples are very highly coloured; in fact, many people have doubted this as being over-done. I do not think so, as at the time when specimens were being collected I was often brought into contact with the late Dr. Henry Bull, and he was very particular in getting typical specimens, laying particular stress upon colour. I once showed him some very brilliantly coloured Ribston Pippins, the individual specimens being also of a good size. The fruits had been thinned for a special purpose. He was particularly struck with them, and although the variety had been previously figured, he was thinking of illustrating it again, but whether this was done I am not in a position to say, not having the work in question by me. I never saw more highly coloured Blenheim Orange Apples than in Herefordshire, and Mère de Ménéage was also very fine. The soil in which these were grown was a strong yellow loam, greasy to the feel, and, as a rule, the formation is the old red sandstone. Colour in Apples is of minor importance, comparatively speaking, as other good qualities being present, this does not appear to add to their market value.

Some people appear to lay particular stress upon sunlight, or even a clear atmosphere, but although this is in a certain degree of importance, soil, I think, has far greater influence. To say, however, that a clear atmosphere is not important would not be correct in one sense, as it is always on the sunny side or where exposed to direct light that the colour is brightest, for if only a part of a leaf overhangs a fruit the colour in that particular part will be obliterated. In reference to planting Apple trees in shrub-

beries, by all means let us have those varieties which are noticeable for high colour, and if we can ensure quality as well, all the better. If it was not for this latter characteristic no varieties would be more adapted for ornamental planting than the cider varieties. In bloom as well as colour of fruit they are decidedly in advance of the majority of the kinds celebrated for quality. The Cherry Norman is a very pretty little Apple; so also are Forest Styre, Skyrme's Kernel, and Strawberry Norman.—Y. A. H.

Pear Easter Beurre.—Instead of the fruit of this variety keeping good until March or thereabouts, the bulk of ours was actually ripe at Christmas, and a perfect dish formed part of the dessert provided for my employer for that day. Much the best fruit was obtained from a young tree on the Quince stock, this colouring beautifully, and proving more luscious than is often the case with the Easter Beurre. Most of the fruit gathered from older trees was badly spotted, and is keeping and colouring badly, being ready for use, but still presenting a green appearance. The fruit from the young tree is now of a rich orange-yellow, and more attractive in appearance than either Glou Morceau or Josephine de Malines, both of which are also at their best now.—I.

The Chalk Pear.—I notice that Mr. George Bunyard in his catalogue makes the Chalk Pear to be synonymous with Crawford, though others think differently. The Chalk Pear appears to be a purely local one, and its cultivation seems to be almost wholly confined to Kent. It shares with Doyenné d'Été the privilege of being the earliest; the fruit is small and white. It is known as "Chalkies" or "Chalkies" in the streets, and is probably the first variety sold by the costermongers. It is a very prolific cropper—somebody once termed it an everlasting bearer—the tree makes a thick head. The variety does not lay claim to the possession of quality, but it pays to grow it as a market variety. Through bearing so early, the trees have time to renew themselves during the summer, and this is perhaps the main reason why it crops so heavily and so regularly.—R. D.

PLUMS ON WALLS.

MANY of the Plums doing well as standards do not get as much room on walls as they deserve. Plums would often give a better return on a north wall than Pears if they had suitable soil and a well-drained position. The last named is important, as to plant fruit trees in heavy, clayey soil and neglect drainage is to court failure. Much can be done to provide suitable composts in cold soils by mixing old mortar rubble, charcoal refuse, wood ashes, bones, burnt soil, road scrapings, and such like. When utilising north walls, I would advise planting well-known, free-bearing, hardy varieties, such as Gisborne's, Victoria, and the Pershore Egg Plum, a great bearer. Early Prolific (Rivers) is also good for dessert when grown on a north aspect, but, of course, I would only grow it so if room on other aspects could not be given it. Some may object to planting on walls Plums that do well in the open, but there are many advantages; the fruit is finer, as it can be readily thinned, and in wet seasons it does not suffer so much from cracking. The fruits may also be more readily protected from birds, and will hang longer than on bushes, pyramids, or standards. One seldom sees a very heavy crop of fruit on pyramid Plums, while standards bear freely. I have named Victoria, also Gisborne's, for cold, late localities, but in southern or warmer climates I would give some of the Gages and others a trial. The three first named are cooking Plums, and I only advise them for that purpose when there is room and a few fine fruits are required for preserving whole or bottling. Though cooking varieties, they often give fruits of excellent size and flavour, and may be utilised for dessert on rare occasions. I have had excellent flavoured fruit on a north aspect, and I was much pleased to read the able note on fruit trees for

north walls in *THE GARDEN* (p. 495). I have not tried Plums in the north. My remarks apply to the west and southern counties. Another advantage with many of the hardier kinds of Plums is their regular fruiting qualities when given a wall. I planted a north wall with Victoria some years ago, and these trees always bore some fruit—some years more than others. The pruning and root-pruning of Plums on walls are important, as when these trees are on walls, they are at times spurred in too much and too much young growth taken away. In pruning Plums it is best to lay in as much young well-matured wood covered with fruit-buds as possible. Of course the trees must be kept in shape, but often beginners prune severely and get little fruit. It will be found in the case of Plums especially that the young wood produces the finest fruits, so that every season as much young wood should be secured as possible. Spurring in of the weaker and foreright shoots is necessary in all cases. Some may say that too much young wood crowds the trees, but sufficient room should always be allowed to admit of the young wood being laid in between the main branches. In root-pruning, I would advise proceeding cautiously, as when done to excess it often acts the reverse of what was intended; indeed, on a wall I would prefer to lift early every third year in the autumn all trees growing too much to wood. Root-pruning may be done one season, that is the strong roots cut, and lifting take place the following year.

G. WYTHES.

Syon.

APPLE TREES ON THEIR OWN ROOTS.

HAVING often spoken of the evils of grafting in ornamental trees, we have as many doubts as to its value in fruit culture, seeing the many diseased trees everywhere in our orchards, and in face of the fact that some of our best Apples, like the Ribston, are rarely seen in a healthy state. As during all historical time Apples have been grafted, with the exception of chance seedlings in hedgerows and west country orchards, our suggestion is, of course, so much nonsense to the "trade." They have a stereotyped way of raising their stocks of fruit trees, and neither they nor any of our horticultural societies have ever taken the trouble to compare fairly the Apple on its own roots with the grafted trees. Whatever people may think about grafting, before they can say anything reasonable about its merits they should have trees on their own roots, *i.e.*, increased from cuttings or layers planted side by side with grafted trees of the same kind and age. In the pursuit of this idea, we tried to get trees of some of our standard Apples on their own roots, both in this country and in Germany, Austria, and France, in no case being able to get a single tree; so we bought a number of low and rejected trees in nurseries, threw them on their sides, and layered the shoots. In this way we succeeded in getting a fair stock of plants. With these and some bought from a nurseryman whom we are about to recommend, we have just completed a most interesting orchard of all the best English Apples, every tree on its own roots. The only nurseryman we could ever get to take any real interest in the matter is Mr. Sheppard, of the Station Nurseries, Capel, near Dorking, and he has now a very interesting collection of fine young trees on their own roots.

We saw them in September, some bearing, though young, very fine fruit. We earnestly advise everyone who grows and cares for our best native fruit to do something to settle a question of the deepest interest and one of high importance from what is called a "merely commercial" point of view. Is grafting a real gain, or is it merely a convenient way of getting up a stock of young trees, all grafted on the Crab or

something else? We believe, from much more observation of facts against it than we can detail here, that it is a great evil in the case of most Apples, and the cause of the universally diseased state of the most famous of English Apples, the Ribston. To make this a sound healthy tree would be worth a million sterling to the fruit growers of England. It was the miserable condition of this tree in our gardens generally that led us to make an experimental plantation of Ribstons, grafted on all the stocks known in Europe, with a view of seeing which suited this great fruit best in a not very favourable soil. Then it struck us that, to be quite fair to the tree, we ought to try it on its own roots, knowing, from analogy with other flowering trees of the same natural order, that there could be no difficulty in increasing the tree by layers or cuttings. Well, in the whole of Britain and Europe we could not get a single tree of the Ribston on its own roots! We have now many, and quite healthy so far. We advise all to try Apples on their own roots alongside of favourite kinds, making the trial as far as possible in all ways fair.

Our climate is often so bad for fruit that it is a great mistake to saddle ourselves with slow-growing or diseased trees, which many trees in our orchards are, as we think, mainly through grafting. The Crab suits some trees, and the two grow well together; but others are never happy on it in many soils. In any and in every case the trial is worth making, and we believe that many who wonder at their orchard trees not doing well, though selected and planted with every care and much cost, will begin to see a ray of hope in trees on their own roots.—*Field*.

Golden Peaches.—It is seldom one reads of or hears any good quality (except their appearance) reported in favour of the well-known four Golden Peaches—Golden Eagle, Thames Bank, Salway, and Crawford's Early. The description of these in many catalogues is most favourable, which would indicate that they have been good in some places. The first three are generally cultivated for late supplies, and by decreasing sun-heat and perhaps not much assisted by fire-heat, the flavour is thus rendered very inferior; but if the fruit is subjected to warmth and free ventilation, giving no more water at the roots than is absolutely necessary during the ripening period, they form a most useful adjunct to the dessert when variety of fruits is not so plentiful. They are also capital for cooking, and take the place of Plums, which become scarce after the middle of October. I had some Golden Eagle Peaches (which were ripened in heat after they were gathered) during the early part of November, fine in appearance, and really of fair flavour. I have had Early Crawford ripe in June, very large, with excellent flavour, and its appearance is not surpassed when well exposed to sun and air.—*M. T.*

Standard Pears for Britain.—From a market grower's point of view it is a very difficult matter to compile even a short list of Pears that would be acceptable to growers generally, for although about half a dozen kinds of such well-known excellence as Williams' Bon Chrétien, Marie Louise, and a few others appear to come to perfection and find a ready sale wherever dessert Pears can be grown, many other kinds are only suited to various localities. I would like to grow all the excellent kinds enumerated in the list of standard varieties, but, like Mr. Allan, of Gunton (see p. 1), I do not find these newer kinds of Pears so good as some of the old well-known favourites. I am well aware that gardeners with plenty of sunny walls can grow varieties that market cultivators cannot hope to succeed with, and although we are favoured by climate here, I have been compelled to give up Easter Beurré, Glou Morceau, and other really good Pears, and grow Williams' Bon Chrétien, Beurré Super

fin, Marie Louise, Louise Bonne of Jersey, Pitmaston Duchess, Beurré Diel, Duchesse d'Angoulême, Beurré Bosc, and others of that type, that not only bear plenty of fine clear-skinned fruit, but find a ready sale. If I only wanted two varieties for profit I should confine myself to Williams' Bon Chrétien for the earliest and Pitmaston Duchess for mid-season, as these are more profitable, take one season with another, than any other kinds I have yet grown.—*J. GROOM, Gosport.*

Grape Golden Queen.—I still retain this by no means popular variety, a single rod being grown between its two near relations, Alicante and Mrs. Pearson. This winter, Golden Queen is quite delicious, and second only in crispness, solidity and richness of flavour to Muscat of Alexandria. Nor are the berries of such a muddy yellow colour as usual, while there is every prospect of the bunches keeping well. That Vine will not be cut out just yet, but, all the same, I do not advise anyone to plant it, unless as a supernumerary. If only the difficulty of colouring it properly could be got over, it would be one of the very best late Grapes in cultivation.—*I.*

MARKET APPLES.

A VISIT to Covent Garden Market is, perhaps, of little interest to those living near or those having regular business there; but there is always to be found, to those who visit the market for educational purposes, plenty of useful object lessons to be met with. Apples still continue to exercise public attention from the home grower's, the importer's, and the consumer's points of view, and I found, when looking through the market but a few days since, much in relation to them that was instructive. The first thing which struck me was the fact that, in spite of our having had so abundant an Apple crop, there were very few English Apples to be seen, and where there were any they were generally poor. A few Wellingtons were fairly good, but much spotted. The home-grown samples were, as a rule, small, colourless, and altogether unattractive. These, too, were found in the ordinary round bushel baskets. On the other hand, there were immense numbers of Canadian fruits, in and out of barrels, of very fine, clean, and perfectly sampled selections. Whatsoever may be our climatic deficiencies, and they are many, still it is difficult to avoid feeling some sense of regret that even with what sorts of Apples we have, and such climate as Nature has given us, we cannot do better in our cheap market with Apples than we are doing just now. What wonder is it that these beautiful Canadian Apples sell at from 16s. to 20s. per barrel, whilst our own home fruits sell at about 4s. per bushel. In the centre row I was surprised to observe picked Canadian Apples priced at from 1s. to 1s. 3d. per half dozen. These were, of course, fancy prices, such as the wealthy would pay, but not to be accepted as in any respect representing average retail prices. These in shops run at from 2d. to 4d. per lb., and very good profits are made through them. The chief sorts of Canadian Apples in the market when I visited it were King of Tompkins County, the largest of the high coloured varieties; Baldwin, superbly coloured; Red Streak, large and much streaked with red; Northern Spy, a variety which will not thrive in England. The largest of the green or cooking varieties was Northern Greening, and the best, indeed almost only one, of the russet dessert forms was Golden Russet. Ribston Pippin and Blenheim Pippin were also good, not large, but bright and clean, not in plenty, and quite diverse from home-grown samples. I did not see a Cox's Orange Pippin in the market nor yet any of what other than Wellington are regarded as our best varieties. It naturally becomes a matter for wonder whether all our home stocks are already exhausted, or whether they are too inferior to compete with the American sorts. One thing which tells so strongly in their favour with retailers is their perfect constancy to form. A purchaser knows now that he may fully rely on finding the whole of his purchase true to sample. The waste of Canadian Apples to the dealer is also limited.

because owing to the drier nature of the flesh, rot or decay is not so rapid nor so common as is the case with our home-grown fruits. It is very evident if we will enter into competition at home with Canadian growers we must select the very best sites in the warmest countries for the orchards. We must grow good keeping, yet well coloured varieties, we must sample the fruits and tub them with all the ordinary Canadian care, and we must take care that the home sample shall be always found honest and reliable. Apple culture for the late winter market indeed needs to undergo at home a revolution ere it is fit to compete with that of Canada. A. D.

CANKER IN APPLE TREES.

WE do not hear so many complaints as to the injuries to Apple trees arising from canker as we did a few years ago. This may probably be accounted for from the large numbers of old trees which have been grubbed up, and which owners of gardens, or those who were responsible, could plainly see were of no value. The advice often was to behead the trees and graft with healthy scions from free-bearing and growing sorts, in order to kill canker and other ills the trees may have been heir to. For a time the scions appeared to grow freely, but where the old stumps were growing on perhaps badly drained or impoverished soils, canker still asserted itself.

In dealing with canker in Apple trees, it will be as well to consider the causes of canker. Canker may be caused by the action of frost on ill-ripened wood, injury to the roots through badly drained soil, poverty of soil, the trees rooting down into a bad subsoil (not necessarily a cold clay, as I have seen bad cases on a hungry gravel), and injury to the stems through chafing of the branches or even through gun-shot wounds. Canker may also arise from the injury of insects. A gentleman told me lately that he had cured numbers of cases through dressing the wounds only. It will be seen from the number of possible causes that different treatment will be needed to check canker. Some varieties, such as Ribston Pippin, Reinette du Canada, and Bedfordshire Foundling, also appear more prone to the disease, if disease it may be called, than others.

The last named variety we can well do without, as, besides its being addicted to canker, it is very straggling in growth. Ribston Pippin, however, is such a general favourite, that any and all means should be tried to ensure its succeeding. I have seen this variety suffer from canker through the chafing of the supporting stake, and also through the ligature cutting into the bark. When once canker sets in, and if nothing is done to arrest the evil, the wound will gradually eat right through the branch. This may not be caused entirely through canker only, as once the injury has started, and the tree is not sufficiently vigorous to outgrow the evil, fungus and decay, through the rotting of the wood, will finish the work. Insects, also, of a certain class which have a partiality to injured wood will also assist in the work of destruction. In numbers of cases canker has been entirely stopped and the wounds have healed over by simply paring the wounds down to perfectly healthy wood and dressing them with a mixture of loam and fresh cow manure worked into the consistency of paint. Wherever the wounds are supposed to have had their origin through other agencies than soil influences, then paring them over and dressing them would arrest the evil and be the means of healthy layers of bark forming. Careless staking and tying of the trees cannot be too strongly condemned. If the practice of periodically examining the ligatures is

undertaken, say at any time during the resting period, it will be seen at a glance whether injury is likely to accrue during the following growing season. Some good strong tarred string should be used, packing a neat piece of old carpet where it comes into contact with the stems. Too slack fastening is almost as injurious as too tight tying, as the continual chafing caused by wind-waving will very quickly injure the bark, and so lay the germs of canker.

Where the injury is from soil influence, then other means must be adopted. Old trees growing in soil over-lying gravel, and this also probably impregnated with iron, no extraneous aids applied to the surface will improve. As the principal large roots are in the gravel, it would be useless to attempt to rejuvenate those trees unless they were of a size which could be lifted and planted nearer the surface, with the addition of fertile soil, to be afterwards top-dressed to keep the roots near the surface, and so be in a position for the roots to assimilate any food which may be placed near them. Young trees are brought more under control, as by re-lifting biennially during the first few years of their existence, at the same time adding some fresh soil about the roots, the downward tendency of the roots is checked, and by annually or biennially surface-dressing, the trees are not likely to become subject to canker. The above practice could be adopted with marked success on thin soils overlying gravel or even in any soil where the trees are apt to become attacked by canker through the soil being ungenial. The worst soils to deal with are those of a cold and badly-drained nature. Where canker owes its origin to defective drainage, it is not at all a formidable operation to drain an orchard or fruit plantation, and with cold ill-drained soils this is the first process towards rejuvenation. A badly drained soil is considerably lower in temperature than that which is well drained. The soil being free from stagnant moisture, the root action is free and healthy. Re-lifting during the first years of the tree's existence is also the sure cure of canker when trees are so affected. On our very cold land I find this process necessary with all classes of fruit trees, Apples especially. Y. A. H.

Apple trees on lawns.—I rather think it is a mistake to advise the planting on lawns of any of the large-fruited kinds of Apples, as few of these give colour. There are many of the smaller-fruited and handsome coloured varieties which would be far more suitable. Particularly pretty as a tree and beautiful in fruit is that favourite market Apple Duchess Favourite. A good tree of this in full fruit is indeed an attractive object. Duchess of Oldenburg, again, is a very handsome Apple, and the tree is fairly robust. Worcester Pearmain, The Nanny, and Fearn's Pippin are all richly-coloured and very attractive sorts; whilst of yellow-fruited Apples, Yellow Ingestrie, Queen Caroline and Golden Noble furnish beautiful colour. If sorts be selected for colour of bloom, then none excel Nelson Codlin and Wiltshire Defiance, but the fruits are not at all attractive in the autumn. Considering that the bloom is of but short duration, whilst the fruits remain on the trees for a couple of months at least, I should give preference to colour in fruit to colour in bloom for lawn Apple trees. We might well grow for this purpose some of the later and intensely richly coloured varieties found in the cider orchards of the west of England, many of which merit a far better fate than that the fruit should be consigned to the cider press, for they are really nice eating, and, apart from the question of home consumption, would sell freely in the London market after the local-grown varieties were exhausted. Many of these so-called beautifully coloured cider Apples which hang on the trees so late

into the autumn are far more toothsome than are the Canadian fruits now found so plentifully in shops. There are many less handsome trees than Apples planted on lawns.—A. D.

Home-grown Grapes.—If it be proposed to flood the home markets with English Grapes that the profitable sale of imported Grapes shall no longer be possible, the results will be not less disastrous for the growers of Grapes at home, who will find their autumn prices of from 2s. 6d. to 4s. per lb. cut down to such small figures as from 6d. to 2s. per lb. So long as we can purchase very good imported Grapes at from 4d. to 8d. per lb., it is evident that only by selling home-raised Grapes at starvation prices and in enormous quantities, can imported ones be kept out of the market. The question then would be, Is the game worth the candle? What sort of a margin would even 1s. per lb. leave the grower unless he could produce under advantages not open to all others? Probably the greatest sufferers after all would not be so much the *bona-fide* market growers as those gardeners who have to help eke out their garden expenses by the sale of fruit, especially Grapes. This class of grower has done something to help furnish the public with good fruit, but the *bona-fide* grower has had to compete with such produce unequally. If, however, he retaliates by erecting such vast edifices of glass, as are now to be seen in many directions, and literally floods the market with good, yet very cheap Grapes, the gardener must not be surprised if he should have to go to the wall. Not a few of these large private gardens are really market gardens in disguise, escaping largely those public charges which the regular market grower has to bear. So far as the low prices quoted for Grapes by "J. C." are concerned, these, of course, are market rates to the grower, and not what is paid by the public. Very likely the fruit sold to the dealer at 1s. per lb. would only reach the public on payment of 2s. 6d. per lb.—A. D.

PEAR KNIGHT'S MONARCH.

I WAS pleased to see the reference of Mr. Allan to this old variety, for when it becomes melting it is certainly the best flavoured Pear after Josephine de Malines. Unfortunately, the tree has a tendency to cast its fruit prior to the time when it should be fit for gathering. This possibly has led some people to gather the fruits before they part freely from the tree. If this be done the fruit will never ripen sufficiently. To my surprise, I have had it of better quality this season than I ever remember, the flavour being really delicious and also extremely melting. What is more surprising is that the fruits were from a standard, growing in deep and moist soil, but well drained. The only fault was that the fruits were rather small. It does not appear to be a variety adapted for sandy, or what I may term a dry soil, unless freely mulched and watered during the summer months and right up till gathering time if at all likely to be dry. As a wall tree I have not been successful with it, but as an espalier I have had it good, although all the fruits would not ripen up. Evidently this Pear succeeds best on the Pear stock. It would be interesting to have other growers' opinions of this Pear, as we have such a few really good late kinds, that any information would be very desirable. Out of the many Pears raised by Mr. Knight, Monarch he considered the best of all. As it was raised in Herefordshire, no doubt there must be several old trees in the orchards of the county, as being such a free and healthy grower it would be likely to attain a great age. It is a good plan to spread some hay on the ground for any fruits which are likely to drop to fall on, as many of these ripen up quite satisfactorily. An old gardener of repute told me that he found it a good plan to pack the prematurely

dropped fruits together in a hamper, surrounded with some soft material so as to confine them, when, after undergoing the process of sweating, they became soft and the flavour was first rate.

Y. A. H.

NOTES OF THE WEEK.

Nepenthes Mastersiana. Of all the fine hybrids of the *Nepenthes* that have been raised and sent out from the Chelsea Nurseries, this is undoubtedly the best. It is in all points a grand plant; its richly-coloured pitchers (in this respect as fine as in *N. sanguinea*) are so freely produced, scarcely a leaf failing to bring a pitcher to perfection. The habit of the plant, too, is compact and dwarf. In this it differs much from such as *N. Rafflesiana*, being an improvement where the room is not any too much for the plant to be suspended, and the pitchers escape injury. The deep claret-red of the pitchers is well maintained to the last.

Inula Oculus-Christi.—I note that the Rev. C. Wolley Dod, in his exhaustive article on the genus *Inula*, says that the variety *Oculus-Christi* is not worth cultivating, or rather that he has doubts about it. I do not wish to differ from such an authority, but a variety was pointed out to me last summer as such by the Hon. R. Henley Eden, Hillhampton, near Stourport. This was much handsomer than the variety I have growing under the name of *glandulosa*. The plant which Mr. Eden grows under the name of *Oculus-Christi* is really very handsome and striking, the flowers being both very large and bright, and in every way superior to those of *I. glandulosa*.—A. Y.

Cypripedium La France.—A garden hybrid between *C. niveum* and *C. nitens*. The plant is of dwarf compact habit, having leaves some 4 inches long, beautifully tessellated with dark green upon a light green ground, plain light green beneath. The flower is some 4 inches across; dorsal sepal snow-white, with a tinge of lemon at the base, freely spotted in the centre with magenta; lower sepal white, faintly spotted; petals broad, pure white, flushed with carmine in the basal half; lip medium-sized, pure white. This very beautiful form comes to me from Messrs. Seeger and Tropp's Orchid Nursery, Dulwich. It is certainly the most charming hybrid of the *niveum* group I have yet seen.—W. H. GOWER.

Roses La France and Augustine Guinoisseau.—I fancy that the anomaly in the classification of *La France* and *Augustine Guinoisseau*, mentioned by "Ridgewood" in your issue of last week, is owing to the fact that when *La France* was first sent out, the class of Hybrid Teas (even now unrecognized by the National Rose Society) was non-existent; consequently it was catalogued among the Hybrid Perpetuals. Now the raisers, Messrs. Guillot, of Lyons, and also Mme. Schwartz, successor to T. B. Guillot père, place it, as well as *Augustine Guinoisseau*, among the Hybrid Teas. At the same time some growers consider that it should be called a hybrid China, but I imagine that in a case such as this we should follow the raiser's description.—W. C. ROMAINE.

Saccolabium giganteum.—Both for the fragrance and beauty of its flowers, this Orchid is especially welcome at this season. It is the strongest, although not the quickest, growing of all the *Saccolabiums*, the leaves being upwards of 1 foot long by 3 inches in width, and exceptionally firm and thick in substance. As occurs in the more showy species of this genus, the flowers are produced on a pendent cylindrical raceme, which in this instance is 8 inches to 12 inches in length. Each flower is about an inch in diameter, with white sepals and petals, marked with a few purple spots. The lip is wedge-shaped and divided at the front into three rounded lobes, which, being of a deep amethyst-purple, form a rich contrast to the other parts of the flower. The fragrance is some-

what cinnamon-like. The first importation of any size which reached this country was obtained by Messrs. Veitch from Moulmein in 1866. It had, however, been known for a long time previously, although it did not exist in sufficient numbers to admit of its general cultivation.

Jasminum nudiflorum.—Subdued and quiet in colour as are the blooms of the above well-known plant, yet at this wintry season it is cheering to see it either in a bush form or on a wall. It is sometimes urged against its occupying a prominent position on a wall that it is such a common-place looking plant during the summer, which I admit. To remedy this defect I plant some *Tropaeolum speciosum* at the base, and during the summer this twines over and amongst the *Jessamine* in all directions (the shoots of which, being allowed freedom to grow from the wall, afford extended and natural supports for the vine of the *Tropaeolum*), and makes a gay display in the autumn. The *Jessamine* does not appear to feel any ill effects from this rough usage, for it blooms as profusely year after year, as was its wont before this liberty was taken with it. Anyone who may not have tried this or a similar plan, should do so, and I feel confident the result will be satisfactory.—J. R.

Frost embroidery.—The frost embroidery on trees and shrubs was especially beautiful during the few severe days of last week. I hope some people who turn their attention to inventing designs for decorating walls may have taken some hints which they may happily turn to account for a design for a specially cool summer parlour or garden-house. For instance, the numerous warmly and richly-tinted Evergreens we have now, such as the *Cryptomeria elegans*, gave a lovely effect under their frosted covering; also the racemes of buds of *Andromeda japonica*. The still brilliantly toned leaves of *Andromeda Mariana*, *Skimmia fragrans*, *Juniperus canadensis aurea*, offered many tints worth seizing while at their best. Though few would care to go the length of building another ice palace, yet among quaint fancies one room with walls decorated in remembrance of the charming freaks of the frost artist among our groves might not come amiss.—M. A. R., Liphook.

Acacia verticillata.—This species belongs to a well-marked group of *Acacias* which is easily distinguished from all the rest by the short, dark green, needle-like phyllodes with which the branches are densely clothed. To this group belong *A. ovida*, *echinula* and *Oxycedrus*, all of which are desirable species. There is none, however, which can be more highly recommended as a useful garden plant than *A. verticillata*. It flowers freely either grown in pots or planted out in the conservatory, commencing in January and continuing up to March. Its flowers are in cylindrical heads and are of a light shade of yellow. The spine-like phyllodes (usually termed leaves) are about an inch in length, and are for the most part arranged in whorls. The species, if liberally treated, is one of the quickest growing and most profuse flowering of *Acacias*, and especially is this the case if it be planted out; it is very suitable on this account for covering pillars. Some large specimens are now coming into flower in the temperate house at Kew.

Citrus medica.—The mode of growing these here is in large pots. I have fourteen trees from 7 feet to 9 feet high so grown. They are plunged in a pit of Oak leaves 3 feet deep (annually renewed). In November, when the pit is emptied, they are all well cleaned and repotted if necessary; by the next year they often make roots through the pots into the leaves 2 feet long. From these trees I get many fine fruits; I have now some weighing nearly 2 lbs. each. The house is seldom heated, and 2° or 3° of frost often penetrate it, but last winter one unexpectedly intense frost rather punished them; nearly all the fruit dropped, yet the trees were but little injured and are now quite rich again. I have not noticed it necessary, as "G. W. S." says, to keep the blossoms dry when setting. Every dry day throughout the summer

the trees get a good drenching with the syringe, yet they set more than I allow them to carry. When the larger fruits approach ripeness, I suspend them in a net pocket, as when they become detached from the stem, in falling they become bruised and perish. All these trees I struck from cuttings, but it requires some years to bring them to good specimens. The *Citrus* family are amongst the most ornamental of plants, but are not so largely grown as their beauty entitles them to be. This is doubtless in great measure due to their liability to become in a filthy state (engendered by scale), and it often entails much trouble to clean them. Unless the owner loves his trees, the task would most likely often lead to their being discarded.—J. M., Charmouth, Dorset.

Bulbophyllum comosum.—Unimportant as the *Bulbophyllums* are from the commercial and even the general Orchid growers' standpoint, the genus contains many species of very great interest, and this, in a few instances, is also combined with no little beauty of flower. A species which sufficiently illustrates this is now in bloom in the warm Orchid house at Kew under the name of *B. comosum*. In this charming little plant the scapes are erect to a height of 6 inches or 7 inches, but the terminal portion, which is about 2 inches long and on which the flowers are thickly crowded, suddenly curves over and bends downwards. As is the case with many *Bulbophyllums*, it is the sepals which form the most conspicuous part of the flower. They are about half an inch long, quite narrow and pointed, but furnished at the margins and also on the back with short white hairs, which, owing to their number and the close arrangement of the flowers, give the inflorescence a peculiarly bristling appearance. The flowers differ from those of any *Bulbophyllum* with which we are acquainted in being white; indeed, Sir J. Hooker, in his "Flora of British India," describes it as resembling no other species known. It was collected by General Collett in Eastern Burmah a year or two ago at an elevation of 6000 feet on the Shan Hills.

A wintry scene.—We are, in this district, at present visited by a greater depth of snow (and more continues to come at intervals) than has been the case for many years, and the wintry scenery is really grand. From the terraces and the higher points of the hillsides beyond, miles of country in all points of the compass are in view clothed with the snowy mantle, its purity unsullied to any perceptible extent by sooty deposits. The variety and wildness of our surroundings add to the charms beyond anything that could be conceived in a flat country, as the eye takes in at a glance from any standpoint the tidal river slowly wending its course through the narrow, sparsely-wooded, but fertile valley; and the varied and well-wooded hillsides, rising abruptly on each side, culminating in lofty and comparatively bare rugged mountains, their distant summits appearing to mingle and terminate in the cloudless sky. Under the more immediate vision the scene is also varied and beautiful, every snow-laden twig and branch appearing like a tracing of exquisite lace, which a waft of wind destroys, but is as delicately repeated with every still snow shower, the Conifers and Evergreens (carrying heavy blankets) giving an idea of stability in comparison to the deciduous trees in their feathery garment. Turning from the trees, the ice on almost perpendicular rocks draws the attention; great icicles and masses of ice in all forms and the dark trunks of noble trees form a striking contrast to the groundwork below them. Such sights irresistibly compel one to pause in admiration of scenes of such indescribable magnitude and beauty, and forget for the time being the severity and the cold one has contracted in loitering while enraptured with such wondrous views. Could the denizens of our large cities and towns but get one peep at such a sight, it would be a new revelation to most of them of the great and ever-varied beauties of Nature. Unhappily, this lovely picture will have its dark side in the suffering and destruction (human and vegetable) which invariably accompany similar visitations.—J. R., Tan-y-bwlch.

FLOWER GARDEN.

HERBACEOUS SPIRÆAS.

THE genus *Spiræa*, although forming a very extensive group of showy garden plants, gives us comparatively few really useful hardy perennials. Shrubs or sub-shrubs form the majority of the species, and a well-cared-for collection of these in flower is very beautiful. A few of the neat-growing, free-flowering shrubby species might be used with advantage in mixed borders, and with attention need not to any appreciable extent interfere with their herbaceous neighbours. Taking the hardy herbaceous species as a whole, not more than six or seven are in general cultivation.

S. PALMATA, a Japanese species of less robust habit, may almost be termed semi-aquatic; at any rate I have always found it more robust and more free-flowering when grown on the edge of a pond than anywhere else. In the mixed border it generally has a half-starved appearance, and never flowers so freely as when near water. It grows from 2 feet to 3 feet or even 4 feet in height, the stems terminated by huge many-branched panicles of deep crimson flowers, the leaves palmate, with five to seven lobes.

S. FILIPENDULA and the variety with double flowers are both invaluable for the rockery, and as they may be grown with ease and flower freely all summer they can be recommended to growers of select hardy plants.

S. LOBATA somewhat resembles the above, and in some of the forms it is difficult to distinguish the two. *S. palmata*, *S. purpurea*, *S. p. alba*, &c., are, I believe, all forms of *S. lobata*, although differ-

rockery decoration. It is also a moisture-loving plant, and will be found more satisfactory in every way on the banks of a stream or pond. It is quite distinct from all the other species, the inflorescence much branched, and the flowers of a dull white closely packed on the stems. It is being forced in many places for the greenhouse and conservatory, but does not appear to relish much heat.

K.

NOTES ON HARDY PLANTS.

Tropæolum tuberosum.—Now that this plant has generally been killed back, it becomes a question as to what should be done with the out-of-door roots. Something depends on the nature of the land in which they have been grown. In an ordinary winter old specimens might be safely left in dry stony land or chalk soil, especially if a little covering in the way of Bracken be given. Generally speaking, however, it is not desirable to leave the roots out, or rather in the ground, in winter, quite apart from the consideration of their degree of hardiness. For this reason: The tubers not only become thickly clustered near the surface, and so are apt to be turned to pulp by wet and frost, but it is just as essential, at some time between the dying down of the old plant and the commencement of growth of the young tubers, to take them up as it is to take up a root of Potato. That being the case, it would seem advisable to take up the roots before the tubers become seriously frost-bitten. And further, as a question of culture, it is much better to depend on a new strong tuber, freshly planted in the spring, than on old plants with their crowded tubers, however well such old plants may have done and withstood the winter. I think it is pretty well understood that this vigorous climber is more free-flowering, and reaches that condition sooner when grown in poor dryish land and in a sunny situation. Grown in rich land it makes tremendous growth, and hardly gets into a flowering state until the end of September. Something, however, can be done to hasten the production of flowers by setting the tubers in pots in January or February, and so allowing them to come on with the lengthening days, but giving them the protection of a frame from frosts. The forwardness of plants so treated will be obvious compared with that of tubers freshly set two months or so later. There are some interesting facts about this plant. By accident some tubers set in very small pots got their roots through into good soil. They were left, and the set of new tubers was produced not under the soil, but on the surface and quite exposed to the light. One hardly need say that the large Pear-shaped, creamy white tubers with (on their most exposed sides) a tinge of green, and their numerous eyes beset with scarlet ray-like streaks, formed a pretty feature, and one perhaps that it may be worth while to encourage, which I am sure can be done by the double-pot treatment, because I have proved it in more than a solitary instance to be capable of development by this means. The *modus operandi* is as follows: Set in a 3-inch pot one strong tuber in January, the thick end of the tuber upwards, and but slightly covered with soil. Allow this to fill its pot with roots in a frame where frost cannot reach it, or in a cool greenhouse near the glass. In February or March simply stand the small pot on an 8-inch pot, drained and filled up with rich soil, allowing the small pot to go down into it about an inch, and always water the plant at the low pot only, where the roots will take possession in a few days. When all danger from late frosts is over, the whole may be stood anywhere outside in the sunshine, preferably on a sunny walk-side, where the beautiful tubers can be watched during their formation, rising out and hanging over the smaller pot, and where also the rambling stems may find something on which to catch by their tendril-like leaf-stalks. The chances are that pots exposed in this way will not only cause the plant to produce a visible crop of beautifully coloured tubers, but also a crop of flowers earlier than usual. What about these tubers as human food? I think I have already



Three forms of the Goat's-beard Meadow Sweet (*Spiræa Aruncus*).

THE GOAT'S-BEARD (*S. Aruncus*), the subject of our note, is one of the most striking and useful, if not the showiest of the group. It is pretty widely distributed over Europe, Asia, and North America, a vigorous grower, and one of the most easily managed. In summer and early autumn it produces numerous long feathery spikes of white flowers, sweetly fragrant, and when seen in masses extremely effective. This can be easily starved both in the matter of soil and space, and if cramped, as one often sees it in small gardens, its character is quite lost and no idea of its capabilities afforded. Even in large gardens *S. Aruncus* is essentially a plant for grouping in woods or semi-wild portions of the pleasure garden, and when properly arranged with a suitable background may be made a feature of no mean pretensions. It requires a strong, rich soil, and does not seem to mind drought so much as most of its congeners.

ing considerably from the type, which seems to be very variable in itself. The flowers vary from pale crimson to white, and in the case of *purpurea* the foliage is curiously marked with purple blotches. *S. venusta* and *digitata* are somewhat similar and not so showy.

S. ULMARIA.—The several forms of this, more especially that with green and gold variegated leaves, and which never fails to attract the attention of visitors, are too good to throw aside even in the presence of the above.

S. GIGANTEA, recently introduced to our gardens, may be described as a gigantic Meadow Sweet. It grows from 6 feet to 10 feet high, with huge palmate leaves and large fleecy bunches of white flowers terminating the stems. Its place will eventually be found to be in the wood or by the lake.

S. ASTILBOIDES is a comparatively new species and of unusual merit, both for mixed border and

said that I have tried them boiled, and eaten with melted butter and toast. In that way they are delicious. I ventured to try them lately in the raw state. They are very succulent, the flavour somewhat like the Turnip Radish, but stronger in the pepper-like property. I imagine that as these tubers keep well all the winter in sand, they might prove handy as one of the ingredients of a winter salad, both as a decoration and a condiment. I intend to try it in the salad. I think I may as well warn my readers that I have no scientific authority whatever to show that these tubers are wholesome food. I may further explain that last year I ate at one time at least half-a-dozen medium-sized tubers in the boiled state as above described. They were agreeable, and, of course, if there had been any bad after effects, I should not have said so much on the subject. It is just as well, however, that those who may care to try the tubers in the raw state should do so cautiously. The plant is very prolific in its production of tubers. It is no uncommon thing to find ten to twenty good tubers on a root, mostly about the size of the Chisel Pear.

Helleborus maximus.—Large and seasonable as these Christmas Rose blossoms are, they, even in their best form, often give disappointment. Of course, it is not the fault of the plant, but the person. It should be kept in mind that this is not a really white variety, and the flowers cannot do duty when cut as white flowers. There are white sorts, and it is true this belongs to the same group, but it has too much of the purplish-pink tint on both sides of the sepals, and I fear that its name *maximus* too often tempts those who are not aware of its dull tints to plant it in preference to the smaller, but purer varieties. It is a splendid kind without doubt, but to do it justice it should not be grown exposed to the murky weather usual at its flowering season, because its tints are exactly such as are spoiled, and indeed rendered very unsightly with the least dark stains. If well grown under glass, however cool, you may expect fine flowers, but in no case such as to be fit for use as white. By far the best white is *H. niger angustifolius*, both as a plant to cultivate and for pure blossom, and after the 18° of frost and fogs for five days black as night, it is almost the only kind of the four white ones grown here that proves of any use. In planting, select young go-ahead plants that have been cultivated, *i.e.*, plants a year well grown since their last division of roots. Set them deeply in a deep, well-worked loam free from the least morsel of manure. So dealt with, it will not matter much about shade or no shade; a deep and free root run gets most plants over many minor drawbacks, and certainly fortifies shade and extra moisture lovers when not specially provided with these conditions.

Nerine crispa.—Speaking of this under a hardy plant heading, whilst there is a fairly good reason for doing so, the degree of hardiness should at once be qualified, and perhaps the most direct way of doing so will be to speak of its degree of hardiness by comparison with other well-known Japanese or Cape bulbs. But before doing that even, I can attest from experience that bulbs that have been grown cool are capable of enduring 5° of frost, their necks being quite exposed to the atmosphere and the shallow pots nearly frozen through. I do not suppose that greenhouse-nursed specimens could stand cold in that way, *i.e.*, unacclimatised plants. It is, however, to my thinking, quite as hardy as *Amaryllis Belladonna* or *Crinum longiflorum* when dealt with in a similar way, that is, planted deeply under a south wall in light soil that freely allows the ripening influences of so much sunshine as we get. There can be no question as to the value and beauty of the flowers. Their value is owing to the delicate and somewhat unusual pink colour, their appearance in the depth of winter when grown in a cool greenhouse, and their remarkable durability, especially if kept dry and shaded from fitful bursts of sunshine. I have seen flowers last from the middle of January well into March. I now come to a matter that discounts the value of this bulb from the hardy

plantsman's point of view. The delicately tinted flowers might push so early in the spring or late winter as to be destroyed by the late frosts, and even if they succeeded to the extent of opening, the delicate tint would be so susceptible to injury in damp or inclement weather as to be practically of no use. I fear, therefore, that, unless grown in very favoured situations and covered by handlights or something of the sort, though otherwise hardy, we may not profitably grow this plant except in a cold frame or greenhouse, unless when the object is that of preparing the bulbs for after-work. This can be done, I know, to great advantage by planting in the border as above described, where the bulbs sooner attain their normal size and vigour than if kept in pots, and as the bulb freely produces offsets, the latter can be dealt with in this way profitably in regard both to present and future blooming stock. Removing the bulbils from the full-sized bulbs when the foliage has died off is beneficial. When this is being done, however, it will be as well not to injure more than can be helped of the long, fresh, stringy roots.

Eremuri.—I have grown some five or seven varieties, and nearly all are in the habit of making early growth, even when kept somewhat dry. As this habit to my mind constitutes a real difficulty in the good management of such species in this climate, it may be advisable to help them by such methods as we may, either by way of retarding the growth, or so protecting it that the long foliage may not become unsightly by reason of black points all the after part of the season. Such help may be given by protecting the surrounding surface from moisture, in such a way, however, as not to exclude the free circulation of air, however cold the weather may be—something say after the style of large squares of glass slightly set up, well-aired handlights, or even an ordinary light of moderate size. Let me give a caution here, that probing the soil for anything like 2 feet around the crowns of good sized plants will be rather risky, as the roots, which are very thick and very succulent, radiate from the crown somewhat near the surface and to a good distance, and then they dip their points. I have found that when growth could not be retarded conveniently in some such way as the above, the next best plan has been to protect the growth by means of a light sprinkling of Bracken, to be done as soon as the points of the sprouts begin to assume their natural or green colour, when also the young foliage will show signs of unfolding. There certainly is no room for fear as to the hardness of all the varieties I have tried, but there is the very real difficulty of saving the plants with such early growth from the blackening effects of the late frosts. One has no difficulty whatever with pot plants, because these can be made to sleep in several handy ways until it is convenient to have them grow. But permanent pot culture is totally out of the question for plants of such large size and that root so vigorously; still, there is no reason why we should not take such advantage as we may of the plants whilst in their young state. When planting these permanently, the soil should be made light by means of plenty of wood ashes, and it should be deeply tilled. If you attempt to plant other things near to these giants, you may regret it some day when you stab the thick succulent roots that spread in the way already described, and I mention this as a caution, all the more because the plants require plenty of room and they leave their space considerably bare in midsummer or soon after; at any rate, they then begin to turn sere. It will thus be seen that, noble as these plants are, they have their drawbacks for the better dressed parts of the garden; in short, they have a season of untidiness, and it is not safe to otherwise plant the large spaces they occupy. From my experience of these plants they suggest themselves as suited for forming special groups in positions according to taste, where could be tolerated or appreciated only such humble, surface-rooting flowers as *Mignonette*, *Night-scented Stock*, *Nemophila* or other annuals that could be easily sown and removed without disturbing the soil to any material depth.

Woodville, Kirkstall.

J. Wood.

DODECATHEON JEFFREYANUM.

FOR some reason or other this well-marked species has become somewhat scarcer of late. This is the more to be noted from the fact that in most gardens it is not only naturally the most vigorous kind, but by far the best perennial. One is aware that all the *Dodecatheons* are true perennials in the botanical sense of the term, but in many gardens the Shooting Stars fail to do well for more than one or two seasons, when the roots in a somewhat peculiar way break up. This is just where the interesting part of their successful culture comes in, and where possibly I may contribute some hints worth further investigation, both as to the cause of the roots breaking up and how to treat them by way of prevention, and also with a view to propagating stock by means of the detached parts. Like the plants of most other primulaceous genera, those of *Dodecatheon* generally come to the surface every year. The kinds that are least in the habit of doing so are the less liable to suffer in the way of breaking up at the crowns, and tracing back the cause, it will be found that those that best retain their positions well under the surface are those whose roots are not only longest, but have the habit of going straight down, and not radiating close under the surface, like several of the varieties of *Meadia* and *integrifolium* (if the latter can be said to be a species). If the stronger roots that spring from the central portion immediately under the crown are examined, they will be found to have but a very slender neck or attaching joint thereto compared with the thickness of the root at the part, so that it only requires in my view a few of our alternate frosts and thaws to wrench the roots from the crowns, and the more the roots, as in the case of the radiating set close under the surface, are affected by opposing frost action, the more the injury to the kind spoken of comes about. I have been further inclined to take this view because I have generally found that until the frost came the breaking asunder of strong roots from crowns had not taken place. And further (which I take to be an even more important fact), the crowns are generally left with some roots intact, but those roots are always left on one side of the crown and close together, and I have never yet seen any to speak of that had been torn from that side of the crown. This more than anything else has led me to believe that not only are these surface-rooting plants easily injured by mechanical frost action snapping the tender joints of root and crown, but that where the roots have been better grounded, or otherwise stronger on one side, they have held on to the crown.

So subject to this sort of thing is *D. integrifolium*, that it is absolutely necessary in my light soil to transplant it annually. The present species is perhaps in the other extreme; its roots are very long and go straight down, and though the crowns, like those of the *Paeonia*, enjoy having their noses just peeping to the light all the winter, I have never noticed that they become lifted or torn from their roots. Hence my surprise that this plant should seem to be scarcer than usual, as if many had experienced its loss, though not susceptible to break up like other sorts. With me it has grown in the same place for five or six years, and even then did not require any help, making foliage 1 foot or 15 inches long and running up flower-scapes to nearly twice that length. When the roots break off in the above way from any sort, it is a good plan to dress them liberally with wood ashes in the dry state to first make sure of killing or dislodging slugs and snails, then to top-dress with sand and leaf-mould rather thickly. By this aid the old crowns start with renewed vigour in spring, and all the severed rootlets push growth from the apices of the stronger parts. By leaving the roots in their positions and treating them in this way, you may suppose that you get a crowded group, as you really do in a sense, but from the fact of their being somewhat above the ordinary ground level, unless they are carefully watched and watered in the summer, they may shrivel up. But if you can manage to grow them during one season, the roots will be most valuable for lifting in late summer, to be then re-planted at least 2 inches below the surface. So

dealt with, they are safe from the following winter's frosts, and may make strong plants for at least one or two seasons until the breaking up again repeats itself.

With regard to *D. Jeffreyanum*, supposing you have strong plants, it is a very easy matter to propagate it. Dig up the strong roots entirely, remove the stronger roots issuing from near the crown, selecting those with a wart-like excrescence on the upper shoulder, and which is in reality a rudimentary crown. These either planted or potted make nice stock the first season; they should, however, be kept intact with all their long and numerous fibres. From these you get speedier results than from seed. Seed is abundantly produced by this kind, but to obtain success it should be sown in summer immediately it is ripe. J. WOOD.

THE PINK.

THERE are two prime features in a florist's Pink; one is its exquisite fragrance, and, unlike many of the Carnations—one might say most of them—which are generally devoid of fragrance or possess it only very faintly, the Pinks are all sweet-scented; it seems to be a condition of their nature. The other is the lacing on the petal margins, in a well developed flower so dense and regular. Given, then, a full bloom that is of full substance, pure in the ground, and regularly laced with some shade of purple and purple-crimson, or lilac through shades of red to crimson, and there is a flower worthy the acceptance of anyone. To have Pink blossoms of large size and finely laced, the plants should be grown in a well-prepared bed in the open made up of rich soil, and the plants placed in it in October. It is only plants which are thoroughly established that can be expected to have well-laced flowers. It is sometimes said of the Carnation that it is coddled and debilitated by being kept in cold frames through the winter, but the same cannot be said of the Pink, which is grown wholly in the open and thoroughly exposed to all weathers.

The soil of most gardens will grow Pinks. If it is a good yellow loam, or a black one of good heart, so much the better. If this be dug in September, and road or river sand, the former from a gravelled road, the latter from a shallow fast-running stream, and well rotted manure be freely added, then there is a good bed for Pinks. Road scrapings with horse droppings make good ingredients for a Pink bed, and the root fibres run freely in it. It is not too late to plant such a bed, but the best plants for placing in a bed in January or February are those which have been wintered in pots, because they are certain to have rooted well and they can be placed in the ground without disturbing the ball of roots very much. Plants lifted from the open ground at midwinter or in early spring are apt to lose the soil about the roots and then a decided check occurs. I have known orders to come to a nurseryman for Pinks solate as April. When they have got into active growth, it is practically impossible such plants can bloom well, because they are checked in their progress late in the season.

A few good laced Pinks are to be found in Clara, the lacing reddish purple, a flower with stout and finely-rounded petals. Rosy Gem has a paler lacing, very broad, and the blossoms sweetly fragrant. Henry Hooper has a rich dark lacing, a flower of large size, full, and very handsome. One of the best is Boiard, a favourite flower with all growers, a good grower, laces well, and very full and fine. Modesty is remarkable for its pale pinkish lilac lacing, sometimes deepening to bright rosy purple; it is very early and free, and makes a charming border variety. Another excellent border variety is found in Mrs. Waite, small, very pretty, and free. Beauty is another small-flowered variety, but very free to cut from. A very fine Pink is found in Empress of India; it is very distinct, fine in colour, the lacing rich and deep. The Rector, very fine; Minerva, Jessica, Eurydice, Device, George White, Excelsior, very fine, are also good laced varieties, and it is worthy of remark that some of the before-mentioned have been in cultivation thirty and forty years. Some persons might

be led to think the laced Pinks are all alike, but there is more difference between them than is usually fancied, and cultivators who become acquainted with their peculiarities by growing them are able to detect marked differences between the varieties.

Three new varieties of laced Pinks (raised by Mr. James Thurstan, of Cardiff) are being distributed from Manchester. They are James Thurstan, John Dorrington, and George Hodgkinson, all remarkable for the purity of the ground colour, fine quality of petal, and refined lacing. James Thurstan is, in my opinion, the finest laced Pink ever raised, a flower of the highest quality, the other two being also remarkably good.

Of fine old border Pinks of various colours, mention may be made of Anna Boleyn, very good indeed, and always in great demand; Rubens, pink with dark centre; Ascot, pink, with crimson centre; Mrs. Sinkins, white, grown very largely for cutting from; Clifton White, an improvement upon Mrs. Sinkins; and Lord Lyon, a flower of very fine shape, pinkish lilac with dark centre.

Of newer border varieties, there are Her Majesty, white; Charmer, pink, with dark centre; Beauty of Sale, pale pink, fimbriated, very good; Norah, blush, with rosy purple centre; Flirt, pale pink, with rosy purple lacing; Charles Lockyer, pink, with deep rosy purple lacing; Beauty, white, with slight rosy purple lacing; and Fimbriata, soft pink, the petal edges deeply fimbriated.

Pinks are propagated by means of pipings, which are cuttings of the young shoots from the base of the plant, and layering the same as Carnations, which is a practice much followed in the midland districts. The quickest way to strike them is to put them in pots of light sandy soil firmly pressed about the cuttings; place them in a gentle bottom-heat with bell-glasses over them. Or they can be put into sandy soil in the border where there is a little shade, in little clumps, with bell-glasses over them, and they will root, though not so quickly as when the pots are plunged in bottom-heat. The earlier in the summer the pipings can be struck, so much the stronger are the plants for placing in the open ground in the autumn.

It is customary to raise a Pink bed 6 inches or 8 inches above the ground level. This is done that the heavy autumn and winter rains may drain away from the roots of the plants, as, though the Pink is perfectly hardy, stagnant moisture about the roots is found to be very injurious to it.

R. D.

DAFFODIL DISEASE.

I HAVE just seen the letter on the above subject, signed John Speir, on page 12 in your issue of 2nd January, and think, when he compares the disease with the ravages of the Daffodil grub, he must be one of those favoured few who have not had a visitation of the disease proper. In my experience of twelve years I have had visitations of both, and find the disease which attacks the base of the bulb and the scales most prevalent in the natural species in gardens. Those varieties (Tenby, cambricus, Irish nanus, &c.) which die out in the garden flourish on the woodland banks not fifty yards distant.

Garden hybrids, with few exceptions, are seldom attacked, though yellow and white trumpet varieties seem especially subject to it. The grub, on the other hand, seems to attack the most costly and valuable varieties of all classes. The bulb at lifting time appears quite healthy, and it is only at about planting time, when it gives by pressure between finger and thumb, that you suspect the possibility of a grub. The disease proper will attack and kill the whole of one variety. The grub is only found in one or two isolated bulbs. I had a long line of Golden Spur which lifted very badly in August, 1889, rootless and black. They lay exposed to sunshine and weather for some weeks, and before planting time I examined every individual bulb, and with a fine cutting knife took off the black base, which by this time had become hard and dry and easily broke off, and scraped the

black scales. The bulbs looked more like skinned Almonds than bulbs which one buys. However, I made up my mind to kill or cure. They were planted in the garden again, and lifted in 1890 much more healthy and larger in bulk. They were next planted on a woodland sloping bank, from which the Grass and weeds had been cleared; they flowered fairly well and the foliage was all healthy. They were not lifted last year, but to-day (January 4) are appearing above ground, though the ground is as hard as iron. I believe that a bulb attacked by the disease, if taken in time, may be improved in health; but if once a grub has eaten the marrow out of it, it is useless.

Penicwick.

C. W. COWAN.

SEASONABLE NOTES ON FLORISTS' FLOWERS.

THE AURICULA.—With the advent of the new year, the fancier of these charming garden favourites is looking forward to the development of the snowy white foliage, to be followed later by the delicately tinted blossoms. I have found that the garden varieties are as hardy as the wild plant. The beautiful green, grey, and white-edged varieties produce their flowers well in ordinary unheated garden frames, but to bring them up to the highest standard the plants should be put into a heated pit or a light low-roofed span-house. Our plants, comprising about a thousand specimens, are now in frames, but by the middle of January the stock of flowering plants will be removed into the heated span-roof specially arranged for Auriculas. The lights can be drawn off entirely in fine weather, and the house itself is freely exposed to light and air. The advantage of such a house is that the owner is able to examine his plants without being exposed to the inclement weather we experience in the early months of the year. The first thing we do when the plants are cleaned and neatly arranged in the house is to fumigate them to destroy any of the aphid tribe that may be ensconced under the leaves. I fancy strong doses of tobacco smoke considerably bother the woolly aphid. I do know that it detests the fine tobacco powder sold in tin boxes by most seedsmen. This substance, dusted in a dry state round the necks of the plants, drives the pest from there under ground. It would be interesting to study the life history of this species of aphid. During nearly the whole year it lodges on the roots of the Auricula until the flowering season is well over, when it leaves the roots and swarms over the leaves in a winged state. Even the glass roof becomes thinly studded with them. It is singular that this curious insect does no perceptible harm to the plants; whereas a small colony of the ordinary green-fly cripples the strongest plants in a few weeks. Many of our plants are quite dust-dry when they are brought into the house. Such require to be watered several times before the soil is well saturated, but after it is found that all the plants are well watered, they must not receive any more until each plant is well on the dry side. They may require looking over two or three times a week, and no plants should be watered except such as really need it. The off-sets and small seedling plants will require looking after, and if there is room in the heated house the off-sets may be repotted. The seedlings which vegetated late in the autumn may be pricked out. They are very small, and a dozen of them will go into a 3-inch pot. The off-sets are now some of them three or four in 2½-inch pots; these are parted out and planted singly in the same-sized flower-pot, and those singly in pots are planted into larger ones.

What are termed the alpine Auriculas we allow to produce their flowers in the ordinary frames; they do not need the frost to be kept from them except to the extent of a mat thrown over the glass on frosty nights. We have some of these alpine in the rock garden, and they flower very freely. The severe frost in Christmas week caused a large number of the leaves to decay, and after these were removed the plants looked fresh and well when the mild weather returned. Again, as I write these lines frost has set in and the plants are frozen hard. It is the rapid changes from frost to

thaw, and from comparatively mild weather to frost again, that does so much mischief to our plants in the open ground, and the effect of it is also visible in the frames. Slugs should be looked after, as they are very troublesome in mild weather.

CARNATIONS AND PICOTEEES.—The plants in the ordinary garden frames intended for pot culture passed through the first severe frost without any injury, and they having been looked over and cleaned about the middle of December, not much further attention will be needed. Where any plants are seen to be under a drip, they should be removed. Out of doors not much can be done in the way of attending to the plants, except to look over them when a thaw has set in after a frost; the plants not firmly established may have been thrown out of the ground and should be pressed in firmly with the fingers. Any unsteady plants likely to snap over with high winds should have a neat stick placed to them if this has not been done.

PINKS.—These more wiry-stemmed plants pass through the winter, as a rule, more safely than Carnations and Picotees. There is some danger of plants dying off during the winter from various causes, such as slugs, the leather-coated grub, mice or rabbits. As a precaution it is a good plan to pot up a pair of each variety and to winter them in a cold frame. They can be planted out in a bed or in borders in the spring if they are not needed to fill up blanks. The plants wintered in pots and planted out in the spring seldom produce such well-laced flowers as those established in the open border.

THE FORCING PINKS now need attention, and to obtain the charming sweetly-perfumed flowers which they freely produce early in the year it is necessary they should be forced in a light position near the glass roof of any house where the minimum temperature is from 45° to 50°. As soon as the plants have fairly started to grow the temperature may be increased to 55°. It will soon be time to put in cuttings to produce plants for next year. There is usually a sufficient number of growths produced from the base of the plants. This "grass," as it is termed, strikes root very freely in the bottom-heat of a bed in the forcing house. A dozen or more of these cuttings may be inserted in a 5-inch pot, to be planted out in shallow boxes 3 inches or 4 inches asunder, to be again planted out in the open ground after they have been gradually inured to the open air. They will, however, not be ready to plant out in the open air until May. If they are set out on a piece of rich ground, well worked, and 1 foot asunder, good large clumps will be obtained by the end of September with very little trouble. They should then be potted up at that time for forcing the following winter and spring.

HOLLYHOCKS.—The plants of these, whether they be old stools or young plants propagated from eyes or cuttings during the previous summer and autumn, ought to be wintered in frames, and if a heated house can be afforded the old stools, cuttings thrown up from their base will now be ready to take off. Each cutting with a heel attached may be planted in a 2½-inch pot in fine sandy soil. The cuttings are placed in a heated house in a mild bottom-heat, a light is placed closely over them, the top part being taken off and wiped every morning. They seldom require water until roots are formed, which will be in two weeks or so. These produce fine flowering plants the same season.

J. DOUGLAS.

Tufted Pansies.—Botanically, Violets, Pansies, and Heartsease are all the same. Tufted Pansies are crosses from the garden Pansy and *Viola cornuta*, the latter being the seed-bearer. Pollen from *V. cornuta* applied to the Pansy produces a common enough form of bedding Pansy—never the tufty root growth obtained when the cross is the other way. I have proved this by actual hand-crossing, as shown in the notice in *THE GARDEN* of the 19th ult. Most strains of tufted Pansies are bred the wrong way, and in consequence

lack the fibrous tufty root which makes the *Violetta* strain perennial. The late Charles Turner, of Slough, considered the origin of our show Pansies to have been selected sorts of wild *Viola tricolor* crossed with *Viola altaica*. I am an old Pansy grower, and can recollect their beginnings about the year 1834 or 1835. Mr. Downie is, perhaps, the veteran Pansy grower in Scotland, and I am afraid will rather think very little of tufted Pansies or their growers. — C. STUART, *Hillside, Chirnside, N.B.*

CHOICE HARDY ANNUALS.

It would be a wearisome undertaking to count the number of hardy annuals offered for sale in a popular catalogue. The largest garden can accommodate only a small selection, and to endeavour to pick out the most worthy to grow is bewildering to those who are not to some extent acquainted with them. Annuals being readily raised and quick to bloom, are liked in consequence, and to those who love flowers and whose means and time are limited, they are particularly acceptable. They can be sown in the open and let alone until they require a little thinning out and tying up, as some little training of this kind is required by the tallest-growing among them. They flower freely, and if not particularly lasting, they are very bright and effective for a time. A small packet of seed will give enough for successional sowings. It is to be regretted they too often receive so small an amount of culture, and they would be more satisfactory if the ground in which the seeds are sown were dug and manured, and when the plants are large enough are thinned out to a few, for a few with space in which to develop are far better than a number so thickly crowded as to impede the well-being of each other. A pretty border can be arranged by selecting some of tall growth to go at the back, and so fall away to the dwarfiest in front, or if it is an oblong or square bed, and it is desirable the face should be to the cardinal points, then let the tallest be in the middle, making the dwarfiest the front line all round. The grower can sow in lines of one variety or he can form his bed of little patches of different subjects to his liking. In purchasing seeds I would not advise him to buy packets of seeds of a great many kinds, but rather to purchase a packet each of some good ones he may fancy, and while having as much variety as possible, securing uniformity of growth and arrangement. Sowing may be done at the end of March or in April, according as the weather suits and the condition of the soil favours. The soil should be loosened, broken up fine, flattened down a bit and the seed grains scattered thinly over it. The smaller the seeds the more thinly they should be sown, and the grains covered up thinly with a little fine soil. Sowing is a simple method, but it requires to be done with judgment, and, in common with all other questions in the garden, what is worth doing is worth doing well.

For its pretty rosy blue colour, *Asperula aurea setosa* is well worth attention; it is free, slightly fragrant, and grows to about a foot in height. *Bartonia aurea* is one of the most showy of hardy annuals, with large golden-yellow flowers, freely produced. It also averages about a foot in height. Of our double garden Marigolds there are three well worthy attention, viz., Meteor, yellow striped, and bordered with deep yellow; Le Proust, lemon, tipped with a darker colour; and Sutton's Orange King, a very fine variety, with large double flowers of great beauty. These grow from 1 foot to 18 inches. Of the annual varieties of *Calliopsis* there are bicolor coronata, maroon, splashed with gold, and Drummondii, yellow, with dark centre, from 2 feet to 3 feet in height. Of *Candytufts* there are Dunnett's Crimson, very bright; Carmine, a very fine French variety; and Empress, with huge spikes of large, well-formed, pure white flowers. They average 1 foot in height. The pretty rosy pink *Catchfly* is charming, very free, and about 1 foot in

height. Of the annual *Chrysanthemums*, the single yellow, and the double yellow, and double white forms of coronarium, the double *Marguerites* as they are sometimes called, and the varieties of *carinatum* or *tricolor*, as they are generally termed; the former 3 feet, the latter 2 feet in height, all well repay good cultivation. Of the *Clarkias*, select the dark rose-coloured variety *integri-petala* (1½ feet), and Mrs. Langtry, a variety of *integri-petala*, pure white, the centre carmine, growing about the same height. Of the *Collinsias*, *C. bicolor*, purple and white; and *grandiflora*, dark purple, both about 1 foot in height.

The garden would be incomplete without such climbers as *Convolvulus major*, some of the charming varieties of Eckford's new Sweet Peas, and that popular favourite the Canary Bird plant; the last is delightful when associated with Sweet Peas. Of the dwarf forms of *Convolvulus*, the puce and the crimson-violet are singularly showy; they reach about a foot in height. *Dianthus Heddwigi* and its varieties are all charming annuals, and enable one to cut and come again, so prolific are they of bloom; they average from 9 inches to a foot high. The yellow *Erysimum arkanianum*, 1 foot, and the orange *Perowskianum* are both very showy hardy annuals, the latter 6 inches taller. *Eutoca viscida* grows to a foot in height, and its intensely blue flowers are very handsome. *Gilia laciniata* (1 foot) bears a profusion of heads of lavender-blue, and is very pretty. *Gypsophila elegans rosea* is well adapted for hanging baskets; it bears a great profusion of rose-coloured blossoms. *Hibiscus africanus* is a somewhat stately annual, sulphur with dark centre, 1½ feet, and blooms late. *Kaulfussia amelloides* var., violet, is of dwarf growth, about 6 inches, the blossoms very dark. Of the pretty dwarf *Leptosiphons*, I like *rosaceus* the best; it forms a dense mass of pale rose-coloured flowers, and scarcely exceeds 6 inches in height. That pretty *Toadflax* (*Linaria aurea reticulata*) deserves a place in every garden; 1 foot, the flowers purple flaked with gold. For brilliancy of colour, scarcely anything can compare with *Linum grandiflorum rubrum*, and it is very free, about 1 foot. Of the annual *Lupines*, a place should be reserved for *L. nanus*, with its dwarf compact habit, and profuse blue blossoms. Of the *Mignonettes*, *Victoria*, a good crimson; *Golden Queen*, bright gold; and *Parson's Giant White* are the best. Of the dwarf, close-growing *Nemophilas*, which form capital edgings, the large blue insignis *grandiflora*, the purple spotted *maculata*, and the blue form of *N. atomaria* are the best. The blue *Nigella hispanica* (1 foot), the beautiful blue *Phacelia campanularia* (1 foot), *Rhodanthe maculata*, of the same height, the richly coloured, tall-growing varieties of *Salpiglossis grandiflora* (2 feet), the new double Pink, *Silene pendula*, about 4 inches, Sutton's miniature *Sunflower* (2½ feet), *Viscaria oculata*, deep blue, and its rose-coloured variety *Dunnettii* (about 1 foot), and the imperial-looking *Whitlavia gloxinoides*, blue and white (1 foot), complete the list. It is easy to add to it. I have selected only such as I know to be really good and worthy of a place in the garden.

R. D.

Primula obconica.—This is by far the most perpetual flowering species of *Primula* we have in cultivation. I have a plant of it that has been in bloom since April last, and while everything in my cold house goes down before fog, frost and damp, *P. obconica* keeps on flowering—very bright and pleasant in the winter sunshine. Though reputed to be hardy, I find it is affected by frost, and during the sharp foggy days of Christmas week the plant had a place in my sitting-room, standing in an earthen saucer, with about a quarter of an inch depth of water in it, and though gas had to be burned all day, yet but little harm came to the flowers. I would not advise anyone to permit their plants to be subjected to too much frost. It is safest and wisest not to run a risk with a flowering subject so useful in the winter; but I do advise those who fancy this species to take in hand a good variety. I not long since saw a garden in which was a batch of *P. obconica* of such poor quality,

as to be undeserving of culture, and it should be borne in mind a good variety takes up no more room than an indifferent one.—R. D.

STOVE AND GREENHOUSE.

LAPAGERIAS.

It is noteworthy that Chili is not remarkable for having added greatly to our lists of cultivated plants, but in the Lapagerias we have decided acquisitions. Amongst cool house climbers the Lapagerias occupy without doubt the foremost position, being of easy culture and free growth when a congenial place is found for them. It does not do to assume that they will succeed in the best possible manner in every cool greenhouse or conservatory just because such houses are cool. The position even in a house has to be chosen in order to meet with the best success. Lapagerias should not be allowed too much exposure to the sun's rays, particularly through the warmer part of the day during the summer season. When such a position cannot be avoided, then the shading should be moderately heavy, and if continuous it will not do any harm as far as the Lapagerias are concerned. In my own case I have succeeded well with one plant at the western end of a conservatory (facing south) where the shade of a higher building intercepted the sun's rays soon after midday, but at the eastern end, where I wanted one to grow more particularly, I have twice failed, although every attention was given to soil, drainage, &c. I can only account for it by this plant receiving more sunlight than was good for it through the greater portion of the day. In a span-roof house, with one side facing either north, north-east, or north-west, such a position I would choose for Lapagerias, shading lightly even then. A damp wall in a cool house will of necessity be one that does not receive any great amount of sunshine upon it; here the Lapageria will do well. For covering the roofs of corridors this plant is also admirably suited, as instanced in the long corridor at the Royal Exotic Nurseries, Chelsea, the shading being in accordance with the position in every case. Lapagerias and Camellias thrive well together; the genial moisture and cool atmosphere in which the last-named delight are just suited to the former. A dry atmosphere, with too much exposure to draughts, is a drawback to a good free growth, which is so desirable in order to secure freedom and profusion of flowering.

Far better and more enduring results are to be had by planting out in a well-drained border than when under pot culture, although now and again some excellent pot specimens are seen of both the red and the white varieties. Depth of border is not so essential as width and length. With plenty of surface room the young shoots have greater freedom, 1 foot or 18 inches in depth being ample. In some positions more room can, of course, be afforded than in others, but if 2 feet square, *i.e.*, 4 square feet, can be secured, there will be room for a plant to grow away for several years, by careful attention to top-dressing with good soil and giving plenty of water. A continuous border will suit admirably for planting out a few plants each of both colours, allowing the growths to intermix themselves. Eighteen inches in width would in such a case be ample. When pot culture becomes a necessity, then I would prefer pots of special make with greater diameter than depth, relatively speaking; imagine, for instance, a No. 1 pot with 6 inches of the bottom taken off; such

would be my choice. Otherwise a larger amount of drainage will have to be employed, with a risk of the roots amongst it getting too dry, for the roots of the Lapageria are very much disposed to ramble amongst the crocks when they have the opportunity so to do. The soil I find best suited for Lapagerias is a mixture of peat and loam, more of the former than the latter, in the proportion of about three to one. Both peat and loam should be of the very best, containing plenty of fibrous matter; such peat as one would choose for Ferns and such loam as



Spray of flowers of *Lapageria alba*.

one prefers for Melons would suit well. To this plenty of sand should be added or else road grit, with a good amount of clean broken crocks and nutty charcoal to keep the soil open. Do not break the soil up too finely; the rougher it can be used in a moderate way the better will it be for the plants, as it will have to remain for some years. During the next few weeks would be an excellent time for planting out Lapagerias; the most can thus be made of the coming season's growth. Where several

are planted in one border, 2 feet should at least be allowed between each plant. Throughout the growing season, however, the syringe should be freely, but lightly used, whilst the shoots should be prevented from entwining themselves into one another, which they are much disposed to do. I am no believer in formal training; it is absurd to say the least. When a plant is once well established, none but the leaders will require tying in at all during the current season; it should rather be left until the flowering period has gone by. Then the weakly wood can be cut away to afford room for the stronger. Lapagerias are, I think, seen to better advantage when trained over wire arches, allowing the shoots to hang down, as they will do with their own weight when in flower. Plenty of water is required at the roots all through the season of growth, whilst at no time should the soil become too dry. Well established plants after a few years require additions made to the border, either by extension or the careful removal of inert soil, substituting fresh in its place. It is well known how partial slugs are to the young shoots; more plants are in this way injured than by any other means from insects. The best remedy of all is I consider that recommended in the "Dictionary of Gardening," wherein powdered glass is named. Wadding, oat chaff, or lime will also answer, but each needs more looking after than the glass. Of insects, white scale, thrips, and green-fly are all troublesome, but each may be coped with by remedies given in the calendars from time to time. Before planting out Lapagerias it is much the best plan to prove the variety unless the young plants are from a guaranteed stock. There are inferior forms of both the red and the white varieties; it is therefore quite needful to be on the safe side to save future disappointment and loss of time also. At times, young plants, if not thoroughly well rooted, will produce somewhat inferior flowers, but in these even it can be fairly well discerned whether the forms are good ones or not. Propagation is best effected by layers, using a sandy and peaty soil. Seedlings may afford some variation, but it is hardly possible to surpass in their way the best red and white varieties now in commerce. Those which have been raised by supposed or actual crossing of these two colours have not resulted in anything either astonishing or more desirable. The engraving that accompanies this is an example of first-rate culture of the white variety.

J. H.

Melocactus communis.—"G., Southampton," says, "I have got some plants of the Turk's-cap Cactus brought me by one of the West Indian boats; how am I to treat them? If these are of a large size, I would advise you to set them in a warm stove and keep them dry for a month; they will reveal any injuries that may have been sustained; but if they are of medium size, I would advise them to be potted at once in a mixture of loam and old mortar rubbish. The old plants may be treated in the same way if they come through all right, but should they develop sores, these should be cut out and rubbed with dry lime and charcoal dust. The above is the name of the plant. I do not think you will realise much for them. Cacti, unfortunately, do not appear to be much in favour just now with the public.—W."

Propagating *Luculia gratissima*.—A great many fail to propagate this beautiful flowering shrub by means of cuttings; in fact, if the plants have not been prepared for the purpose some little time before the cuttings are taken, they (as stated on p. 5) root with difficulty. Still, as plants raised in this manner flower in a smaller state than seedlings, they are in a general way preferred, and consequently in nurseries where they make a speciality of the *Luculia* extra pains are taken to obtain

suitable cuttings. The *Luculias* are usually seen planted out, and, as a rule, so treated they do not yield the best of cuttings, most of the young shoots being rather too gross for the purpose. The most successful way of increasing the *Luculia*, and in fact many other subjects that are difficult to strike from cuttings, is early in the spring, before growth recommences, to take the plant or plants into a temperature higher than that in which they have been grown, and consequently they start quickly into growth, while the shoots produced are naturally weaker than those formed in the ordinary way. It is these less vigorous shoots that make the best cuttings, and in the taking of them great care should be exercised, as, if once allowed to flag, the rooting is considerably retarded and many refuse to strike. To obviate this as far as possible, the pots for the reception of the cuttings should be prepared before they are separated from the parent plant, thus causing as little delay as possible. A compost consisting of peat, loam, and sand in about equal parts will suit the *Luculia*, and being dibbled firmly in and watered sufficiently to settle each cutting in its place, they should be at once removed to a close propagating case, if with a gentle bottom-heat all the better. Shading, occasional air-giving, the removal of any decaying leaves, in short the treatment usually given to cuttings must be followed, and with a little practice very satisfactory results can be attained.—H. P.

The Silver Wattle (*Acacia dealbata*).—This plant, a native of Australia, is, next to the curious and pretty *Acacia platyptera*, the earliest of this extensive genus to unfold its blossoms, and very beautiful indeed it is in this stage, while, in addition, the foliage is so ornamental as to render it attractive throughout the year. It is a free-growing species, quite a tree in fact, with finely divided foliage of a silvery tint. The masses of little golden balls have a remarkably pretty effect when associated with the delicate Fern-like foliage. Owing to its vigorous growth, this *Acacia* is not well suited for pot culture, but is seen at its best when planted out in a good-sized structure, and either allowed to assume its natural tree-like habit or employed for furnishing a large pillar, it will soon clothe it with a mass of handsome foliage. This *Acacia* is, in a cut state, a familiar object in the florists' shops of London throughout the winter, being sent to this country from the Riviera, where it is a common tree in gardens. The delicate foliage of this *Acacia* suffers a good deal in the neighbourhood of London from the heavy, sulphur-laden fogs that prevail during the winter months.—T.

Siphocampylos Humboldtianus.—The genus *Siphocampylos* is a very extensive one, but few members of it are to be met with at the present time, though the flowers of some of them are so bright and cheerful as to merit a greater share of attention than is now bestowed upon them. The species here noticed (*Humboldtianus*) is one of the best, and it forms a much-branched plant, clothed with rich green foliage, the flowers being freely borne on the points of the shoots. The blooms are tubular in shape and of a bright scarlet colour, with a rich yellow throat. The flowering season is spread over a lengthened period, often extending throughout the entire winter. This may be treated as a basket plant, and in this way, from the rather weak character of its flowering shoots, the blossoms are seen to great advantage. It is a native of Peru, from whence it was introduced in 1867, and succeeds best treated as an intermediate house plant. This *Siphocampylos* is, in common with other members of the genus, easily struck from cuttings in the spring, and the plants, propagated in this way, will, if grown on freely, flower well during the ensuing winter. After blooming, the plants may be cut back and grown on to flower another year.—H. P.

Jacobinia coccinea.—This is a very old plant in gardens, having been introduced into this country as long ago as 1770, but now-a-days, despite its beauty, it is very rarely met with. The genus *Jacobinia* has been separated from *Justicia*, by which generic name the plant in question was

formerly known, having been figured in the early days of the *Botanical Magazine* as *Justicia coccinea*. Like several of its allies, it forms a sparsely-branched, upright-growing plant, each shoot of which is terminated by a crowded head of blossoms. The individual flowers are large and of a brilliant scarlet colour. It is extremely showy when in bloom, and its value in this respect is still further enhanced by the fact that it flowers during the dull days of winter. This *Jacobinia*, in common with many other beautiful flowering *Acanthads*, is by no means difficult to propagate and grow, for cuttings strike root readily enough during the spring months, and the plants will grow freely with fairly liberal treatment. During the hot summer weather red spider must be especially guarded against, as if it gets a foothold the foliage is quickly and permanently injured.—T.

PERNETTYAS AS POT PLANTS.

TEN years since the *Pernettyas* in our gardens were represented only by the typical *P. mucronata* with its crimson-coloured berries, and some slight variations therefrom, but in the autumn of 1882 Mr. Davis, of Hillsborough, Co. Down, Ireland, exhibited at a meeting of the Royal Horticultural Society several very distinct varieties, some of which were dwarfer and more compact than we had hitherto been accustomed to see, while there was a great difference in the colour of the berries, which in these newer forms varied from white to almost black. A coloured plate of some of these varieties was given in *THE GARDEN*, May 26, 1883. Since that time these *Pernettyas* have been widely distributed, and the early encomiums passed upon them were more than justified, for not only have they proved decided acquisitions to our hardy shrubs, but they are also extremely useful for the decoration of the conservatory during the winter months, where their masses of different coloured berries form not only a pleasing feature, but one that retains its beauty for several months. Being perfectly hardy, these *Pernettyas* may be used for the decoration of corridors and other exposed places where more tender subjects would certainly suffer. When employed for this purpose they may be kept altogether in pots or planted out and lifted carefully in the autumn just as the berries are colouring. When kept altogether in pots it is very essential to keep them well supplied with water during the summer months, as their wig-like masses of roots are soon injured by drought. To obviate this as far as possible, a very good plan is to plunge the pots during the summer up to the rim in Cocoa-nut refuse, an open sunny spot being chosen for the purpose, as such a position is more favourable to the setting of the berries. Much the same remarks will apply where planted out, except that after they are lifted and carefully potted, a good plan is to keep them rather close in a cold frame till they recover from the removal. Should the weather be warm and dry, an occasional syringing will be of service in keeping the plants in good condition. When they are removed to the conservatory, the only attention needed will be to see that they do not suffer at any time from want of water, as any neglect in this way will soon show itself, and if the foliage, which is when healthy of a deep glossy green, becomes at all sickly, the beauty of the plant is at once gone. Propagation of these *Pernettyas* may often be effected by pulling a plant to pieces after the manner of a herbaceous subject, as with a little care in dividing, each portion will have some attendant roots. Layering is also available for the increase of the *Pernettya*, while seed ripens in quantity and germinates readily enough; but this last method cannot be depended upon to perpetuate with certainty any particular variety, for the progeny, as a rule, shows a considerable amount of variation.

In common with many of the *Ericaceæ*, the *Pernettyas* as outdoor shrubs will thrive in peat soil that is not parched up at any time, but it is by no means necessary to their well-doing, as in the matter of soils they are not at all particular, as I

have seen them thriving in clayey soils and also in gravel where moist, while in the different composts consisting largely of a vegetable nature they are just at home. In the case of heavy loam or anything of a clayey character, I prefer a liberal admixture of decayed leaf mould or peat before planting. T.

Iris reticulata in pots.—Where potted and just protected by a frame this *Iris* will flower earlier in the season than it will out of doors, and a very bright and cheerful object it forms in the conservatory at this season of the year. About half-a-dozen bulbs should be put into a pot 5 inches in diameter, as treated in this way they form effective little masses, and as it is not at all likely that the whole of the bulbs in one pot will flower at quite the same time, a succession is thus kept up if only for a short period. Besides this *Iris* there are several bulbs available for flowering under glass early in the season that are rarely used for the purpose, among others being the Siberian Squill (*Scilla sibirica*) and the two *Chionodoxas*, viz., *Luciliæ* and *sardensis*, while the Grape Hyacinths are also very pretty so treated.—T.

Musa Basjoo, or japonica.—I do not remember to have ever seen this offered for sale. When considering that the glaring bedding-out fashion has seen its day, and is making way for a style more harmonious to educated eyes, and how suitable this fine plant is for sub-tropical work, as well as for tropical effect in intermediate conservatories, it does seem strange. I can scarcely conceive anything more desirable than a hardy, or comparatively hardy *Musa*, and here we seem to have it, for undoubtedly fine-foliaged plants will be the taste of the future. Of course it cannot be expected that any member of this, the grandest family of herbaceous plants, will flourish without some attention to their requirements, the chief of which are complete shelter and rich soil. According to a correspondent in your columns a few weeks ago, there are several other species that would survive in a rather low temperature; scarcely one of these except *M. Ensete* (not one of the best) is to be found in any catalogue, while several requiring a high temperature and much room, and therefore only for the few, are in most of the large nursery establishments. Why are not these hardier species more readily obtainable? It seems they can be propagated with the greatest ease. Nurserymen appear to overlook many things that could not fail to be remunerative, were they put into commerce to meet the times at a moderate cost.—J. M., *Charmouth, Dorset*.

Nepenthes.—These should have the warmest position in the stove with plenty of atmospheric moisture; still the temperature should not, as a rule, fall below 60°; a few degrees above that will be a safer standard to follow. Where there are many grown I would advise the glass to be covered at night to avoid any chilling effect upon the plants, as most, if not all, will be near the glass if suspended, this being the best method of growing them. When the pitchers are of extra size the leaf often bends down from the base; in such cases a slender stick should be given as a support. Where thrips or red spider are troublesome, sponging in a careful manner should be done at once. If the plants are in teak baskets some of the old Moss might be taken out if the roots have not taken hold of it and fresh substituted, or the fresh could in some cases be added to the other with advantage. Plenty of water will still be required to keep the plants in a healthy condition. It is not advisable to attempt any propagating now unless there is a brisk bottom heat with plenty of top heat also. In such a case I would not hesitate to take off the tops of plants that are extra tall. To strike them, take a 2½-inch pot and make the bottom drainage-hole larger, then place the base of the cutting through this opening, the pot being bottom upwards, after which, pack in around the stem that is in the pot with *Sphagnum Moss* in a firm manner, dip it in tepid water, and then plunge in bottom heat in a propagating frame. The needful after-attention is only that of keeping the Moss in a moist state. When roots are

found working their way through the Moss, a small basket or pot must soon be thought about after the plant has been gradually taken off the bottom heat. For a few weeks afterwards it is the safer plan to keep the young plant in the propagating pit until fairly well rooted.—H. G.

KITCHEN GARDEN.

QUALITY IN POTATOES.

OUT of the very large number of varieties of Potatoes which have been introduced, very few certainly have been deemed worthy of general cultivation. As in other vegetables, quality is of supreme importance, although in the case of Potatoes this does not warrant general cultivation, as there are other features to be reckoned with. First and foremost is their power of withstanding disease, at least to such an extent as to make them worthy of cultivation. Probably there is no variety which is not liable to be attacked, for although it may be quite free from disease for one season it may the next be of very little value. This being the case, we are apt to a certain extent to overlook quality where a variety will prove of sufficient hardness to combat successfully the prevailing malady. Seasons like the past show the weak points of many of the varieties which are periodically introduced.

As is well known, a fine shaped tuber is no criterion that the quality will be equally good, for I wonder how many have gone out of cultivation since the time when the international exhibitions in support of the Potato were annually held. No doubt "A. D." could give us the surest information on this point. It is perfectly true that the Potato is of the easiest culture, but yet the tubers in many instances may be practically useless except for cattle feeding, the quality being so poor. As is well known, the character of the soil as well as the season have a great influence upon the quality of the Potato.

Many a young man upon entering, say, his first situation of importance, and who may have had but little experience in the selection of varieties, is apt to rely upon some of the much-puffed novelties, very often with the result that, as far as quality is concerned, they are useless. I agree with the observations of Mr. E. Burrell that he would like to see notes from different parts of the country, giving a selection of four varieties found most serviceable in the respective localities, and, I would add, notes as to soil might also be given, for this makes all the difference with many varieties. You cannot gauge the value of a variety in an ideal Potato season, for it is well known that many of the tenderest varieties of only second-rate quality in ordinary seasons really come of very good table quality. This is particularly noticeable on heavy cold soils, for it is upon such as these that the greatest divergencies are known to exist. If growers relied more upon the first earlies to carry them through the greater part of the summer, there would not be so many complaints as to the table quality. Upon our heavy cold soil I have the greatest faith in the Ashleaf section. Veitch's Ashleaf and Rivers' Royal Ashleaf have done me good service in the past, and I shall continue to rely upon them. No other varieties crop better with me. The greatest mistake is in leaving them in the ground after the haulm has fallen over. Sharpe's Victor has come very much to the fore during the past year or two, but its value lies in its coming quickly to maturity either when used for forcing or early

border work, but it cannot be compared with the Ashleaf for quality. Such being the case, it would be a great mistake to plant this variety solely as a first early simply because it is much lauded as being early.

I was pleased to see the favourable comments upon Covent Garden Perfection, a variety which has now been before the public for the past fourteen or fifteen years. I have not grown it during the past few years, but I have a vivid recollection of its good qualities after the memorable wet season of 1879, and the favourable remarks of both Mr. Wythes and Mr. Burrell appear to establish its reputation as a wet season variety, a sure criterion that it will be equally good, if not better, during a more favourable Potato year. According to the analysis of the Potato, phosphates and potash, the latter particularly predominate, this plainly showing that the above elements must be present in sufficient quantity if Potatoes of good table quality are expected. They may be present in sufficient quantity on heavy cold soils, and which only require drainage and good cultivation to ensure good results; and yet on light soils in some districts, or even worked-out soils, potash and phosphates may be so deficient as to make the crop very poor. Manuring in these cases is the panacea to ensure both good crops and also tubers of good table quality. If a variety does not come up to good table quality, either the soil naturally does not suit it, or the quality is so poor that the variety is not worth growing. Perfect immunity from disease would certainly be a good trait, but if good quality is absent, then the variety must necessarily be considered only second-rate.

Want of proper storage space is often the cause of the later varieties deteriorating. As a rule Potatoes are only pitted from convenience or for the want of a better storage, although I believe many people pit them, being of the opinion that the tubers are more likely to become of better quality by so doing. This surely is a very erroneous opinion. It is a rough and ready method at the best, and should only be resorted to in extreme cases. I have often noticed that by cooking the tubers as they are taken from the pit at intervals of a few days, the quality is not nearly so good as when kept in a dry store for two or three weeks before being used. Some soils are so good naturally for the bringing out of any good qualities, that whatever method of storage is adopted in reason there would be little if any fault found with many varieties which are at present looked upon as second rate. Gardeners are not like growers for market, who can select the soil to suit their crops, as very often they are called upon to produce tubers of good quality upon very indifferent soils. This being the case, varieties of proved merit should only be grown.

A. Y. A.

HORSERADISH.

PASSING through Covent Garden Market a day or two since, I noticed at one of the stores a huge tub of Horseradish partially emptied of its contents. It was one of those huge tubs or casks similar to what used to be employed to import sugar in, and this one when full of the Horseradish weighed probably 6 cwt. The contents had evidently been a long time packed, for growth from 4 inches to 6 inches long had been made from the crowns. The sticks or roots were tied up in bundles of about a score each. I inquired from whence this Horseradish came, and was informed that it was an importation from Germany. That was rather surprising news to me, though it would seem as if everything possible was imported here from abroad and sold in Covent Garden. I fear had the market to depend at this time of the year

upon what Great Britain could produce, it would present a very meagre aspect. But it does seem strange that such a hardy and easily grown root as Horseradish should be imported from so distant a place as Germany. Perhaps the carriage rates are very trifling after all, but it is hard to understand why we cannot grow at home all that is needed for public use, and more. If we cannot compete with other countries in the production of many things, at least we can grow Horseradish as well as any other nation can, and we have tens of thousands of acres of land which will, if properly cultivated, produce first-rate Horseradish, Seakale, Asparagus, Rhubarb, or other root crops. The cultivation of Horseradish is well done, as a rule, in good gardens, but too often indifferently. If we would utilise the ground to the utmost, it must first be, if needed, thoroughly cleansed of all perennial weeds and be deeply trenched, a heavy dressing of manure being given as the trenching proceeds. When the ground is fairly settled down, then it can be planted with root cuttings, made pretty much as root cuttings of Seakale are made, and dibbled in deeply, so that when growth follows, the stem shall be about 12 inches in length. Their ultimate size at the close of the autumn would be contingent upon the quality of the soil and the way in which it has been kept free from weeds. If the rows be from 15 inches to 18 inches apart, and the roots in the rows from 9 inches to 10 inches apart, there will be ample room for leaf development, and very soon that will so extend as to entirely cover the soil and choke any weeds that may attempt to grow. The getting out of Horseradish in a systematic way necessitates deep moving of the ground again, so that it is when properly cleansed from the roots in a capital condition for other and very diverse crops. It is only by very systematic culture that good supplies for the market can be obtained. Of course, the demand does not bear any resemblance to what is seen in the case of Seakale roots, but the culture must be as careful and as regular. Roots are of ample size for all ordinary purposes if they are when lifted of the size round of a man's thumb. Those which I saw of German growth were very good, but better might easily be produced here. It is all a question of ordinary garden enterprise. Horseradish is remarkably tenacious, and the smallest pieces of roots left in the ground will assuredly make growth. Somehow, therefore, it is important that the cultivation should be of the best, because stout, well-grown roots are far more easily cleared from the ground than are weakly ones.

A. D.

MUSHROOM EXPERIENCES.

THERE is much that is worrying, much that is interesting, and much that is exciting in Mushroom culture, every season bringing some fresh experiences to light; that is to say, there is always something fresh to be learnt. It has long been my impression that we attach far too much importance to a few stereotyped rules, and I believe that more failures occur from trying to follow certain hard-and-fast lines than from any other causes, over-anxiety being the bane of many Mushroom growers. As it happens, what, according to the best authorities, should prove the most profitable beds not unfrequently compare badly with others that according to the same rules should have been failures. Late in September we spawned a bed over which much pains had been bestowed in the preparation, and the conditions were all in favour of success. There was a good heat in the bed, the temperature at spawning time being about 80°, this increasing slightly after the soiling was completed three days later on. The heat also kept up admirably, and I felt confident of a good and early supply of Mushrooms. As a matter of fact, the greater portion of this bed is only just coming into bearing, and the crop will be a very serviceable, though not a heavy one. No blame could be attached to the spawn, and the heating material was also well suited to the production of Mushrooms. That such was the case was evinced by the fact that a portion of the bed, to a length of 3 feet, connected at the end with an old Mush-

room bed, was eventually found to be overrun by mycelium from the latter, a thick crop of Mushrooms soon after coming up. The conclusion I have arrived at is that I was in too great a hurry to spawn the bed, this further convincing me that it would in very many cases be better to spend another week or even more in the preparation of the material for the beds rather than to risk putting it together before decay is well advanced. The manure must be thoroughly sweetened and decay be steady and constant, not merely to generate heat, but rather to provide a congenial home for the fungus spores. It does not in the least matter if the heat of the bed, after it is put together, does not reach 70° even, as I have frequently had excellent crops from apparently exhausted manure. A gentle heat and a constant decay answer far better than a much higher temperature with the most probable loss of moisture to an injurious extent, a mass of dry manure being altogether unfavourable for the growth of Mushrooms.

This deduction can be supported by further experience gained during the present season. In order to have a good succession of Mushrooms, another large bed was formed early in October, and found to be in a fit condition for spawning about a week later. Two-thirds of the bed or a length 14 feet by 4 feet was spawned and duly soiled over. The remaining portion was reserved and not spawned till ten days later, or October 17, there being a gentle heat in the bed at the time. With a view to test the correctness of other theories that I had imbibed, soiling over this late spawned length of bed was delayed for fully three weeks, but I was not prepared for the result. In about a fortnight after the soiling was completed that late-spawned part of the bed was white with tiny Mushrooms, and we commenced pulling on November 21, or exactly six weeks from the date of spawning. Nothing very remarkable about that, will be the thought that will occur to many of my readers, Mushroom beds frequently coming into bearing more quickly than that; but who would expect that the first spawned and presumably most correctly treated part of the bed should be fully a fortnight later in yielding? Yet so it was. In the course of a fortnight we pulled 18 lbs. of medium-sized to small Mushrooms from the late-spawned, late-soiled portion of bed, and not less than 6 lbs. since, more still showing. They came up too thickly in fact, but luckily rather small Mushrooms are preferred in the establishment I serve, though, from a market grower's point of view, heavier produce is preferable. The first-spawned part of the successional bed has also been a marked success, and in connection with this I have had another rather unusual, though not particularly agreeable experience. It was formed on a staging raised 6 feet from the floor, the former being to all appearance as strong as ever; but there was a weak spot in the bearing and a width of staging and bed 4 feet square fell in soon after spawning was completed. Repairing this breakdown without greatly disturbing the rest of the bed was out of the question, and all that could be done was to make the rest secure. We thus had two exposed ends, and from these I have gathered a capital lot of Mushrooms, which were produced almost down to the boards. That decaying manure is capable of producing Mushrooms freely without the aid of soil is no novel experience, but the knowledge of the possibility of this is not often turned to good account. We are, as a class, too content to move in old grooves, especially in the matter of Mushroom growing. Not only would what might be termed ridge and furrow beds give a greater surface of Mushroom-bearing space, but it is quite possible to crop raised beds both at the fronts and underneath. Instead of forming the fronts and bottoms of the stages of boards or bricks, strong iron diagonal gratings could be substituted, and the beds being spawned much more deeply than commonly done, a crop might be had below and above, and also at the fronts or open sides, as the case may be. The mycelium naturally has an upward tendency, but it also spreads in other directions. Any way, experiments might be tried by those in a position to indulge in them to demon-

strate or disprove the correctness of my assertions. I must in all fairness add that the idea of having open iron gratings and fronts did not originate with me, but is actually in full operation in a well-managed garden near Bristol. It would also be interesting to learn if others besides myself have accidentally or designedly delayed either spawning or soiling to an unusual length, and the result.

I have frequently pointed out in these pages how unwise it is to be daily syringing beds either wanted to yield Mushrooms or in full bearing condition. If the manure underneath is not in a very dry state, but, on the contrary, is slowly decaying, dryness of soil will not prevent the growth of Mushrooms; whereas a saturated soil and frequently syringing them quickly reduce it to that state, and are soon fatal. When too much moisture is applied the tiny Mushrooms, or any not larger than marbles, soon become soft and brown, decay being rapid. The daily damping down of heated houses and even occasional overhead syringings are beneficial rather than otherwise, but beware of the reckless daily showers. By avoiding daily syringing and the use of a knife, we have scarcely lost a dozen Mushrooms from premature decay this season, and that is saying a good deal. Cutting Mushrooms and leaving the stumps is a most unwise proceeding, and so also is the plan of twisting off the largest in a clump with the idea that the rest will attain a much greater size if left. Single Mushrooms ought to be twisted clean out of the soil and large clumps scooped out, stems and root together, the comparatively large holes left being filled with fresh soil. Leaving either small or large stumps in the soil is quickly followed by the decay of the latter, the fungoid growth thus generated ruining all the Mushrooms it comes into contact with as well as poisoning the soil. It looks a rather wasteful proceeding, removing a mass of Mushrooms both large and small together, but it is the safest and most economical practice in the end, and besides "buttons" are fully appreciated by cooks. Beds thus intelligently treated are not quickly exhausted, as if when apparently so, they are given a soaking of warm water impregnated with salt they will soon push up good late supplies of Mushrooms.

W. I.

NOVELTIES IN VEGETABLES.

"A. Y. A." in discoursing on the above subject does well to remark on vendors' catalogues, as really according to some of them there is nothing in the vegetable way they have not an improved form of. Some of the compilers do not even stop there, but claim the good things outright by calling them theirs, as, for instance, in Peas, Ne plus Ultra, and the same all through in the case of the best standard varieties. Now this causes much perplexity and confusion among the inexperienced or uninitiated, who are often misled. As to novelties and new things, it would be much better for the general public if all were sent to Chiswick to be subjected to fair trial and report, as then all the good ones would come to the front and fat catalogues would grow thin, which would certainly be a great benefit to purchasers, if not to vendors. That vegetables have been improved of late years everyone must admit, and it is to be hoped that the same thing will go on, although some kinds appear as near perfection as it is possible to get them. "A. Y. A." mentions a good many sorts that he says have been improved, but he does not give the names of those he considers superior to the older types. Take Cabbages for instance, and with them he simply remarks that everyone must admit that they can be cut or got in earlier now than formerly, and if this is so, it would have been helpful to many if he had mentioned the kind that hearts in so quickly. With early Peas again it is the same, and if he can recommend one earlier than Dillstone's, and better or as good, I should like to know which it is. The dwarf varieties are a gain, and some of

them, one of which is Chelsea Gem, seem to have a little of the Marrow blood or breed in them, and we must, I think, be satisfied with that little, as Marrow Peas will never do for early sowing, at least not outdoors. I doubt, however, if dwarf Peas are as profitable as the taller kinds, except in the matter of sticks being saved, as they only yield in proportion to the height of the haulm, and picking is soon over. In Peas we have by far too many kinds, and they sadly want weeding down, as fully half might with great advantage be eliminated. Here, when once we begin sowing Ne plus Ultra, we grow no others, as, taken all in all, for free cropping, well filling, fine colour, rich flavour, hardness of constitution, and freedom from mildew, it is, in my opinion, unrivalled. As to Cabbage Lettuce taking the place of Cos, I do not think salad-eaters will ever use the former if they can obtain the latter, as Cabbage Lettuces are of such soft texture, and never have that crispness and flavour that the best of the Cos kinds possess. Although this is so, Cabbage Lettuces are extremely valuable for frame work or forcing, but in spring nothing can equal a Bath Brown Cos that has stood through the winter. I was much surprised to read that "A. Y. A." should say that Sandringham Dwarf White Celery had had its day, as I regard this as one of the very best, if not the best, and am of opinion that the tall Celeries are not desirable, as they require so much earthing to blanch and protect the tops from frost, and when dug for use they compare badly as to length of stem with the dwarf kinds when one considers the extra trouble they give. Perhaps "A. Y. A." will give the name or names of the kinds he thinks so superior, and which, though early, keep so late in the season. The Chiswick trials settled the matter of Tomatoes pretty much for us, and those of the Perfection type are acknowledged to be the best sorts to grow. With regard to Onions for garden or kitchen use, three sorts are quite sufficient; the Reading for autumn or early winter use, James's Keeping for late, and Deptford for summer. S. D.

GARDEN FLORA.

PLATE 840.

CARNATION KETTON ROSE.*

THE accompanying plate shows well the beauty of this fine Carnation. It was one of the kinds brought out by THE GARDEN trial of Carnations in 1888, and whilst receiving the premier award in its class, it was certainly the best out of nearly 100 sorts, selfs of all shades, and striped kinds as well, sent in for the competition. The origin of this fine Carnation is obscure or unknown. When Mr. W. H. Divers went to Ketton Hall as gardener, he found one or two plants of it growing in a border, but they had no name. He recognised its worth, propagated it extensively, and grew it in quantity, finding it of the greatest value for cutting, and effective and useful for massing in the flower garden. The kind remained in his hands until the announcement of THE GARDEN competition, in accordance with the terms of which six plants were sent and planted in October in

* Drawn for THE GARDEN by H. G. Moon at Gravetye Manor. Lithographed and printed by Guillaume Severeys.



CARNATION (DIPLOMATA) F. & M.

the open ground, where they remained all the winter, grew vigorously in spring, and flowered well and continuously in a summer remarkable for its coldness and wetness, and the rotting alike of buds and flowers upon some of the best kinds in the flower garden. It was sent in under the name of *Fride of Ketton*, but this name was afterwards altered to *Ketton Rose*, which it was thought would help to express and indicate the colour of the kind. All the necessary good qualities desirable in a garden Carnation are found in *Ketton Rose*. It is a strong grower, producing plenty of healthy grass; the flowers are large and bold, clear and bright in colour, and last, but by no means least, they do not burst. *Ketton Rose* is the perfection alike of form and colour. There is still room for more such good Carnations in many bright or soft self or harmonious hues. The popularity of the Carnation is yearly increasing, and in the near future, if not at present, hundreds will cultivate it for the sake of its beauty and fragrance, apart from any desire for exhibiting.

A. H.

SERVICEABLE FLOWERS.

THERE are a great many flowers cultivated under glass that are well worthy of the trouble taken with them, but the really serviceable kinds are by no means numerous. What is principally wanted now-a-days are flowers that will travel well and also keep fresh for some time in a cut state; but the list of these might be added to with advantage. In the autumn and early winter months we have to largely depend upon *Chrysanthemums*, and there is sufficient variety in these to please most tastes. Yet there is such a thing as having too much of the *Chrysanthemum*, and especially the heavy specimen blooms; and gardeners will do well to turn their attention more to the growth of the smaller varieties, including pompons. Those two excellent late reflexed sorts *Golden Gem* and *Boule de Neige* ought to be more grown for the midwinter displays, even if at the expense of larger forms. By way of affording a relief to *Chrysanthemums*, it is advisable to grow a considerable number of zonal *Pelargoniums*, both single and double flowering. The former are particularly serviceable for vases and table decoration up to Christmas, while the semi-doubles, notably *Guillon Mangilli*, *F. V. Raspail*, *Earl of Beaconsfield*, *James Vick*, *La Cygne*, *Heroine*, *Bruant*, and *Mme. Thibaut*, can be had in bloom all the year round. In many cases a warm, airy house might with advantage be devoted principally or solely to the semi-doubles, these affording abundance of serviceable flowers, especially in February, March, and April. Vases filled with one colour of these and forced *Spirea japonica* are bright and attractive, and in passing I might add that the *Spirea* just named cannot well be grown too extensively, the foliage, as well as the flowers, being serviceable. The same remarks apply to the *Lily of the Valley*. *Roman Hyacinths*, again, are very easily forced, it being possible to keep up a succession of bloom from November to March inclusive. Hundreds and thousands of these might well be grown where cut flowers are in great demand, but I have no great liking for the large-flowering double and single *Hyacinths*. The *Polyanthus Narcissi* are also serviceable for pot culture, none so much so, perhaps, as the *Paper-white*. *Freesias* (notably *F. refracta alba*), again, though less well known, are decidedly serviceable, and what adds to their value is the fact of the pots of bulbs increasing in value and usefulness the longer they are kept. These will eventually become as common and popular as *Roman Hyacinths*, or, it may be, more so, as the latter have to be replaced at a considerable expense every year. Of other

deciduous bulbous-rooted plants, *Lachenalias* must not be omitted. They are not so generally admired as many of the preceding kinds are, but they are decidedly serviceable. The flowers travel well and keep fresh in a cut state for several days. Some of the best are *L. Nelsoni*, *aurea*, *tricolor*, and *luteola*.

Few now-a-days attach any value to *Camellias* other than the old *alba plena* or any other good white variety, and these are principally in favour with florists who have a good demand for wreaths and crosses. *Azaleas* are better appreciated, though these are of little or no value for packing; but the single and double white varieties are invaluable for home use. The beautiful and very sweet-scented hybrid *Rhododendrons* are also bad travellers, and it is worthy of note that very few flowers that have to be cut with a hard stem, or length of ripened wood, ever last well in a cut state. This is the case with the hardy *Rhododendrons*, whether flowered under glass or otherwise, and the equally gorgeous forced deciduous *Azaleas* are really anything but serviceable. *Lilacs* keep fairly well for a few hours, the pure white forms being of the greatest value. A fairly good substitute for the latter will be found in one of the *Bladder Nuts*, *Staphylea colchica*, this forcing readily, and lasting for two or three days in a cut state. The same plants may be flowered for several years in succession, and this cannot be said of *Lilacs*. Of the various hardy, or nearly hardy shrubs and plants that are amenable to forcing, none can be said to rival *Roses*, and of these the *Teas* and *Noisettes* are by far the most serviceable. The Hybrid *Perpetuals* can be flowered well in pots, but they only give one crop of bloom each spring, and the blooms soon lose colour and fall. One noteworthy exception to this rule is found in *La France*. The *Teas* are almost continuous bloomers when planted out under glass, and those in pots will, under favourable circumstances, flower freely late in the autumn, and again in February onwards. Of the value of the *Noisette Maréchal Niel* little need be said, its good qualities being too well known; but unfortunately it is somewhat fickle, strong trees collapsing quite unexpectedly at times.

Of greenhouse plants, the most prominent place must be given the Carnation. More serviceable flowers than these could not well be grown, and I can quite see the force of building houses principally or solely for their culture. Many such are now to be met with, light airy structures suiting them well. The perpetual flowering varieties yield blooms throughout the late autumn, winter and spring months, and these are available and much sought after for a variety of purposes. There is now quite a rage for the *Souvenir de la Malmaison*, this being the most fashionable of all Carnations, and just coming well into flower. A few dozen plants are thought nothing of, and I could name many private places where the stock consists of from 1000 to 5000 plants, these filling one or more houses specially designed for them. Unfortunately, Carnations generally, and the *Malmaison* in particular, are liable to be overrun by a deadly fungus, with which in not a few places it has been found impossible to cope. There is a wide difference between Carnations and Arums, or, more properly speaking, *Calla* (*Richardia*) *athiopica*, but the latter is also a very profitable and serviceable flower. It is effective in groups of pot plants, and is a noble vase flower. It is a comparatively easy matter to have it in bloom from Christmas to long after Easter. *Imantophyllum*, notably *I. minimum* and varieties, are also very serviceable warm greenhouse plants, and very gay in their season. Strong plants produce a fairly long succession of flower-scapes, the masses of orange-red flowers being very effective in vases or otherwise. They are worthy of more extended culture than is at present accorded them. *Cinerarias* and *Calceolarias* are very showy pot plants, but of no value whatever in a cut state, the same remarks applying to the single Chinese *Primulas*, but the old semi-double white form of the latter ranks among the most serviceable plants that can be grown. *Persian Cyclamens* are also serviceable, the flowers travelling well, and in small glasses, mixed with elegant greenery, are very effective.

Among heat-loving plants the first position may well be given to the *Eucharis*, including the old *E. amazonica* and the newer *E. candida* and *E. Sanderi*. Where there is a good batch of healthy plants there are nearly always a few or many flowers available, and these can be put to a variety of uses. *Pancratium elegans* is less valuable in some respects, and more so in others. It requires very similar treatment, and the beautifully white sweet-scented and very elegant flowers are largely used in bouquets, wreaths and vases. *Stephanotis floribunda* is omitted from very few collections of plants, but it cannot be said to be particularly serviceable. *Dipladenias* and *Allamandas*, if trained to the rafters, yield large numbers of flowers, and in the autumn they are of good service for table decoration. *Ixoras* are less often met with, but they can be made to flower almost continuously, and their bright orange-red flowers are very effective in a cut state. *Bouvardias* require less heat than *Ixoras*, and are more serviceable. Fewer *Gardenias* are grown than formerly. They require to be kept very clean, must have a strong heat, and the flowers do not travel particularly well. *Euphorbia jacquiniæflora* is both an old favourite and a most desirable stove plant. It produces grand branches, closely furnished with small scarlet flowers, which last remarkably well on the plant or in a cut state. *Bougainvillea glabra* is usually grown in plant stoves, but if given a place in a warm greenhouse or conservatory the flowers would be of a richer colour and more serviceable. Orchids are nearly all serviceable.—*Field*.

TREES AND SHRUBS.

EVERGREEN OLEASTERS.

(ELEAGNUS.)

It is singular that these shrubs should be so much neglected. At the present time they are in full beauty of leaf, for, although distinct and pretty at all times, it is in the depth of winter that the richness of their leafage appears most conspicuous, and a bold bush or group of bushes becomes quite a feature. In nurseries, as well as gardens, Oleasters are scarce; therefore garden planters have little opportunity of seeing them, and it is only the few that are conversant with shrubs that know and grow them. The best kinds come from Japan, but, in common with many other plants from that country, they are not tender, as many erroneously suppose. They are as hardy as the Laurel, which, as is well known, is rarely injured, and their foliage retains its freshness often when Laurel leaves are browned, as the leaves of these Oleasters in texture almost equal those of the Holly.

At Kew, and again in Battersea Park, there are a few specimens, from which one can gather a faint idea of what a pretty feature these Oleasters would make if planted in groups. They must not be crowded in among other things, but in an isolated group the bushes have room to spread, and they grow out into wide, but dense round masses, and from their centres throw up long, wand-like shoots, which are densely coated with a brown, scale-like covering, and greatly enhance the graceful appearance of the bushes. The leaves of all except the variegated kinds are of a deep rich green above, but some have their under surfaces of a pretty silvery colour, and others have the brown scale-like covering above referred to as clothing the young shoots, both being charms that contribute to the exceeding beauty of a mass.

The few nurserymen that have these Oleasters and include them in their catalogues do not seem to have a uniform nomenclature, and a plant obtained under one name in one place is,

unfortunately, something entirely different under the same name in another place. This, however, is but one result of neglect, and if an interest in the family were awakened, and the best members of it were in demand for planting, uniformity of naming would soon be established. With the nurseryman it is a matter of supplying that which is in demand; and, if Oleasters are rarely asked for, he is hardly likely to take much trouble regarding them, even to the extent of verifying the names of the few he may happen to have in stock. The following remarks upon some of the varieties may be serviceable:—

E. MACROPHYLLA is perhaps one of the finest species; it has a vigorous habit of growth, dense and spreading, and remarkably handsome foliage, the leaves being thick in texture, 4 inches long, and about 3 inches broad in their widest part, of a shining green above and silvery beneath. This kind is a native of Japan, where it abounds in districts near to the seashore, and, therefore, as a fine evergreen shrub for maritime gardens in England, it has an additional value.

E. GLABRA is a magnificent species, also hailing from Japan. A fine bush of this species is handsome. There is also a very pretty variegated form in cultivation, the broad leaves being distinctly margined with pale yellow. Of this and other variegated kinds in the same family, it may be said that they are very ornamental, being decided and constant in their varied colouring, and fit to associate with the normal green-leaved types, as are the Gold and Silver Hollies with the green kinds from which they originated.

E. REFLEXA is another distinct kind, with characteristics, as implied by the name. As the bush grows and spreads outwards, the older branches reflex from the centre and make room for the long, vigorous, but gracefully slender shoots which annually appear. These have been mentioned above, but in this particular variety they are produced most freely, and lovely they look protruding from the mass of old rich leafage. A variegated variety of this also exists.

E. SIMONI is a distinct kind, a handsome and very free grower, having the appearance of a dense dwarf evergreen Oak, the leaves in size, shape, and colour much resembling those of that tree, but with a decided silvery tint to their under surfaces.

E. PUNGENS is a distinct kind, with smooth leaves of a shining green above and silvery beneath, whilst a variegated form of it is also very pretty. The flowers of all these species are scarcely ornamental, but there is one kind whose flowers are succeeded by berries which are considered edible. The name of this kind is

E. LONGIPES EDULIS.—The fruits are like oval berries. They have long stalks, and are of an orange-red colour, speckled with white. The flavour is somewhat similar to that of Red Currants, but rather more acid. This kind is a native of Japan.

These shrubs grow best in soils that are rather light, but otherwise they have no particular requirements, and it is certain that they would thrive in many gardens where now they cannot be found.—*Field*.

Trained and untrained Irish Yews.—It is very uncommon to meet with good examples of the Irish Yew that have had their own way and been allowed to grow naturally from the time that they were first planted, and yet such are much more beautiful than those so severely tied in till they become almost like a magnified sugar cone so far as regularity of form is concerned. It is inconceivable why anyone should need or want to train a tree that has by nature an erect or fastigate habit of growth. An untrained Irish Yew is very picturesque, and the prevailing fashion of tying it is ridiculous. I was never so much impressed with this as recently, when in an old garden I saw a long line

of very fine specimens beside a walk, standing like grim sentinels on guard, each as prim and as much like its neighbour as hand of man could make them. A few yards beyond these, standing simply upon the Grass, were about a dozen splendid trees that apparently had never had the slightest training, and the contrast was so great and showed so plainly the greater beauty of the untrained trees, that I could not help admiring them. They afforded a fine example of "what not to do." If the Irish Yew was planted in a group, where each specimen stood at a distance admitting of free growth, and upon a spot backed up by branching deciduous trees, we should ultimately get an effect far surpassing that produced by rows of trees set up like ninepins, or single cones dotted here and there upon the lawn good examples of a ridiculous practice, telling of energy and labour sadly misapplied. A. H., in *Field*.

The Golden Privet for an edging. I feel sure many proprietors would have more pleasure in their gardens and become more attached to them by having beautiful and choice collections of shrubs arranged for effect with forms and colours always pleasing and graceful when not disfigured with shears or with a hedge-knife or other weapon often used to cut graceful plants into forms offensive to refined taste. Among golden plants for edging I have seen nothing to surpass the beautiful Golden Privet; it can be kept dwarf, formal, or informal, and be always very effective. As an example, take a circular bed, plant in it such shrubs as *Retinosporas* of sorts, *Cupressus*, *Hollies* (golden and green), round-leaved *Laurels*, a few *Rhododendrons*, with some others, allowing proportionate numbers of each standing clear and distinct from each other; over the whole surface plant a carpet of *Berberis* (*Mahonia*) to be kept a foot or so high and plant an edging of variegated Privet all round, peg it down and keep the plants dense with the knife, and a picture may be formed, which would be admired. The older the shrubs grew their interest would increase.—M. T.

Lifting shrubs.—It is common enough to lift fruit trees when their growth is gross with the view of inducing them to keep within limited space and to ripen their wood thoroughly, thus causing a fruitful habit. It is not so common, however, to treat in this way ornamental shrubs and trees to save labour in pruning them, causing a hardy constitution, and thus enabling the plants to stand low temperatures, which they cannot do when their growth is gross and their wood unripened. Flowering shrubs may often be induced to bloom freely by lifting or otherwise checking "water-pumping" roots, which only give wood and leaves minus flowers. When abundance of fibre is formed near the surface the best results may be expected. Plants established in gravelly soil seldom require any check to cause a fibry growth of roots; they are, indeed, often benefited by good surface-dressings of well rotted manure. A number of choice *Rhododendrons* which we get to flower very freely every year are planted in poor gravelly soil in a mixture of loam, well-rotted leaves and a small portion of peat. They keep to the height and width required, and are much benefited by a top-dressing every other year of rotten manure neatly forked into the surface of the soil.—M. T.

PLEASURE GROUND WORK.

THE time that intervenes between the final leaf-clearing and the commencement of the mowing season (some two months out of the twelve) is the only time, if grounds are extensive and labour somewhat scarce, that can be spared for any special work in the pleasure ground, for the new year is generally a week or two old before the last of the autumn foliage is consigned to its final resting place, and with the first appearance of brooms on lawns to prepare for scythe and machine, all extra or special work is at an end. Naturally, if one department has to go to the wall, it must be the pleasure ground; for all work here, whether it be the daily routine of sweeping, raking, mowing, shrub-cutting for ten months out of twelve, and

a little in the way of special improvements to fill up the remaining time, has not much to show for time and labour expended, and unremunerative labour in these days of garden economy is not regarded in a favourable light. "Let decaying leaves lie, and lawn grass grow twice its usual length," was a bit of advice given some years back, but I fear the majority of gardeners would hear a few remarks not conducive either to their advantage or their peace of mind if such advice were acted on. I apologise for the digression, but it has arisen from the desire to show that, however anxious the gardener may be to effect pleasure ground improvement on a somewhat extensive scale, he has great difficulty in so doing if the grounds are large and the staff limited. From now until the middle of March is, as I have said, about the only time in the year at his disposal, and if special work is contemplated, it should be pushed forward at once. New planting operations in this department will, roughly speaking, come under one of two heads, viz.: the substitution of flowering plants where there is already a preponderance of evergreen or *vice versa*, the class of plants in each case depending on the taste of the owner, the character of the soil, and the average meteorological influences, as shown by both the wet and dry bulb thermometers. These matters are important factors towards successful planting, for as it is absurd to invest heavily in, let us say, American plants if the natural soil is totally unsuited to them, so it is equally absurd to make no distinction between the requirements of the humid south-west corner of our island and the drier and colder north and north midlands. Even with the commonest of plants the same rule holds good, as may be evinced from the fact that while in one place *Rhododendron ponticum* makes a splendid covert and carpet plant under forest trees, in another it will but drag on a miserable existence and refuse to cover the ground. Mention of covert plants reminds one that the question of a restriction in the height of such things as the common *Rhododendron* and *Laurel* is often required, where, from some cause or other, they have been allowed to attain a great size, and are quite out of reach for an annual shortening of growth. I have before pointed out that instead of cutting clean away to the required height, thereby leaving for some two or three seasons a lot of unsightly patches of bare ground, the better way is to start at one end of the quarter, and, working regularly through it, to cut all big old stems partially through, and bring them gently and carefully to the ground. They are thus retained to add to the density of the covert, the stem below the cut doing its part by breaking away strongly. This will require cutting back after the first season, but the growth on the old lowered stems, checked by the partial severance, will make little headway for two or three years. If the above operation is carefully performed, no break nor gap will be perceptible in the quarter when it is finished, the only difference being a restriction in the height and the opening up of some nice peeps over the foliage provided for in the original planting, but blocked out by the tall Evergreens and possibly forgotten. The work above-named is naturally most often performed on the class of Evergreens mentioned where they form an undergrowth under forest trees in situations not adapted for choicer plants. In many of our old-fashioned pleasure grounds, however, there still exist some relics of a generation past and gone in the shape of large quarters of *Laurel* and common *Rhododendron* in the open glades, planted possibly with the idea of keeping them severely clipped on all sides to present from certain given prominent points an unbroken square of dense foliage. Why this could not have been effected as easily and much more naturally with Grass is a question arising from modern tastes, and hence it is that the majority of such breaks are condemned, to be replaced by Grass or by choicer flowering shrubs, deciduous and evergreen. The work of removal and subsequent preparation of ground is not an easy or quickly effected task, and it is well not to attempt too much in the one season. When all stumps and

roots are cleared out a commencement may be made at the one end, and the quarter trenched or bastard-trenched as the nature of the soil demands, working in as the task progresses a good coating of half-decayed leaves or vegetable refuse, and if this is allowed to lie through the summer it will settle down and be in good trim for early autumn planting. The question of what to plant in such situations has been often answered in the pages of *THE GARDEN*, and valuable suggestions made as to the various classes of plants suitable for all soils and situations. It is, therefore, hardly necessary to enter into any detailed list; if there are various spots to be so planted in different parts of the pleasure ground, each block or quarter may be devoted to a different class of subjects; thus, deciduous and evergreen flowering shrubs in one place, the smaller ornamental Coniferae and tree-like shrubs, as the best of the Magnolias, Mespilus, the largest of the Spiraeas, with perhaps an undergrowth of St. John's Wort, at another spot, whilst (where they are likely to flourish) a collection of American plants, with a foreground of the hardy Heaths, may find a home at yet another place. With respect to the last named collection, it is advisable to be rather particular both in the size of the spaces devoted to different plants and also to the distance in planting; thus, while Kalmias, Andromedas, Pernettyas, and other things of slow growth and remarkable for delicate beauty of flower rather than a showy appearance may be planted thickly and in rather large clumps, the harder and faster-growing Azaleas, on the other hand, can be planted thinly, as after the first season they may be pegged down and layered in all directions to fill up the ground. E. BURRELL.

Claremont.

CHRYSANTHEMUMS.

SERVICEABLE CHRYSANTHEMUMS.

ALTHOUGH I am a lover of finely grown blooms, the cultivation of these is not allowed to interfere with the production of what I term more serviceable Chrysanthemums—namely, freely flowered conservatory plants. Massive specimen blooms are very effective either on the plants or among banks or masses of Chrysanthemums or other plants, and in a cut state are very attractive on the dining table arranged singly in low glasses. More than that cannot be advanced in their favour; whereas, well-grown, freely-flowered plants such as are prepared for conservatory, greenhouse, and room decoration are serviceable in a variety of ways, and in particular for affording abundance of cut bloom. It must be added, however, that I do not confound my serviceable plants either with the old-fashioned much-stopped and much-staked Chrysanthemums that gave us so much trouble a quarter of a century or more ago, nor with the too common weakly-grown and poorly-flowered plants that have to do duty in various conservatories now-a-days. The most serviceable, or what I consider to be such, are also the most beautiful, and they cannot be had without bestowing nearly as much pains upon their cultivation as is required to grow the best exhibition blooms.

The initial mistake in preparing conservatory plants is frequently made when striking the cuttings is deferred to March and April. Instead of taking good care of the stock plants, these not unfrequently suffer much from frosts, and frosted cuttings either damp off badly or else make but a feeble start. There is much to be said in favour of striking the cuttings at the same time as those intended to be grown into plants for producing large blooms, and certainly they ought to be put in not later than the first week in February—the preference being given to healthy shoots pushed up from

the base of the stock plants. I would make no distinction between early, mid-season and late varieties, as they give a good natural succession, but avoid confusion and succeed well by striking all at the same. Where several score or hundreds of plants are required, there is no absolute necessity to root the cuttings singly in small pots, nor indeed in pots at all, pans or boxes answering quite as well. Drain these well, fill with a light loamy mixture, and dibble in the cuttings 3 inches apart each way. The cool system of striking these cuttings is too slow, and they ought always to have the benefit of a little gentle heat, sufficient air being given every morning to prevent damping, shade also being applied whenever the sun shines brightly. Directly they are rooted pinch them back freely and pot off singly when they are breaking afresh. Being strongly rooted, there is nothing to prevent their being placed singly in 5-inch pots or three moderately strong plants may go into each 6-inch pot, a fairly rich loamy mixture with half-inch bones freely added being suitable. Kept in close frames or pits for a few days till the roots have taken possession of the fresh soil, no further coddling is needed or advisable. Whether the plants should be furnished with three, six, or more branches must be determined by the grower, and the decision ought to be further influenced by the size of pot in which it is intended to flower them. We have no particular size, but use a general mixture of pots, and stop the plants' once for those 9 inches in diameter, twice for those 2 inches larger, and three times for any exceeding 11 inches across.

There is no fixed date for stopping, the aim being to get a good foundation, laid as early in the year as possible, late stopping being a decided error. The final shift (we cannot afford to be constantly giving small shifts) is given late in May, this being after the plants have been in the open about three weeks. I use a compost consisting of three parts of good, roughly broken-up fibrous loam to one part each of good leaf-soil and partially decayed horse droppings or old Mushroom-bed manure, with either crushed oyster-shells or half-inch bones, a little soot and wood-ashes improving the mixture. The final shift ought to be given before the plants become badly root-bound and the wood hard, and the potting ought to be done firmly. For a time watering must be performed very carefully, especially when an extra large shift has been given, or otherwise the fresh soil may be soured before it is taken possession of by the roots. In all other respects the treatment necessary is the same frequently recommended by experts, anything in the shape of neglect quickly leaving its mark upon the plants. Two or three of the main growths may be fastened to moderately strong stakes 3 feet or more in height for the tallest growers, the dwarfier varieties having shorter stakes, or a stake may be placed to each strong growth. If the stopping has not been done late, most of the growths will push out several side shoots, all of which will flower abundantly, while any that do not branch will produce extra fine heads of bloom. If room can be found for taller plants instead of stopping the newly-rooted cuttings allow them to grow unchecked and they will then divide or branch and rebranch naturally, one strong stake being sufficient for each naturally-grown standard. This is really the best way of securing extra well-flowered plants, there being no hindrance to the early maturation of the wood. Those who have struck more plants of different varieties for exhibition than they require have only to treat them similarly to the rest as far as potting, staking, and feeding are concerned, and let them run wild. They will be surprised with

the result, not a few of them being very beautiful when grown and flowered in a natural manner.

Among the serviceable varieties that can be named there is none more beautiful than Lady Selborne, especially if a strong plant is not allowed to develop more than two dozen blooms. It is a great favourite with ladies and one of the best for the markets, the pure whiteness and charming form of flower invariably attracting favourable notice. James Salter, from which the foregoing originated, is remarkably free-flowering and fairly early, but the colour, lilac-mauve, is not popular. Of the value of the sturdy growing Mme. Desgrange and the pale yellow and rich golden forms of C. Wermig and Mrs. Hawkins respectively there is no need to enlarge upon, but the comparatively dwarf and early W. Holmes is not nearly so well known as it deserves to be. It ought to be extensively grown for conservatory and house decoration and for affording cut blooms, the colour of the freely-produced flowers being a good chestnut-red with gold reverse. The dwarf pure white *Seur Melanie* is still one of the best for early flowering, *La Vierge* being another good early white of dwarf habit; *Elaine*, an old favourite of free growth and very free-flowering, is still one of the best for giving a close succession of white flowers; *Bertier Rendatler*, orange and yellow, another free flowerer, is also too good to discard; *Margot* is a little later and very free; and *G. Daniels*, another variety with a twisted centre and of a delicate pink shade, is very effective; *Florence Piercy* is in the way of *Mlle. Lacroix*, and one or both should be grown with the *Pink Lacroix* by way of accompaniment; *Cullingfordi* is indispensable, the colour, a rich crimson-scarlet with gold reflex, always attracting admiration; *Sunflower*, rich yellow, and *Mons. Bernard*, purple-violet, are both good for conservatory decoration, and so also are *L'Ebouriffée*, deep yellow, and *Source d'Or*, orange-yellow, and *Stanstead Surprise*, rosy-crimson. For midwinter flowering the best Japanese varieties are *Meg Merrilies*, sulphur-white; *Ralph Brocklebank*, yellow; *Mrs. H. Cannell*, pure white, very fine; *Mrs. S. Carey*, white; *Goldfinder*, a good yellow sport from the last; *Belle Paule*, white and purple; and *Boule d'Or*, bronzy-yellow, the last-named being very fine.

There are also several very serviceable incurved and reflexed varieties, foremost among the former being the *Rundle* family, white, sulphur-yellow and rich yellow respectively; *White Venus*, *Jardin des Plantes*, rich yellow; *Jeanne d'Arc*, white, edged with rosy-purple; *Miss M. A. Haggas*, golden-yellow; and all the *Teck* family, these consisting of *Princess of Teck*, white suffused with pink; *Lord Eversley*, pure white; *Charles Gibson*, bronze; *Mrs. Norman Davis*, yellow; and *Hero of Stoke Newington*, rosy-pink. The five last-named varieties may be had at their best at midwinter, and with these should be associated the two reflexed varieties *Boule de Neige*, white, and *Golden Gem*, rich yellow. The last-named is one of the most serviceable varieties in cultivation, and can be had in perfection as late as February. GROWER.

Chrysanthemums, decorative varieties.—

One of the most interesting as well as instructive articles that I have seen during the Chrysanthemum season is that on p. 16, entitled "Chrysanthemums, new and old," and to the lists there given of the new varieties, no exception whatever could, I think, be taken, while the short, sturdy habit of many of them adds (as stated) greatly to their value. Where large cut flowers are required, the list of older kinds that must now be discarded

is equally good, but for conservatory decoration I still have a leaning towards a few old favourites whose habit and freedom of flowering are such that they are well suited for growing in bush form. Included in the number are Ethel, Edouard Audiguier, James Salter, and its white spot Lady Selborne, M. Henri Jacotot, Peter the Great, Roseum Superbun, The Cossack, Bouquet Fait, Florence Piercy, Mlle. Lacroix, Cullingfordi, Val d'Andorre, Tokio, Source d'Or, M. Moussillac, M. Garnar, M. Freeman, Dr. Macary, L'Africaine, Mlle. Paul Dutour, Phœbus, and President Hyde. T.

Chrysanthemum Golden Gem. A very pretty new year's present came to me in the shape of a tin boxful of flowers, amongst which were some blooms in small clusters of that capital late Chrysanthemum Golden Gem. The sender, a gardener of considerable experience, wrote, "Golden Gem I find to be one of the very best of all the yellow varieties for late work. The flowers are so enduring, because the petals, if not very long, are so stout. The flowers of Ralph Brocklebank, as you will see, do not for one moment compare with it in effect or in endurance after being cut. I have some flowers of Golden Gem cut a fortnight since, which seem now to be as fresh as ever." Judging by what I have seen of the blooms sent me, I can readily realise the truth of what the sender stated. They are apparently as fresh now as a week since, when received. Would that all who send flowers would forward in block tin boxes. There is no better packing than some nice fronds of Maiden-hair Fern. All that is needful is that the box should be well filled to ensure the safe arrival of the contents. A. D.

Chrysanthemum Fulton.—The flowers of this are rich yellow, and a big mass of it is indeed effective. We saw it blooming profusely recently in one of Mr. Denning's market houses at Hampton, where it presented literally the appearance of a mass of gold. It does remarkably well under pot culture, needs only very little bud-thinning, because the buds seem to open simultaneously, and produces good massive clusters. It is a very popular variety in the markets; indeed, no real yellow Chrysanthemum sells better. In spite of all that may be said to the contrary, yellow Chrysanthemums remain in great request so far as some growers are concerned.—A. D.

ORCHIDS.

CYPRIPEDIUM LAWRENCEANUM AND ITS VARIETY HYEANUM.

The typical plant was found by Mr. Burbidge when travelling in Borneo for the Messrs. Veitch and Sons in 1878. It was growing upon the ground upon limestone rocks near the banks of a river on the northern side of this large island. It is named in honour of Sir Trevor Lawrence, and is a magnificent variety. There are about a score of named forms of this plant, good, well-marked varieties, but the typical form of the plant is very beautiful. The leaves are stout and large, the ground colour pale green or yellowish-green, which is marbled with a rich deep green, rendering the plant extremely ornamental, even when not in bloom. The flowers, borne upon somewhat long peduncles, are very large, with a broadly ovate dorsal sepal, which is white, striped with broad curved lines of a rich purplish hue, the lower sepals being small, white, streaked with purple and having a suffusion of green; petals half an inch wide, standing out at right angles, greenish towards the base, but tipped with dull purple and ornamented on both margins with black warty spots; the pouch-like lip is very large, deep reddish-brown above, passing into yellowish-green below. In the varieties the colours are much modified and brighter. The most distinct and wonderful variety of this species is that named Hyeaum,

named in honour of M. Jules Hye, of Ghent. It may be described as a white and green-flowered form, and is well figured in a recent number of the "Reichenbachia," t. 23. From this it would appear to have a ground colour of whitish-green marbled with a deep green. The dorsal sepal is of the purest white, through which run lines of bright emerald-green, the petals being yellowish-green, the margins having the hairy black warty spots of the typical plant. The pouch is soft green with deeper green veins. It is one of the most coveted plants amongst Cypripedium lovers.

WILLIAM HUGH GOWER.

DECIDUOUS CALANTHES.

CALANTHE VEITCHI and the varieties of vestita must be considered amongst the most useful of orchidaceous plants, blooming as they do at mid-winter, and lasting several weeks in full beauty. I have often been struck upon going through gardens where Orchids are a speciality to note that these Calanthes are not always in a satisfactory condition. This is to be wondered at, for their culture is not at all difficult, as with generous treatment, the pseudo-bulbs will increase in quantity very quickly, comparatively speaking, while they can be relied upon to bloom annually. Of all the hybrid Orchids which have been raised in this country, I doubt if any are more popular than Calanthe Veitchi. No doubt in a few years other good varieties will be raised, as I note that Sir Trevor Lawrence has shown some beautiful forms from crosses he has made. I have also got several crosses from the different varieties of vestita and Veitchi, as, with such a useful winter-flowering plant, intermediate shades will be very useful. I have used these Calanthes largely during the past festive season for table decoration, and it is astonishing how the flowers last in gas-lit rooms. Those who may not have used them can hardly realise the charming effect they have. The plants are now going out of bloom, and the mistake must not be made of subjecting them to too low a temperature during their period of rest, for if such should be the case, if they are not killed outright, they will be considerably weakened and start very feebly into growth. I do not agree with the practice of storing them away under stages of plant-houses, for, although destitute of foliage, direct light is needed. I attach such importance to what may appear to some this minor detail, that I store them on shelves fully exposed to the sun, and where the night temperature ranges about 60°; under such treatment they keep very sound, and when the period arrives for growth, the young shoots start away very freely.

Some people, as the plants go out of bloom, turn the pseudo-bulbs out of the pots, entirely divesting the roots of soil, and store them thickly in boxes. This, I am fully aware, is often done to economise space, but unless obliged I would not practise it, as I believe they are better by being left alone and stored as they are until they commence to start into growth. Like the majority of other orchidaceous plants, the pseudo-bulbs must be potted as they start into growth; not, however, when the young growths are directly seen, but after they have started about an inch, as the fresh soil may be pressed around them without fear of injuring the young points. I also think that by leaving them until this stage is reached they start more freely. The best method, I think, is to turn them out of the pots about a week before potting, arranging the pseudo-bulbs in shallow boxes, packing a little Sphagnum Moss about the base for them to rest upon. It matters little whether the old pseudo-bulbs are detached or not. Some people seem to think that the young growths continue to draw support until the old bulbs are quite dead. I have left them, but the pseudo-bulbs were not any better than those where removed. The old pseudo-bulbs are of use for increase of stock, and should be retained for such where required. They do not start so early as the annual ones, and I find they start better if, after detached, they are

packed together in a shallow box on a layer of Sphagnum and silver sand, when they may be potted off, after growth is sufficiently advanced, into 4-inch pots, this being better for the first season than two or three in a larger pot.

Being terrestrial Orchids, Calanthes naturally require something substantial to root into and to feed upon, as it depends materially upon the strength of the new pseudo-bulbs whether the flower-spikes are satisfactory or not. The material I find they thrive best in is equal parts of good fibrous loam, leaf-soil, fibrous peat, and Sphagnum, with a little dried horse manure rubbed through a sieve, adding also a few pieces of charcoal. This material will be rich and open, and the roots will work freely into it. Free drainage will be necessary. Calanthes also thrive admirably in small wire baskets, and it is very noticeable the size the pseudo-bulbs will grow to in these receptacles. The number of pseudo-bulbs to place in each pot is a matter of opinion, but I arrange at the rate of three of Veitchi to a 7-inch, and the same number of the vestita varieties in a 6-inch. For special purposes they might be grown singly in 4½-inch pots, but the practice of potting singly in small pots and afterwards repotting is no advantage. In potting, press the material well around the base of the pseudo-bulbs, and to assist in fixing them firmly, the old roots to the length of an inch are best left attached. Calanthes should have a brisk growing heat right throughout the season of growth, and where they may have free exposure to light, but not bright direct sun, or the foliage will become burned. Shelves at the back of three-quarter span Pine stoves answer well, but any light span-roofed structure where they may be arranged near the glass will suffice.

Many Calanthes are injured in the earlier stages by applying too much water. They are very impatient in this respect, and instead of the young growths starting away freely they become spotted and have a yellow cast, which is caused simply by over-watering. Not until the growth is starting away freely need any water be applied, and as the young roots commence to extend this must also be carefully given. After a time when the growths are growing ahead may water be freely given, and when the pseudo-bulbs are forming, some weak manure water about twice a week will assist them considerably. As the water is gradually applied at the start, so it must be diminished at the finish. The best time I find to commence diminishing the supply is after the flower-spikes have grown about a foot, and by the time the first flowers open, it must be withheld altogether. Being deciduous, there is no advantage whatever in trying to make them retain their foliage, for if at all retained it will be only in a half-decayed state. As this stage is only gained by over-watering, which is injurious in the end, it is much more satisfactory to let the foliage die away, as greenery may be added by arranging the pots amongst Ferns.

A. W.

Lælia anceps Williamsi.—I am in receipt of a fine flower of this variety from Mr. G. Cypher, gardener to Sir John Dorrington, Bart., M.P., Lypiatt Park, Stroud. It is a beautiful flower, large and of the purest white, saving the interior of the side lobes, which are streaked with reddish-crimson having a raised fleshy crest of yellow, which has sundry crimson streaks at the base. I have also several of these white varieties from other friends who are now finding out that what I said about two years ago is quite correct, viz., that the white forms suffer more in coming home to us and require longer to come into a flowering condition than does the typical plant.—G.

Phalænopsis sreciosa.—J. Tyndall sends me some very highly-coloured flowers of this. It is one of the brush-lipped species, a native of the Andaman Islands. It succeeds best grown upon a block of wood and with but a very little Moss upon it; indeed, I have seen this plant doing well upon an entirely bare block. The flowers sent are each 2 inches across; the sepals and petals of a deep rich magenta hue, variously streaked with a paler

colour; lip narrow, three-lobed, the front lobe deep purple and furnished with a brush-like cushion of white filaments, the narrow side lobes being deep yellow. It is a very handsome plant, and its flowers last a long time. It is early for it to bloom.—G.

ROSE GARDEN.

ROSA POLYANTHA AS A STOCK.

WHAT is *Rosa Polyantha*? is a question which is not infrequently asked, and to which the answer, slightly Irish though it may sound, appears to be that *Rosa Polyantha* is *Rosa multiflora*. It is not very wonderful that synonyms arise. A plant is discovered, named, and then perhaps lost sight of; subsequently it is re-discovered, possibly in another part of the world, re-named, and again treated as a novelty, and it may be years before it is clearly proved to be only an old friend under an *alias*. But in the case of the subject of these notes, the con-

fusion of names has been doubly unfortunate; for in the prolonged absence from cultivation of the true species, the name *multiflora* became associated with certain garden varieties of little beauty or value, while the species' widespread popularity in recent years has been achieved under the *alias* *Polyantha*—a name that it now seems hopeless to displace, especially since its adoption for the race of dwarf Roses that has sprung from crosses between the species and various Tea-scented Roses. The confusion is undoubtedly increased in the lay mind by the fact of these miniature Roses bearing the same name as the natural giant; and it certainly seems one of the strangest freaks in the Rose garden, that the offspring of one of the most rampant climbers among Roses should be the dwarfiest and most diminutive of Roses we possess. It need hardly be said that these miniature varieties are not the *Polyantha* Roses that are recommended for use as stocks; but the species itself, which, for the moment, even at the risk of bringing upon ourselves the deserved reproaches of M. Crépin for inconsistency, we must for convenience call *Rosa Polyantha*. Rosarians who are unfamiliar with the plant,

and to whom the name *Polyantha* only conveys the idea of a diminutive bush a few inches in height, may form some idea of the vigour and general character of the plant from the illustration here given. When I first made the experiment of employing *Rosa Polyantha* as a stock about nine years ago, the failings of the *Manetti* were beginning to be generally admitted, but it was constantly being urged on the other hand that *Brier* cutting stocks were difficult to make—a difficulty, I would state, that I never experienced—and that *Brier* seedlings were troublesome to bud. I was, therefore, anxious to find a stock as easy to propagate and to bud as the *Manetti*, and on which the Tea-scented Roses and smooth-wooded Hybrid Perpetuals of Victor Verdier race, that notoriously will not thrive on *Manetti*, would succeed. I was delighted in the first instance to find with what rapidity and certainty the *Polyantha* cuttings struck root, quite equalling if not surpassing the *Manetti* in this respect; then the new stocks were found just as easy to bud as the old; and last, but not least, the



Flowering shoot of *Rosa Polyantha*.

experiment continued through a series of years has demonstrated clearly that *Polyantha* cutting stocks are admirably well adapted to the requirements of the Teas and smooth-wooded Hybrid Perpetuals. Nine-year-old plants of such varieties as Comtesse de Nadaillac, Etoile de Lyon, Victor Verdier, &c., are still flourishing, in spite of exposure to all intervening winters; and each season more cuttings of *Polyantha* have been struck, and in due course budded so that now a considerable proportion of the Rose plants in the garden are on *Polyantha* stocks. A fear that was at one time expressed that *Polyantha* would sucker too much to be valuable as a stock has happily not been realised, as a sucker is quite the exception and not the rule; and if one does make its appearance, there is no possibility of its being mistaken for part of the scion, so that its prompt removal is assured. A further convenience about *Polyantha* stocks is that they appear to succeed equally well on either light or heavy soils. The immense quantity of roots made by the plants enables them to secure a supply of moisture even on most sandy land, while the roots are hard enough to withstand the effects of wet or

heavy land, without the liability to rot that characterises the softer roots of the *Manetti* in wet seasons or situations. Anyone who can make and bud *Manetti* stocks can make and bud with equal ease an equal number of *Polyantha*-cutting stocks. Cuttings 9 inches long are made in the autumn from well-ripened shoots of the season's growth, and it is to be observed that it is not in the least necessary that these cuttings should have a "heel," as is so desirable in the case of *Brier* cuttings. The best time for the insertion of the cuttings is the end of September, but any time from then until Christmas will serve. To ensure the largest possible crop, the best plan is to make a "nick" with a spade and fill it with white sand, into which the cuttings should be firmly pushed, leaving only 2 inches of their length visible above the surface of the soil. Thus treated, the cuttings will quickly root, and in the following October or November (twelve months after their insertion) should be transplanted, trimmed, and "heeled in" somewhere until March, when on a showery day they can be planted in the budding quarters. This "heeling in" during the winter, and not planting permanently until the spring, is strongly recommended for all dwarf stocks, which can then be planted quite shallow, so that no difficulty will be experienced in inserting the buds quite close to the roots. If the stocks are planted in the autumn, shallow enough to be easily and properly budded, after the first frost they will all be found tumbling about, half out of the ground; and if they are planted so deep as to avoid this risk, it is more than probable that the buds will never be inserted near enough to the roots, as witness the sadly "leggy" plants so often received from nurseries. If stocks are wanted in a hurry, cuttings of *Polyantha* inserted in good time in September will be found to be well rooted by the end of the year, and may be planted in the budding quarters the following March, and budded in July—within ten or eleven months of their insertion as cuttings. The rushing of stocks, however, is not recommended except in an emergency, as they are liable to be rather thin-barked, and consequently to require special care in budding, although at the same time it has been observed that buds of Tea-scented Roses cut from small wood sometimes "take" better on thin-skinned stocks.

It will be observed that the foregoing remarks refer only to *Polyantha* stocks made from cuttings. Two or three seasons ago some of the Continental growers suggested that *Polyantha* seedlings would probably make good stocks, but the making of experiments therewith on a large scale was probably delayed in the first place by the fact that the species does not often ripen a large crop of seed, and, secondly, by the desire of growers to flower their seedlings, and to endeavour to produce additional varieties of the increasingly popular dwarf ever-blooming *Polyantha* Roses. The distribution, however, under the name of *grandiflora*, of a variety as vigorous as the type, and bearing seed freely, has facilitated the raising of seedlings in quantity; and experiments are now being carried on to test the value of the stock in this form. The raising of a batch of any seedling stocks is, nevertheless, a tedious process, and in view of the fact that rosarians generally seem to find so little difference in the value of *Brier* cutting and *Brier* seedling stocks, it seems not unreasonable to assume that the additional merit of *Polyantha* seedling stocks would not be sufficient to compensate the greater trouble in producing and budding them.

The *Polyantha* cutting may not be the best

stock in the world for Roses, but it is certainly a very good one, especially for Tea-scented Roses, and the so-called Hybrid Teas or smooth-wooded varieties of the Victor Verdier race, easy to propagate, easy to bud, perfectly hardy, not getting mildew in the quarters, and thriving on any soil; so that growers who have difficulty in propagating Brier cuttings, or in budding Brier seedlings, should find a "boon and a blessing" in Polyantha cutting stocks.—T. W. GIRDLESTONE, in *The Rosarian's Year-book*.

HYBRID TEA ROSES IN POTS.

FEW flowers are more pleasing than Roses during the winter and early spring months, and very few are so serviceable for early forcing as the Hybrid Teas. Viscountess Folkestone is one of the finest pot Roses grown; it is a profuse bloomer, of excellent habit, and also one of the sweetest scented. Like most of the Hybrid Teas, it has a very delicate colour, being a pretty shade of pale salmony flesh. Wherever this Rose is grown it is certain to become a favourite. Lady Mary Fitzwilliam is another Hybrid Tea that does well in pots. This variety is very large and double, and as it is of delicate texture, the petals are often spoilt by the weather when grown out of doors. Under glass it is always good, and shows its extreme beauty to the best advantage. Of great size, first-class shape, and with grand lasting powers, this Rose and the one previously named are among the best light-coloured varieties we have for pot work. Comte Henri Rignon is of a wonderfully pleasing colour, and difficult to describe. In habit of growth it is not quite so stout and strong as Baroness Rothschild, but it partakes of the same style. It resulted from a cross between that Rose and Ma Capucin. Very few Roses have the sweet and delicate shade of salmon, copper, and golden yellow to be found in this variety when it first opens. Unfortunately, it soon loses its soft coppery shades, but even then it is a charming Rose and with good lasting powers. It is one of the dwarfest and most compact-habited Roses I know. It carries grand foliage and is very free flowering. White Lady and Lady Alice are reputed to be lighter coloured sports from Lady Mary Fitzwilliam, but I fail to see very little, if any, difference between the three. Maid of the Mist is a white Lady Mary Fitzwilliam and equal to that variety in every way. Grace Darling is quite unique for colour, but the flowers are borne in too drooping a form to show off their beauty to the best advantage. It is of a very pretty and delicate blush and creamy white, having a tint of soft peach colour towards the edges of the petals. This variety is very free-flowering and of a fairly good habit. Mme. Joseph Desbois may be described as a white Rose tinted with salmon. This is one of our freest bloomers, and also a grandly perfumed Rose. Meteor is a newer kind (1887), of a very dark crimson, having a strong shade of rich velvet; an excellent Rose for forcing and very free flowering. W. F. Bennett is also a dark crimson variety, and one of the best for cutting. It is a very showy Rose for button-hole work, and almost always in bloom. Camoens is a great favourite of mine. The flowers are large, and developed from a very long and usefully-shaped bud; colour a delicate Chinese pink, and quite distinct from that found in any other Rose. It is one of our freest bloomers, seeming to possess a great deal of the China characteristics, and of free growth. Countess of Pembroke is of a very soft and delicate satiny pink, of good size and form, very sweetly scented, and one of our freest growers.

The Hybrid Tea Roses possess a rather more substantial growth than the majority of the true Tea-scented varieties, and are very suitable for pot culture, more especially for early forcing.

RIDGEWOOD.

Lamarque Rose.—I think if "A. D." were to grow this Rose in a house where it can have room he would find it much more profitable than

Niphetos, as the very large clustered heads of bloom afforded by Lamarque give beautiful, clear white, half-expanded buds for packing for a long time, and the yield from a strong plant with its shoots laid in full length is something enormous. True, the stems of the flowers are not long, but they are stiff and easily mounted for button-holes or working up into bouquets. Lamarque is a Rose that forces readily and does well trained on the back wall of a lean-to house. For my part, I would much rather grow Lamarque than Niphetos, but as yet I have no experience of the climbing variety of the latter, which may be more useful than the old form. I have several of the climbing variety planted, and will report in due course.—S. D.

THE WEEK'S WORK.

ORCHIDS.

"As the days lengthen the cold strengthens," is an old saying, and I fancy a true one; but besides the cold we have too frequently cold frost winds from the north and east, and I have noticed that the plants seem to feel the effects of such winds more than they do any other kind of weather; even fogs, which are bad enough in their season, are not so injurious. In a high steady east wind it is better to shut up all the ventilators. Sufficient fresh air will be forced through every nook and cranny without letting it in with a rush. We had such a wind lately and a terrific hailstorm into the bargain, which I hope has washed off some of the sediment left by the late fogs. So much for the ventilation in a gale from the east. The heating is also of considerable importance. I always insist upon the young gardeners attending to the fires; it is an important point, and a head gardener ought to be master of every detail of the work. I find the rules for beginners is to burn too much fuel and to err on the side of too high rather than a too low temperature; at the same time in an excessively cold night it is well to have the minimum temperature exceeded by a few degrees at banking up time, for it is sure to fall below it again before daylight the next morning. When so much artificial heat is necessary and the temperature is right in the morning, damping the stages and paths should be the first operation. The over-dry atmosphere is favourable to the production of parasites. The temperature of the cool house may still be about 45° at night, it generally rises about 5° or so in the day. We are not repotting any plants in this house, but a week has been spent surface-dressing those repotted in the spring of last year. All the Masdevallias have been surfaced, and one or two that seemed to be over-potted and in bad soil had necessarily to be turned out, the bad soil was removed and the plants put into very much smaller pots. Maxillaria grandiflora has now passed out of bloom and will be repotted, as the plants soon start into growth again. This is really a useful Orchid in the cool house; none other grows so freely, and it seems to do better when we mix a little fibrous yellow loam with the peat. If it grows as freely in its native habitat as it does in our cool house it will speedily elbow weaker plants out of existence. The fragrant white flowers, with long stiff stems, are useful for cutting at Christmastide. Now that the inside of the glass roof of the Cattleya house has been washed, the plants cleaned and set in order, there is nothing more to do at present but to see to the ordinary details of the work; watering, damping down and being careful that no slugs or woodlice make a meal of the succulent young roots or flower-buds. We will have to do what many cultivators do not require to do, that is, to wash the outside of the glass from the fog deposit, which is laid on again sometimes as soon as it is removed. The Phalænopsis are very interesting at this season of the year, and those who have a house set apart for their culture will find no difficulty in giving them the treatment they exactly need. When only a few plants are grown in the East India house with a full collection of other things it is different. In January

the temperature need not be more than that given to the ordinary run of plants in the warmest house, but flowers of *P. Schilleriana*, for instance, developing on long spikes, should be placed where they get the full advantage of light. Any weakly plants may have the flower-spikes cut off, as this species has not the tendency to throw a second spike, as *P. grandiflora* and *P. amabilis* have. It does little good to weak plants of these to remove their flower-spikes if a second and even a third are produced in succession to the first. A better plan is to reduce the number of flowers on the spike to two or three, if the fog king does not take the whole of them in one fell sweep. It is not well to give these plants a full supply of water at this season nor a very moist atmosphere; excess in either direction may develop spot. Indeed, I have a strong suspicion that not spot only, but the loss of the back leaves, which is another source of worry, is caused more often by excess of moisture in winter than in any other way. The singular *Saccolabium bellinum* should now be developing its flower-spikes. It is a neat dwarf plant, and the flowers are really pretty when the best varieties are grown. It should be in a basket near the glass roof. *S. Blumei majus* ought not to flower until the summer months, but some recently imported plants in our collection are now in bloom, and some from the same batch gave us spikes in October. It takes two and sometimes three years for imported plants of some Orchids to settle down into the right season of blooming. The last year's imported plants of *Cattleya labiata* I expect to flower in May next. They may flower in September and October next year.

J. DOUGLAS.

FRUIT HOUSES.

FRUITING PINES.—In order to have plenty of ripe fruit in May and June, no time should be lost in selecting and starting a good batch of Queens with perhaps a few Smooth Cayennes, or other late varieties to afford a natural succession. If strong, well-rooted plants, previously rested, these being disposed to form suckers, also having rather short, narrow central leaves, are selected and excited in a strong bottom-heat, not many will fail to fruit as required. In most cases it will be advisable to pull off a few decaying lower leaves, and also to carefully remove the surface soil in the pots down to the roots. Then, after being given a thorough moistening with warm soft water, or, better still, weak liquid manure, top-dress very firmly with lumps of fibrous loam. This top-dressing will serve the double purpose of steadying the plants and of promoting a stronger root-action, the old stems emitting roots freely. A deep hotbed of Oak or Beech leaves, or a moderately deep one of leaves and well-prepared stable manure, leaves and tanner's bark also going well together, ought to be in readiness for the plants, a bottom-heat of about 90° being requisite. If there is any danger of this heat being exceeded, only half plunge the plants, plunging them more deeply and firmly according as the temperature in the bed declines. A top-heat of from 65° to 70°, according to external temperatures, is ample during the night, these figures being increased considerably on sunny days only. Very little water at the roots and not much atmospheric moisture, in dull weather especially, are desirable at the outset; in fact, the plants are best kept a little on the dry side till they give signs of fruiting. Any that pushed up late last season must be kept moving actively, and serviceable early fruit will result. They ought to be plunged in a brisk bottom-heat of from 85° to 90°, the top-heat ranging from 65° to 70° by night, with a further increase of 10°, or more, in the daytime. Water very carefully, an over-dose being liable to cause black centres in the fruit.

SUCCESSIONAL PINES.—Plants fully grown, and being retarded for the purpose of giving a good succession to those first started, must be kept just moist at the roots and excitement of any kind guarded against, or otherwise some of them will start too soon. A bottom-heat of from 70° to 75° is ample, the top heat being kept 10° lower, a little

air being given on warm, bright days. Younger stock should not yet be interfered with, the middle of February being quite early to commence potting operations. In the meantime they must not be unduly dried off at the roots, or this may be the cause of the majority fruiting prematurely. The top and bottom-heat recommended for fully grown resting plants also suits the young stock, subjecting them to lower temperatures being another inducement to premature fruiting. It is yet somewhat early to attempt rooting suckers, but if the latter are left on the old stools another month longer, they will have strengthened considerably and will root quickly when taken off.

FIGS.—Trees in pots started early in December ought, with the aid of brisk bottom-heat, to have made good progress, and an increase of 5°, both in the night and day temperatures, may safely be given, the bottom-heat being maintained at about 75°. Wood growth having commenced, the roots also become active, and the time has arrived for giving a top-dressing of fibrous loam and horse droppings partially decayed in equal proportions, bone meal being freely added. If the pots were well filled with roots at the outset, weak liquid manure may now be given occasionally with advantage, and on no account ought the old soil under the top-dressing to be allowed to become dry. Thin out large clusters of fruit freely, or all will perhaps be small and of poor quality. Continue to use the syringe freely and close early on sunny days, so as to run up the top heat to about 80° for a short time.

SUCCESSIONAL FIGS.—Now is a good time to start Figs planted out in narrow borders, and these, if properly managed, should give a good crop of ripe fruit in June and another in September. First fork away a thin layer of the top soil of border, well baring the roots, and after a soaking of water, followed by tepid liquid manure, has been given, top-dress with a rich compost, much as advised in the case of trees in pots. A night temperature of about 50° is sufficient to start with, increasing this from 5° to 10° on warm days. Syringe the house and trees freely about 9 a.m. and again at midday, or when the house is closed on bright days.

STRAWBERRIES.—Those early plunged in a gentle bottom-heat ought now to be well advanced and perhaps expanding their earliest flowers. These will not set well in pits, but if all the forwardest are transferred to the shelves of forcing houses and the flowers carefully fertilised when dry every morning, a good crop should set. Shelves in Pine stoves and forcing houses are the best positions for swelling crops at this early date. If pit room is scarce, mild hotbeds in these invariably starting early Strawberries most strongly, fill the shelves in newly-started Peach houses, vineries, and such like with Vicomtesse Héricart de Thury, La Grosse Sucrée, Anguste Nicaise, or other early varieties, and transfer to shelves in forcing houses in batches according as the crops are set. **PRACTICAL.**

THE KITCHEN GARDEN.

EARLY TOMATOES.—Where there are established plants of Tomatoes now bearing fruit, it is an easy matter to prolong the supply by allowing healthy lateral growths to form. If well exposed to the light, healthy flowers will form early, and if duly fertilised, a succession of fruits will be kept up, that is, if the plants are clean and healthy. If not, they are best cleared out and a fresh start made with seedlings. In the majority of cases, however, the earliest supply is procured from seedlings raised during this month. If any cuttings have been retained for the purpose, these should not on any account be relied upon unless quite clean and healthy and clear of the small white fly. Cuttings are sometimes preserved on account of the belief that they fruit earlier than seedlings, but the

difference is hardly noticeable. I believe the best results are had from seedlings, as these, by judicious treatment, will form sturdy plants.

RAISING YOUNG PLANTS.—Although it is well to have sufficient plants to select from, yet the mistake must not be made of crowding the seedlings in the seed pot, for if such should be the case, the first stage of weakness will have been commenced. The seeds should be sown thinly. If the pot be plunged in a gentle bottom-heat in a warm structure, the seedlings will soon appear, and directly they are through the soil remove at once to a light position near the glass, so as to ensure a sturdy growth from the first. As soon as the rough leaf stage is reached the seedlings must be potted off singly into 3-inch pots, taking the precaution to have the soil warmed before potting. By keeping rather close and sprinkled with tepid water to prevent drooping, the young plants will soon become established, when they should be returned to a light position near the glass. On no account crowd the young seedlings up amongst other plants, this causing a weakly growth, and from which they take a long time to recover.

PEAS IN POTS. In few gardens is the forcing of Peas carried out, but where there is room a few dishes may be secured for any special purposes from plants grown in pots or boxes. The plants may be forwarded in a Peach house just being started, and if there are any hanging shelves within 18 inches of the glass, this is just the position for the Peas. The seeds should be sown thinly in 9-inch pots, and if covered with an inch of soil the seeds will appear very quickly without any water being necessary. As they appear, water carefully, and for a time afterwards, and by the time the haulm is well advanced a good supply will be needed, with manure water as the pods form. If pots are not available, use convenient-sized boxes 9 inches deep. I prefer pots, as they may be removed to other positions if needed. American Wonder and William Hurst are good varieties for the purpose, the haulm being dwarf and the quality good.

PARSLEY.—Where provision has been already made for a supply of Parsley being maintained through the following three months, there will be little need for further trouble, as the growth of the plants in cold frames is now everything that can be desired, and the weather up till now has been all in favour of Parsley in the open air, as with a slight protection during the sharp spell of wintry weather at Christmas, gatherings from the open air have been abundant. The changes which we are now experiencing will rapidly alter the state of affairs, as with a return to sharp weather the foliage will melt away wholesale. Where no provision has been made to meet any emergencies, a good plan will be either to lift several healthy crowns and plant them in boxes, when if placed in vineries or Peach houses now being kept close, growth will soon take place, or the roots may be bedded thickly in a frame over a hotbed. Parsley may also be forwarded on a gentle hotbed similar to Carrots, the treatment being exactly similar, the seeds being sown in drills. Care must be taken not to keep the frame too close as soon as the seedlings appear, especially during the middle part of the day when the sun is shining, but on no account starve the seedlings by undue exposure. Tepid water must also be given in sufficient quantity to keep the soil fairly moist.

SEED POTATOES.—Although these must be kept sufficiently protected from frost, care must be taken that they are not kept unduly close and warm, for if so this will have a very weakening effect upon the sets when planted. If kept huddled up in heaps with perhaps the addition of coverings when not needed, it will most surely cause the sets to sprout more than they otherwise would if only thinly disposed, and also just sufficient protection given to ensure against injury from frost. It must also be remembered that the more perfect the sets can be kept whilst out of the ground the better able will they be to start away vigorously when planted. **A. YOUNG.**

PLANT HOUSES.

PRELIMINARY WORK.—SOILS, &c.—Those who have a good stock of soils of various kinds under cover will find an advantage as the potting time comes on. An open shed where a good amount of soil can be stored is a decided boon. I would prefer such a one to a close building, because of the beneficial effects occasioned through more exposure to the air. The soil may possibly at times get drier than some would prefer, but by all means let us have it so rather than the slightest bit wet or clammy. It is an utter mistake to use soil in these latter conditions, for it cannot be pressed so firmly around the balls of the plants as the drier soil without making it pasty, in which condition the roots of the plants will not take so kindly to it. Nor is the wet soil so suited in other respects, for after the first watering, if this is given soon after potting, it will become wetter still, whilst it will remain in that condition far too long. Those especially who do not make it a rule to over-pot their plants will more particularly find out the benefits of the drier soil (not dusty) as growth by-and-by progresses. Stacks of soil in the open can be kept fairly dry, but with the heavy rainfall of the past autumn it is probable that most of it will be on the wet side. It will be advisable, therefore, to have sufficient got under cover as soon as convenient to carry one through the spring potting. If not at once broken up it should be turned over a few times when too very wet; in fact this would be better than proceeding to break it up in readiness for use at once. Two heaps of each kind would be convenient where much potting has to be done, one broken up rather finer than the other for the smaller plants; the large or specimen plants should have the soil rougher, durability with less shifting being the object of this.

Two sorts of loam will be found very useful; a light friable kind of loam and one of a heavier character will afford a good choice. When the former cannot otherwise be had, it may be found frequently by the sides of country roads and lanes which are oftentimes trimmed up in the water ways during the autumn and winter. Sand should be of the best quality obtainable. Fine soft sand ought to be avoided as much as possible; rather than use this I would have recourse to road scrapings after being passed through a sieve to remove rubbish. Two or three sorts of peat will in their turn do good service. What is suited to Ferns is not always so to Orchids, whilst for Cape and New Holland plants quite another quality is most desirable. The first named may be rather spongy and soft to handle; the second should have an abundance of fibre in it that will not readily become decomposed; whilst the third should be a harder sort of peat, usually of a darker colour with plenty of fine fibre in it. Such peat as this is mostly to be had only in thin sods with probably the heather still upon it; the presence of this generally indicates what to choose. Leaf-soil is a great assistance, particularly for young plants which it is necessary to grow on quickly, also for all plants of annual duration only, as well as for such that are shaken out and considerably reduced each year. For all of these it is usually to be preferred to peat. The best leaf-soil is that made from Oak and Beech leaves, these being far preferable to an indiscriminate mixture. That which is twelve months old from the last fall is better than any which is older with the fibre more entirely decomposed.

Other accessories will be needed, particularly charcoal, which is a good absorbent, and one also that gives off its properties gradually. Clean broken crocks are excellent for mixing with soils that for any particular purpose are too retentive. Manures, as horse droppings and cow manure, are of good service, but both are frequently used in excess, thus defeating the very object for which they were intended in the first place. Artificial manures should only be used when the soil is of indifferent quality; on no account is any needed when the soil is good or even fairly so. These artificial manures fulfil their purposes far more advantageously when applied to plants which are pot-bound. In the case of some plants a little soot is beneficial, but it requires to be used cau-

tiously, or the result will be the reverse of what was hoped for. Leaf-soil and the animal manures should be worked through a sieve when in a fairly dry condition. All of the foregoing work, as suggested, should be proceeded with as soon as an opportunity offers. There will thus be little delay when potting in earnest commences. Pots should, as a matter of course, be well cleansed; it pays to take pains with such work. If any proof is needed of this, one has only to take note of the stench arising from the pots or the water in which they have been washed if this be allowed to stand for a few days without being disturbed. It will also be an advantage if the pots are well exposed to the air after being washed. New ones should before use be well soaked when they are required for particular purposes. When fresh from the kilns this precaution is all the more necessary; the quantity of water that new pots will in such cases absorb is somewhat surprising.

JAMES HUDSON.

VIEW IN THE GARDEN AT HECKFIELD

THE annexed engraving from a photograph taken during the late Mr. Wildsmith's lifetime faithfully represents the entrance to the kitchen garden and fruit garden at Heckfield. Throughout the entire length of the walk there are flower borders on each side backed up by hedges of Lawson's Cypress. The borders were planted with herbaceous perennials and the trellis-work covered with Clematises, Roses and Honey-suckles. Beyond the first arch are borders of much greater length, which in winter are furnished with small shrubs of various kinds, mainly Japanese Retinosporas, and in summer with mixtures of plants in preference to masses of one kind. Dahlias in variety, Gladioli, Lobelias, and Marguerites occupied the space next the Cypress hedge, the front being filled with plants of dwarfier habit.

FERNS.

MOSESSES.

Just when the greater part of the world of Nature is reposing in its dull winter sleep, Mosses begin to show their full activity. In the wooded valleys of Devon and Cornwall the naked boughs of the trees shiver in the cold sea breezes and seem to turn away from them in disgust, but their toes are kept warm by a nice thick green bed of luxuriant Moss which revels in the constant drip from winter fog and thick misty rain.

There is much to interest us in the curious and beautiful forms of vegetation, which thus contradict the usual laws and customs of the vegetable world by becoming active and bearing fruit and flowers just when all other things around them look so dreary and lifeless.

A winter's walk in the woods would not afford us much pleasure were it not for this tribe of plants. But we can find in them and their varied mode of fructification much to interest, while the rich green of their thick sods by the side of some little babbling brook is most pleasing to the eye at this season of the year. The trees are bare, and the hedgerow flowers will not be out for several weeks, but Mosses show their fine feathery leaves, tipped here and there with fructification, and that again tipped with its glittering dewdrop on a still, damp December day. One species is exceedingly interesting in this respect and has obtained the specific name of *Hydrometria* because the little tiny knob at the head of the thread-like stalks droop prettily with their beads of dew in damp localities. This Moss grows on walls, and though the unobservant eye may scarcely notice the

beauty, which demands a close inspection, yet even the casual observer is pleased to see the rough garden wall decked out with varied colouring through the instrumentality of this and other wall Mosses. Little Ferns, clinging to every crevice in the old mortar, break the outline, and still more enhance the interesting details of an old garden wall where Ivy has not yet found its way. The Wall Rue (*Asplenium Ruta-muraria*) and the Scaly Spleenwort (*Ceterach officinarum*) are most useful in this respect. They are grateful to tiny Mosses for giving moisture to their little roots, and the Mosses are sheltered and shaded by the little fronds of the wall Ferns.

Nature loves green, and it is the colour most pleasing and soothing to our eyes; hence it is made to predominate and indeed to overwhelm every other colour. Chlorophyll, the green colouring substance which is found in vege-

Many Mosses are beautiful enough to be cultivated for their beauty. Besides those of which Ruskin says in his "*Proserpina*," that "One of their most blessed functions is to carry high the dew in the morning, every spear balancing its own crystal globe," there are those which are strikingly pretty for their feathery foliage or their fructification. A Moss called *Polytrichum commune*, which is common enough in woods, has a tall fruit set well up with a conical fringed cap coloured a light brown; this Moss throws up its fruit on a strong tall stem, and is always beautiful when in flower. The base of the flower-stem has dark green spiny threads set thickly upon it.

Then for foliage, nothing can be more beautiful than *Hypnum proliferum*, perhaps the commonest of Wood Mosses. It forms large soft patches of emerald-green, which can be taken up and removed at once for the decora-



View in the garden at Heckfield Place.

table life, has most important functions to fulfil. It is, in fact, by the development of this substance that the plant is enabled to feed on inorganic matter, and this power of "feeding on inorganic food taken into the body of the plant in a gaseous form or in solution is the most important characteristic of plant life" (Masse). Everyone must have noticed that the trunks of trees, old palings, and soft stones soon become stained or streaked with a mossy-looking green colour. This is produced by a minute plant called *Pleurococcus viridis*, which is ready at all times to adorn almost anything exposed to damp and air. An interesting account of this plant, one of the very lowest forms of vegetable life, which, nevertheless, has its own functions to perform, is given in Masse's "*Plant Life*." Its reproduction is most rapid, and when in dry weather it becomes powdery, it still retains life for a long period. When once more placed in a damp position it begins to increase with the same amazing rapidity as before, its structure being what is called unicellular.

tion of pots in which winter flowers are growing. A pot of Roman Hyacinths, or of forced Lily of the Valley, looks much more beautiful when the surface of the earth is covered with the feathery leaves of *Hypnum proliferum* gathered fresh and green from a damp wood.

Another very interesting Moss by no means common, but still to be found in our woods occasionally, is *Cladonia rangiferina*, or Reindeer Moss. This grows abundantly in Lapland. "Sandy plains," we are told by Linnaeus, "of two or three miles in extent, and fairly sprinkled here and there with Pines, may be seen covered white as snow with this Moss. These plains, covered with this Lichen, which a stranger would call an accursed land, are fertile pastures to the Laplander, who, in possession of a tract of such country, esteems himself a prosperous man." We are told by the great botanist that reindeer will even fatten upon this dry food.

Sphagnum, so useful to all of us who are interested in Orchid growing, may be found in

almost every wet bog. Once it has been discovered, the eye can readily detect it, as it generally grows on little hillocks inaccessible on account of the spongy nature of the ground except in somewhat dry weather. The pretty little Sundew (*Drosera rotundifolia*) may generally be found in the same locality, and is quickly detected by the red hue of its little round hairy balls of leaves, which are usually well covered with the carcasses of flies which have been caught and eaten by this insectivorous plant. Close at hand may often be seen, too, a plant of the interesting Butterwort (*Pinguicula vulgaris*). The name is said to be derived from the power which the leaves of this plant have of giving consistence to milk and of preventing its separating into either whey or cream. Laplanders are said to make a great deal of use of it in this way. Sphagnum is usually so mixed with Grass and bog plants, that it is not always easy to get it in a proper state for Orchids, and I find, on the whole, it is better to get it from the north of England, where it grows best and finest and where it is separated from all extraneous matter by those who make it an article of commerce. It has a remarkable power of retaining water like a sponge, and even after it has been dried for the ripening of the Orchid plant and for its due resting, it will often turn green again and grow away readily as before.

In the damp west country, Moss is often very destructive to Apple trees in orchards, and but little care is usually taken to keep the trees free from it. Undoubtedly it is pernicious to the free growth of the tree which requires both light and air for the bark, which has important chemical functions to perform in vegetable life. In this county Moss does not grow so readily on trees. A GLOUCESTERSHIRE PARSON.

TREE FERNS.

THESE where in small pots or tubs, as compared with the size of the plants, will still require a good supply of water. On no account should they be allowed to suffer. This may possibly occur at this season of the year sooner than one is aware of. In the summer-time plenty of water is, of course, given them every day, yet, although so much is not necessary now, they will still require a good supply when healthy at the roots. When there is a difficulty in getting sufficient water to penetrate the ball and the pots are crammed with roots, I have made holes into the soil some 6 inches or more in depth; these will direct the water more towards the central part of the ball if the holes are made in that direction. Young thriving plants will need careful looking after, particularly those which are now beginning to make a stem. Some Sphagnum Moss should be tied around these stems close to the soil; this will soon draw out more roots and considerably strengthen the plants. Any stems that may be observed to be too dry should be kept syringed every day, or water may be poured down them from the crown of the fronds. Moss could also be bound round the stems from the soil to the top; if this is done at this time of the year, it will in most cases soon be found out by the roots, as the keeping of it moist is not now so difficult as in the summer. This, in the case of some kinds, greatly assists the plants and adds to the vigour of the fronds, as well as to their numbers. It is not, I think, advisable to adopt it in every instance. I would not do so when the growth is already as much as one could desire; in other cases, however, it is a decided help. If pursued from year to year, in the case of young plants the stems increase in height more rapidly. Those which are 'known' to be troubled with scale or thrips should receive every attention now. When the case is a bad one, I would remove the fronds, if they can be conveniently spared, one or two at a time. Syringing or fumigation will destroy the thrips to a great extent, but the scale wants more getting rid of

In doing this, care should be taken that the insects do not fall upon other plants. In a few weeks' time another examination should be made, which will go a long way towards getting clear of them. *Cibotium princeps* and *C. regale* should not be kept in too cool a house; they will not bear so cool a temperature as *Dicksonia antarctica* or *Cyathea dealbata*. *C. regale* is of the two the hardier. J. H.

SHORT NOTES.—FERNS.

Gleichenias (J. C. B.).—I could not determine your specimens before, having had to soak them and dry them, and I would suggest that you do this yourself before sending any more. That marked No. 1 is *G. hecistophylla*, and No. 2, *G. dicarpa*.—W.

Cibotium Barometz.—On p. 8 of THE GARDEN, Jan. 2, "Filices" recommends the above-named species as a drooping Fern. I have never seen any plants which could lay claim to this. I have usually seen it with arching fronds some 6 feet in height, and I do not see how it is possible for this to be considered a drooping kind; there are plenty of other kinds which might have been included.—W. H. G.

Treatment of Gymnogrammas.—"C. M." asks how to treat these plants, as hers have lost all their beauty. This can be accounted for in two ways. If kept too wet at this season and in too low a temperature, this will happen. It is best to keep these plants somewhat dry through the winter, but at the same time warm. About the middle of next month they may be taken out of their pots, the old soil removed and some fresh given them. It is quite possible the plants are old and have become useless, as after two or three years they become unsightly unless very great care is bestowed upon them.—W. H. G.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 12.

THIS, the first meeting of the year, was only moderately attended. Some choice Orchids were exhibited, comprising many new hybrids. *Cypripediums* were staged in quantity considering the severe weather. *Lælias* and *Calanthes* were shown in splendid condition. Baron Schröder sent fine cut blooms of Orchids, among them being the beautifully spotted dark form of *Odontoglossum Schröderianum*, *Lælia anceps*, pure white, with pink lip, and *Cypripedium Leeanum superbum*. The floral committee had only a few plants before them, but they comprised some excellent things, Mr. Cannell sending a group of dwarf well-grown *Primulas*. Messrs. Veitch sent cut blooms of early-flowering shrubs, these forming a pleasing contrast to the Orchids. A group of well-grown *Lachenalias* from Albury Park made up the chief exhibits. A large collection of Apples with a few dishes of Pears came from the Maidstone nurseries. Several dishes of new seedling Apples were exhibited, and good Tomatoes. A large collection of well-grown Onions in nine varieties of very large size completed the exhibits. It was unfortunate there was such a small gathering to hear Mr. Iggulden's excellent paper on winter vegetables read in his absence by the hon. sec.

Orchid Committee.

First-class certificates were awarded to the following, but owing to their having been removed, we are unable to describe the first two.

LÆLIO-CATTLEYA CASSIOPE.

EPIDENDRUM ENDRESI × *WALLISI.*

LÆLIA PURPUREA (Lucas's var.).—A very fine form of this species in which the flowers are larger and deeper in colour than those of the type, being of a beautiful rose in both the sepals and petals, the colour of the lip also being deeper. From Mr. C. Lucas, Horsham.

LÆLIA ANCEPS BALLANTINIANA.—A grand form, the flowers as large as those of the type and of a rich colour. The sepals are narrow, white, tinged with rose; petals rich crimson, deepening at the point, the lip velvety crimson, with golden-yellow throat, striped with crimson. From Mr. G. Douglas.

CYPRIPEDIUM CALYPSO (Oakwood var.).—A cross between *C. Spicerianum* and *C. Boxalliatratum*, the dorsal sepal white, covered with purple stripes, the midrib deep purple; petals pale green flushed with brown, with a stripe of deep purple down the centre; the lip pale brown in the upper part, the base light green, dotted with purple. The plant was very strong and bore three blooms. Mr. N. Cookson, Wyham-on-Tyne.

Awards of merit were given to the following:—

CYPRIPEDIUM GIGAS.—A cross between *C. Lawrenceanum* and *C. Harrisianum*, the dorsal sepal nearly 3 inches across, striped with rich brown, the margin white; lip rich chestnut. From Mr. C. Ingram, Elstead House, Godalming.

CYPRIPEDIUM ENFIELDIENSE.—A cross between *C. Hookeræ* and *C. Lawrenceanum*. The dorsal sepal is broad, tinged with rich purple with darker veins and a faint white margin. The centre of the petals is green with a purple margin, the lip having a purplish hue. Mr. H. M. Pollett, Bickley.

ODONTOGLOSSUM ROSSI ALBENS.—A variety of a well-known Orchid, the sepals having yellowish spots, the petals, as also the lip, being pure white. From Messrs. Charlesworth, Shuttleworth and Co.

There was a great number of other *Cypripediums* of unusual interest, many being quite distinct. *C. Leeanum princeps* has flowers of great beauty, the dorsal sepal white, broad, the lower portion freely spotted with crimson. Mr. Ballantine, The Dell, Egham, brought cut blooms of several beautiful Orchids, amongst them being *Odontoglossum crispum Schröderianum* (white, with dense spots of crimson) and the lovely *Cypripedium insigne Sanderæ*. Mr. Crook, Forde Abbey, Chard, sent flowers of *Cœlogyne speciosa* and *Angraecum virens*. Mr. H. M. Pollett, Bickley, had cut flowers of Orchids. Mr. Iggulden, Marston, Frome, sent cut flowers of *Vanda Cathcarti*. Mr. C. J. Lucas, Horsham, sent some choice things, including *Cypripedium caudatum*, *Dendrobium heterocarpum*, *Lælia anceps Stella*, and *Pescatorea Klabochiana*. Messrs. Charlesworth and Co. had *Cypripedium Swinburniæ*, a hybrid between *C. insigne Maulei* and *C. Argus*, in which the flowers had retained the deep spotting seen in the latter; and a large flower of *Lælia præstans* (Heaton's var.). Messrs. Pitcher and Manda, Swanley, showed two very distinct *Cypripediums*. Mr. N. Cookson had seedling *Calanthes*, one with a very fine deep crimson lip, and others of a lighter shade. The Rt. Hon. J. Chamberlain had a beautiful white *Lælia anceps Sanderiana*.

Floral Committee.

Awards of merit were given to the following:—

CANNA ALPHONSE BOUVIER.—A beautiful variety of the new large flowering section. The flowers are crimson, the petals being large and of good substance. A valuable addition to these winter-blooming plants. Messrs. Paul and Son, Cheshunt.

CHINESE PRIMULA PINK QUEEN.—A beautiful pale blush-flowered variety with fringed edges. Messrs. Cannell and Sons, Swanley.

CHINESE PRIMULA PEACH BLOSSOM.—This has flowers of a deeper colour than the preceding. The shade of pink is very distinct. Messrs. Cannell and Sons.

Messrs. Veitch sent cut sprays of *Daphne Meze, erumautumnalis*, *Hamamelis japonica Zuccariniana*, and *Hamamelis arborea*. These shrubs should be more often seen. Messrs. Cannell and Sons in addition to those certificated, had a group of well-grown *Primulas*, consisting of thirty-six plants in variety. These were of good habit with blooms of large size, the single pips of many being very fine. Kentish Fire has dark red or crimson flowers. Eynsford Purple is much the same as Kentish Fire.

except in colour. White Perfection has pure white flowers of good size. Cannell's Pink is also distinct. Swanley Mauve is novel, but it is, I consider, not so valuable for decoration. Messrs. Veitch also sent a stand of their new winter-blooming Begonia Winter Gem. Sprays of a new Asparagus came from Mr. Bishop, of Westbury Hall Gardens, Bury St. Edmunds. The Lachenalias staged by Mr. W. C. Leach, Albury Park Gardens, were very fine, the spikes, some of which had from fifteen to twenty open flowers, being short and stocky, the flowers also richly coloured (silver Banksian medal).

Fruit Committee.

An award of merit was given to

APPLE ALBURY PARK NONSUCH.—A cooking variety, said to have come off a tree over 100 years old. It has size, colour and good flavour, and much resembles Withington Fillbasket.

A dish of seedling Pears of excellent flavour named Thorncroft came from Mr. J. Moore, Seymour Cottage, Sutton, Surrey. A seedling Apple from Mr. J. Holmes, Paston Rectory, had some of the Ribston flavour, but was a little past its best. Mr. Dean sent Apples from a Surrey garden near Guildford, very much like King of Tompkins County, but superior in flavour. A variety of Crab came from Messrs. Dicksons, Chester, for name. It much resembled White Paradise. A dish of well-coloured Tomatoes, a seedling from the old red, came from Mr. Wythes, Syon House. It is an excellent winter variety. A collection of splendidly-grown Onions in nine varieties, many of the bulbs being of immense size and well ripened, was sent by Mr. H. Deverill, Banbury, and included several new forms: Advance, of the James's Late Keeping type, is certainly a fine selection; the other varieties were James's Keeping, still one of the best; The Lord Keeper, Ailsa Craig, very fine, Cocoa-nut, Anglo-Spanish, a large flat kind, Royal Jubilee and Wroxton (silver Banksian medal). From the well-known fruit nurseries at Maidstone (Messrs. Bunyard and Co.) came 100 dishes of Apples and a few dishes of Pears (silver medal). The committee tested several varieties of the above with imported fruit, and they found that King of Tompkins County grown in Kent was superior to imported samples, which, however, were more highly coloured.

In Mr. Iggulden's absence, the hon. sec. read his paper on "Winter Vegetables." Mr. Iggulden stated there were twenty-three distinct kinds of vegetables available for winter use, and about one dozen kinds of roots. With all this number there is often a great scarcity, owing to our climate being so moist, and various kinds are not able to stand a severe winter such as we had last season. Employers do not attach sufficient importance to the preparation and cooking of vegetables, and cooks have much to answer for. To get a good supply of winter vegetables it is necessary to have plenty of frames and forcing houses. Without these the gardener is handicapped; even with these advantages it is not an easy matter. Employers, therefore, would do well to provide these on a liberal scale if they require plenty of winter vegetables. Brussels Sprouts are indispensable, and should not be grown too coarse nor large; a medium sized or small sprout is appreciated, while a coarse one is useless for many purposes. Care in sowing at the right date is important to get them in condition; plenty of room is also necessary. Borecoles should be largely planted, both the Scotch and Green Curled being of great value in the winter months; these and Read's Hearting Kale are well worth protection in a frame in severe winters. Buda and Asparagus Kale are specially valuable for spring cutting, and often stand when all others fail. Broccoli is often a precarious crop, Veitch's Self-protecting being most valuable for autumn use. If sown early in April, lifted with a ball of earth, taking care to preserve the fibrous roots, and replanted in frames in light rich soil, the season can be greatly prolonged. Snow's Winter White is an excellent variety. Savoy's sown later and grown small are most valuable and very hardy. Cabbages come next, and for

winter the Rosette Cabbage is most serviceable. Chou de Burghley should also be sown late, as if sown too early it comes too large, but if sown as advised it is a very useful vegetable. Spinach is often much neglected. It is a high-class vegetable and worth extended cultivation. The ground for Spinach requires special attention to get good returns. Soot should be freely used to destroy insect pests. Late sowing is often a cause of failure. Mr. Iggulden advised the first week in August for winter crop, the Victoria and Viroflay being the best kinds, and, though round-seeded, quite hardy. Spinach Beet is very good when cooked well, taking away the outside leaves. Endive, though not usually classed as such, is an excellent winter vegetable, the Improved Round-leaved Batavian being the best and hardiest. Leeks are also good when blanched. Cardoons, though seldom grown, are very useful when properly cooked, and here our cooks are often at fault. The same remarks apply to Celery, equally good and useful, but not used enough as a vegetable. Root crops are invaluable for winter use on account of their keeping qualities. Potatoes are often sent up to table badly served, in a sodden condition and often uneatable. The Potato is not valued sufficiently, and the gardener often grows too many kinds. Some are not suited to the soil, and thus never cook well. Town dwellers often purchase their Potatoes by appearance and not quality. Carrots may be had nearly all the year round by growing the Short Horn type, sowing these in July for winter use. Jerusalem Artichokes are very seldom used, but are good when carefully cooked. The Chinese Artichoke (*Stachys tuberosa*) is very good, but difficult to cook owing to its small size; the cook if not careful will lose half in preparing. Salsafy and Scorzonera require equally good cooking, and are, therefore, somewhat neglected. Both are valuable winter vegetables, and require to be sown late. Celeriac has few admirers, but, properly cooked, it is an excellent vegetable. Large Early Paris and Turnip-rooted are the best varieties.

DISCUSSION.—Mr. Bunyard said Mr. Iggulden had omitted to name Beetroot as a vegetable; he thought it indispensable. He had also found the St. John's Day Drumhead Cabbage superior to Rosette for winter use; it was much used in Kent. He also recommended a variety called Christmas Cabbage.

Mr. Wythes agreed with Mr. Iggulden as to Spinach, the Victoria and Viroflay being the best and perfectly hardy; indeed he never sowed the prickly kinds now. He said he could see no difference between the Victoria and the Viroflay. He still liked the old Walcheren Broccoli, as when sown frequently it gave nice small heads just fit for table. He regretted that many even in large gardens could not give vegetables the frame room desired for winter protection.

Mr. A. Dean concurred with Mr. Iggulden's remarks as to cooking Potatoes, but not as to varieties.

United Horticultural Benefit and Provident Society.—The last quarterly meeting of the year was held on Monday evening last at the Caledonian Hotel, Mr. Nathan Cole in the chair. Nine new members were elected, bringing the benefit membership up to 423. Four new hon. members joined during the year, bringing the number up to fifty-five. Sickness has been very prevalent, seven members being on the funds at the present time. Four deaths have occurred during the year. The committee earnestly ask the co-operation of members in inducing others in the profession to join this very useful society. The annual meeting will take place on Monday evening, March 14, at 8 o'clock.

Soot and lime.—Surely these two substances should not be mixed when used for manurial purposes, as I think I saw recommended in THE GARDEN a week or two ago. At any rate, if they are so mixed, is not most of the ammonia contained in the soot set free and so lost to the cultivator? This is also what happens when quicklime and

stable manure are mixed together, a loss of manurial value being the result. For bog or peaty land air-slaked lime is a capital dressing, as it is also for old gardens in which the soil is black and cloyed with manure or humus. It quite refreshes and rejuvenates worn-out old soils, and is a good fertiliser as applied just now to all fruit trees, especially bush and stone fruits, either before or after an application of potash in the shape of burnt rubbish and wood ashes. For Grape Vines especially lime and potash are very essential.—DUBLIN

Books.

VEGETABLE SCULPTURE.*

THIS gentleman, unfortunately, without any knowledge of plants, trees, or natural landscape beauty, launches forth on a little raft of bladders into the dreary sea of quotations from old books, and knows so little of where he is going, that he is put out of his course by every little drift of wind.

One goes through chapter after chapter thinking to get to the end of the weary baseless matter, only to find again nothing but quotations, even to going back to an old book for a song. When at last we come to a chapter on "*Art in the Garden*," this is what we read—

Let us here point to the fact, that any garden whatsoever is but Nature idealised, pastoral scenery rendered in a fanciful manner. It matters not what the date, size, or style of the garden, it represents an idealisation of Nature. *Real* nature exists outside the artist and apart from him. The Ideal is that which the artist conceives to be an interpretation of the outside objects, or that which he adds to the objects. The garden gives imaginative form to emotions the natural objects have awakened in man. The *raison d'être* of a garden is man's feeling the *ensemble*.

This is merely the false and confusing "art" drivell of the day brought into the garden—not to live long there, let us hope.

The illustrations are of the most wretched kind produced by some process, the only interesting one being one of Levens. The most childish ideas of the garden prevail—indeed we hardly like to call them childish, because children do put sensible questions and see clearly. For instance, for the author there is no art in gardening at all—the "art" consists entirely of building walls and planting Yew hedges. Thus the work of the late James Backhouse, who knew every flower on the hills of Northern England, and expressed that knowledge in his own rock garden, is not art, but cutting a tree into the shape of a cocked hat is art, according to Mr. Sedding.

He assumes that landscape gardeners all follow natural and picturesque ways, and that only architects make terraces; whereas the greatest sinners in this respect have been landscape gardeners—Nesfield, Paxton, and many others. He has paid so little attention to the subject, that he says that the landscape gardener's only notion is to put Grass all around the house! It does not even occur to him that there may be Grass on one side of a house and gardens of various sorts at the others, as at Goodwood, Shrub-

* "Garden Craft, Old and New." By John D. Sedding. London: Kegan Paul, Trench, Trübner and Co.

land, Knole, and that a house may have at each side a different expression of landscape gardening.

He takes the "English Flower Garden" as the expression of landscape gardening practice; whereas the book, in all the parts that treat of design, is a protest against the formation by landscape gardeners of costly things which have nothing to do with gardening and nothing to do with true architecture. The good architect is satisfied with building a beautiful house. If its approaches are difficult, we are all the more obliged to him for settling the levels by terracing where necessary. But what we deplore is that men who are not really architects, who are not gardeners, should cover the earth with such rubbish as the Crystal Palace basins, the thing at the top of the Serpentine, and the Grand Trianon at Versailles.

Here is a specimen of Mr. Sedding's knowledge of the facts of the subject:—

For the "landscape style" does not countenance a straight line, or terrace, or architectural form, or symmetrical beds about the house, for to allow these would not be to photograph Nature. As carried into practice, the style demands that the house shall rise abruptly from the Grass, and the general surface of the ground shall be characterised by smoothness and bareness (like Nature!).

If he had even taken the trouble to see a good garden laid out by Mr. Marnock or anybody worthy of the name of landscape gardener, he would find that they knew the use of the terrace very well. If he had taken the trouble to see one of my own gardens, he would find beds quite as formal, but not so frivolous as those described in the older books, and lines simple and straight as they can be. Where Barry left room for a dozen flowers at Shrubland I put one hundred; so much for the "bareness!"

On page 180 the author says:—

Because Art stands, so to speak, sponsor for the grace of a garden, because all gardening is Art or nothing, we need not fear to overdo Art in a garden, nor need we fear to make avowal of the secret of its charm. I have no more scruple in using the scissors upon tree or shrub, where trimness is desirable, than I have in mowing the turf of the lawn that once represented a virgin world. There is a quaint charm in the results of the topiary art, in the prim imagery of evergreens, that all ages have felt. And I would even introduce Bizarries on the principle of not leaving all that is wild and odd to Nature outside of the garden paling; and in the formal part of the garden my Yews should take the shape of pyramids, or peacocks, or cocked hats, or ramping lions in Lincoln green, or any other conceit I had a mind to, which vegetable sculpture can take.

After reading this I had a vision of true "vegetable sculpture;" Reed and Lily, a model for ever in stem, leaf and bloom; of the grey Willows of Britain, sometimes livelier than Olives against our skies; of many-columned Oak groves set in seas of Primroses, Cuckoo flowers and Violets; of the Silver Birch woods of Northern Europe beyond all grace possible in stone; of the eternal garland of beauty that one kind of Palm waves for hundreds of miles between the desert and the Nile; of the noble Pine woods of California and Oregon, like fleets of colossal masts on mountain waves—of these and many other lovely forms in garden and woodland, and then wondered that anyone

could be so blind to the beauty of plant and tree as to write as Mr. Sedding does here.

From the days of the Greeks to our own time, the delight of all great artists has been to get as near this divine beauty as the material they work in permits. But this deplorable "vegetable sculptor's" delight is in distorting the beautiful natural forms; and this in the one art of which we have the rare privilege of enjoying the living things themselves, and not merely representations of them.

The old people from whom he takes his ideas were not nearly so foolish, as very often the Yew tree, which was clipped, was used as a shelter or a dividing line, and when a Yew was put at a garden door for shelter or to form a hedge, it was necessary to clip it if it was not to get out of all bounds. But here is a man delighting for its own sake in what he calls with such delicate feeling "vegetable sculpture" in "cocked hats" and "ramping lions!"

W. R.

PUBLIC GARDENS.

A recreation ground for Borstal.—The Works Committee of the Corporation of Rochester recommend the latter body to accept Alderman Craske's offer of a piece of land by the riverside as a recreation ground, the rent to be £20 per annum.

The Winter Garden at Bournemouth.—A poll of the ratepayers and owners of this borough was lately taken upon the question of purchasing for £11,000 a seventy-five years' lease of what is known as the Winter Garden, which contains five acres of land and a large glass pavilion. The result of the poll was a majority of 633 against the purchase.

Peckham Rye extension.—On the recommendation of the Parks Committee, the following report was agreed to: "On the land known as the Peckham Rye extension, which the council is about to purchase, there are certain properties with respect to which leases exist, and one of those properties is a pottery and two houses in the possession of a Mr. Marshall, who has a lease of it for an unexpired term of thirty-seven years. It is most desirable to secure possession of the land on which the pottery stands, inasmuch as between it and the adjacent high road there is a narrow strip of ground forming part of the extension which will come at once into the hands of the council, but which will be rendered useless for thirty-seven years unless Mr. Marshall's lease can be obtained. We have made full inquiries as to the value of the lease, and being fully satisfied with the desirableness of obtaining it, we recommend that the council do authorise an expenditure of £900 for the purchase of the thirty-seven years' lease held by Mr. Marshall with respect to a portion of the Peckham Rye extension."

Open spaces.—At the monthly meeting of the Metropolitan Public Gardens Association, at 83, Lancaster Gate, W., Mr. Deputy Bedford, vice-chairman, presiding, in the unavoidable absence (owing to Lady Meath's health) of the Earl of Meath, satisfactory progress was reported with regard to the schemes for the acquisition of the Alexandra Park Estate, N., an enclosed part of Wandsworth Common, S.W., and the Hilly Fields, Brockley, S.E. Towards the latter project the subscriptions promised from private sources now amount to £6000, leaving some £7000 still required to make up the purchase money (£13,000). It was agreed to place shrubs in boxes around the railings of the underground public conveniences at Portland Road Station, W., and at Shaftesbury Avenue, W.C., pro-

vided their maintenance was secured, and to give six seats for Stamford Hill, N. It was announced that the laying out of De Beauvoir Square, N., and St. Botolph's Churchyard, Aldgate, E., was nearly completed. Victoria Park Cemetery, E., three churchyards in Fulham, a burial ground in Shoreditch, Spitalfields Churchyard, E., and St. Bride's, Fleet Street (north side), are next to be taken in hand. The Kensington Vestry has agreed to adopt the suggestion to plant trees in Cromwell Road, S.W. It was decided to point out to the London County Council certain open spaces which it might acquire with the £10,000 received under the Post Office Sites Act.

RAINFALL IN 1891.

	Inches.	No. of days on which rain fell.
January	1.58	7
February	0.11	6
March	0.86½	15
April	2.67	13
May	4.35	21
June	3.82	15
July	1.88½	17
August	4.50½	23
September	2.69½	15
October	5.90½	22
November	2.57½	16
December	3.30	20
	34.26	190

"Oteley," Ellesmere, Salop.

C. A. PEARSE.

	Inches.	No. of days on which rain fell.
January	1.90	14
February	0.12	2
March	1.55	17
April	1.41	12
May	3.34	21
June	2.15	11
July	1.83	15
August	4.61	23
September	1.02	14
October	6.94	26
November	2.49	15
December	3.47	17
	30.83	187

Average rainfall for 10 years past, 26.81 inches.

Madresfield Court Gardens.

W. CRUMP.

METEOROLOGICAL REGISTER

KEPT AT INVERIE GARDENS, KNOYDART, INVERNESS-SHIRE, N.B.

For year 1891.	Average maximum. Degrees.	Average minimum. Degrees.	Average wet bulb. Degrees.	Average dry bulb. Degrees.	Total rainfall. Inches.	Most rain in one day. Inches.	Number of days no rain fell.
January	44.7	33.13	37.24	40.3	8.24	1.29	7
February	48.3	35.21	43.3	45.13	6.16	1.53	14
March	46.7	31.22	34.19	36.25	4.43	.65	13
April	50.13	34.4	39.15	42.24	1.11	.43	24
May	54.25	38.30	42.30	46.11	3.85	.80	17
June	66.1	48.13	52.2	61.9	3.65	.70	20
July	58.3	46.20	52.26	55.30	4.86	.78	10
August	60.5	44.19	52.27	52.26	8.38	1.13	8
September	59.2	47.5	52.12	54.23	10.93	1.40	8
October	55.14	41.24	46.20	47.22	8.07	1.04	9
November	43.10	35.22	41.26	42.24	7.04	1.05	10
December	45.28	36.13	40.1	46.10	11.80	1.52	8

Total rainfall for 12 months 78.02

J. HUGGINS.

Phylloxera.—Can any reader give information as to the means adopted for eradication of Phylloxera which is referred to in the *Times* telegrams on January 4, 1892, as follows:—

Melbourne, January 2.

The Phylloxera Board reports that the disease has been eradicated throughout the wine-growing districts of Victoria, which is the first country to overcome the scourge.—*Reuter.*

Arisaig, N.B.

A. W. N.

WOODS AND FORESTS.

TREE NOTES.

DWARF BEECHES.—At Parkour, in Athlone, the beautiful residence of Mr. Burgess, are two of the most curious and interesting Beeches that are known in this country. They were transplanted to their present position from the woodland nearly three-quarters of a century ago, and yet they are scarcely more than 10 feet high, or at least were a few years back. Being of dense growth and drooping habit, the branches ramifying from the stem at about 4 feet from the ground, they present a most curious appearance, resembling great heaps of leaves more than anything else I can call to mind. Growing from a mighty boulder-stone in the craggy pass of Nant Francon, in North Wales, I used often to admire both an Ash and a Beech that resembled closely these Irish specimens. They were simply dwarfed through want of sufficient nourishment, growing as they were on a barren rock; but the Irish specimens were not so, but seemed more to be naturally of a dwarf contorted habit, and therefore, perhaps, worthy of perpetuating.

STEM JUNCTION OF A YEW AND AN OAK.—By the public path in Holwood Park, and near the celebrated Wilberforce Oak, is one of the most peculiar cases of the junction of the stems of two trees—a Yew and an Oak—that has ever come under my notice. The combined stem of the Yew and Oak, which is of a perfectly normal shape throughout its entire length, is 7 ft. 11 in. in girth at 1 yard from the ground, and 7 feet 10 inches at 5 feet up. The Yew rises to 15 feet in height, and has a branch-spread of 36 feet; while the Oak, whose height is 35 feet, has a diameter of branches of 54 feet. Both stems are so amalgamated into one, that were it not for the difference in colour of the barks, the point of junction could hardly be detected. For fully 5 feet up, at which point two large limbs are sent out by the Oak, the Yew takes up from 2 feet 2 inches to 2 feet 5 inches of the total girth of the tree, but how far the wood of the Yew extends inwards has not been determined. At 2 feet from the main stem the two large limbs sent out by the Oak girth respectively 4 feet 7 inches and 4 feet 9 inches, and as they grow on opposite sides, north and south, of the trunk, they have an appearance that is very peculiar. The Yew stem almost encircles the northern limb, and with it is completely amalgamated, the barks being quite level at their point of junction. When viewed from the public path, from which it is 11 yards distant, these combined trees present a curious appearance, particularly when the Oak is destitute of leaves, the commingled deciduous and evergreen branches being then most noticeable. How this union of the two trees, but particularly an evergreen Conifer and a deciduous hard-wooded tree, could have been brought about it is difficult to determine, but as both the Oak and Yew are of about equal age, in all probability they had been planted closely together in a young state, and so grown into one stem, owing to their close contiguity. Tying of the two stems may likewise have been resorted to; indeed owing to their nearness to the public path this is quite likely.

THE WINGED ELM (*Ulmus alata*) should certainly receive a far greater amount of attention in this country than it does at present. It succeeds well at very high altitudes and on the most exposed side of shelter-giving plantations or some of our mountain sides. I noticed it doing well where few hard-wooded trees could exist on the Snowdon Hills in Wales—and

there it seemed to do quite as well as at lower elevations. Then it is a decidedly ornamental tree of small growth. The curiously-winged branches, the bark being ridged and corky, are quite distinct from those of any other tree I know. It is quite hardy and of free growth.

THE SCARLET OAK (*Quercus coccinea*) did not put on its best garb during the late autumn, probably owing to the dripping and sunless weather; but I have been noting for some time back that there are some almost worthless forms—so far, at least, as the foliage tint is concerned—of the so-called Scarlet Oak, and whose leaves are of a dull russety-brown, and altogether wanting at any time of the year in the fine rich scarlet tone that pervades the best variety. It is well, therefore, to make sure before purchasing a quantity that the right kind is obtained, as in not a few forms the leaf-colouring is hardly preferable to that of our common British Oak.

TREE MEASUREMENTS.—Frequently the measurements of remarkable trees are utterly worthless for all practical purposes by the omission of the heights at which the girths are taken. That a tree is so many feet in girth is very vague indeed unless the height at which the measurement was taken be also recorded; then comparison in after years is not difficult. The stem girths of trees should, unless good cause to depart from it be adduced, be taken at 3 feet and 5 feet from ground level, and if this method was universally adopted, much annoyance would be spared. A. D. W.

The Silver Birch.—When this tree is crowded, its symmetry and natural outline are lost, but given sufficient space for proper development, few deciduous trees are more ornamental in winter than this Birch, the dark colour of the small branches contrasting strongly with the silvery stem. The entire aspect of a well-grown specimen is elegant and graceful. No one would wish to see any place overdone with Birches, but I do say they want to be seen in proper character and well situated oftener than they now are.—J.

The Purple Birch.—Many of our readers are familiar with the Purple Birch, which has hitherto stood unapproached by any other purple-foliaged tree. The Purple Birch bids fair to divide honours with it when better known. The habit of this tree is similar to that of the Cut-leaved Birch, the pendulous form of which is so popular throughout the country, but the leaves are entire, larger, and of even a deeper colour than those of the Beech, as ordinarily seen. What makes it more pleasing is the silvery-white bark, which seems to throw out in stronger relief the beauty of its dark, rich leaves.

Cotoneaster frigida.—Among trees and shrubs this makes a showy object in winter. It is of robust growth, not particular as to soil, and produces freely large bunches of bright red fruits. These, too, seem less liable to be attacked by birds than those of many other trees and shrubs, and therefore remain in perfection for a long time. Their depth of colour seems to vary a good deal in different individuals, no doubt owing to the plants being raised from seed. Comparatively common though it be, it is certainly better worth the attention of planters than many oftener employed by them.—A.

Thick and thin planting. This is such a very much discussed question, that to touch upon it is almost sure to mean the rousing of somebody's susceptibilities. Yet it is hard to be oblivious to the fact that the bulk of planting, whether for profit or ornament, is executed too thickly. When this is done by persons who have an interest in packing as much as possible on a given space there may be some excuse, but nevertheless where trees are expected to thrive it is a serious matter. I know large groups of young trees now, which cost big sums of money to plant, where the trees

are literally smothering each other. It is a pity, but since the planter left his work no heed has apparently been paid to what the outcome will be. If it is true that "a stitch in time saves nine," it is equally true that a little care in the early years of plantations or groups will save an enormous amount of trouble later on.—RAMBLER.

The outlines of woods. The difficulty of dealing with these is well illustrated by glancing at a wood which is situated partially on the level and partially on the hillside. The portion which is growing on the level, whatever the form of its outline, seems to blend well with the surrounding country, but directly the margin begins to ascend it becomes more harsh. Looked at from the level, ground and directly up the rising ground, this is of course not seen, as the hillside itself is hidden by the trees and the opposite margin is below the line of sight. It is when viewed obliquely that the want of harmony is seen. How this can entirely be got over is a knotty problem, but I have seen cases where the harsh outline has been materially softened by the introduction of tree groups along the margin and in the line of the rising ground. When this plan is adopted, the groups are better when somewhat loosely arranged.—A.

Staking and protecting trees.—After planting trees, whether for ornament or profit, it is false economy to leave the plants without protection until they are attacked or perhaps destroyed by rabbits, and then begin to fence. Fencing should always be done at the right time, which is immediately after the trees or shrubs have been planted. Staking and tying should be done also, and where necessary a good mulching should be given to keep the roots and collar of the plant safe during hard frost, and prevent too sudden evaporation in spring. In severe, rigorous winter weather it is often necessary to protect half-hardy kinds with branches, and perhaps none are better for this purpose than those of the Spruce, so that it would be well to have such ready and convenient to the plants so that they could be applied in cases of emergency.—J.

The Goat Willow (*Salix caprea*).—Of this, although it can hardly be said to acquire a great height and large dimensions, there are, nevertheless, examples throughout the country of immense size, considering the habit of the tree. It thrives in any soil or elevation, but will attain its greatest height and dimensions in a dry, rich, deep, loamy soil, with a cool, if not dampish bottom. The wood of the Saugh is tough and elastic, having considerable lateral as well as longitudinal adhesion, and admits of a very fine polish. It is of considerable value for jobbing purposes, but the White Willow (*Salix alba*), in point of utility as a timber tree, is far superior. The price which the *Salix caprea* will realise in a sale is about the same (according to district) as that of the Larch or Birch wood. It is very profitable as an undergrowth in many plantations, for in favourable seasons it will yield young shoots fully 5 feet in one year, these being very suitable for the purposes of the crate-maker or basket manufacturer. The bark yields a large amount of tannin.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1890, thirty-eight vols., price, cloth, £28 4s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

No. 1053. SATURDAY, January 23, 1882. Vol. XL1.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ORCHARD AND FRUIT GARDEN.

SLOPING VINE BORDERS.

IN the majority of cases Vine borders have to be of dimensions, form and constituents not always under the control of those who make them, but there are many blunders that might often be avoided. The prevailing idea would appear to be that they must be given a good slope from the back to the front, and, as far as outside borders are concerned, this form answers well, not because a good fall to the front helps to throw off excessive rainfall, but rather on account of a slight angle bringing the border more under the influence of all the sunshine going. Now I hold that this plan of sloping outside Vine borders may easily be overdone, while they are altogether uncalled-for and faulty when similarly constructed inside the houses. Warmth and air are undoubtedly most congenial to Vine roots, but when these conditions are made paramount, events may not prove so satisfactory as anticipated. The roots, and through them the Vines, more often than not suffer from want of moisture than of heat, and it is the sloping borders that dry up the most quickly, being also much the most difficult to re-moisten. Nor is this the only fault I have to find with this class of border. It is my firm belief they do more to promote an injuriously deep root-action than is atoned for by an increase in the temperature of the soil over that of more flat or nearly level borders. The cultivator, by top-dressings of a root-enticing or root-inducing material, contrives to fill the surface of the border nearest the stems with abundance of root-fibres, only to lose many of them when their hungry points spread a short distance towards the front. A portion of them strikes downward, but only a comparatively few find their way into the surface of the more shallow part of the border. Doubtless much can be, and very often is done towards keeping the fronts of borders well filled with roots by means of liberal top-dressings of soil and manure, mulchings of leaves and strawy manure also being applied; but these alone are not sufficient, and plenty of water must be supplied during a moderately dry time, or otherwise not many healthy root-fibres will be found.

When we come to discuss the state of sloping inside borders, the objection is even more pronounced against this method of forming them. In not a few instances the gardener has scarcely any choice in the matter, or is under that impression, the initial mistake having been made by the designer of the structures. Too often the foundations are not got out deep enough to admit of a good depth, or, say, from 30 inches to 3 feet below the door-sill or level of pathways being obtained, and raising either the one or the other being almost out of the question, a sloping border is the almost sure consequence. The very illustrations of vineries given by some of the leading horticultural builders, showing inside borders, make these sloping abruptly to the pathway on both sides, no matter how narrow one or both of the widths may be, and unless the gardener has had some previous unsatisfactory experience in the matter, that is the inevitable style of border that will be made. To make matters worse, the hot-water pipes are also fixed very low, and not unfrequently only

a short distance from where the stems of the Vines will be located, the evil being aggravated accordingly. In the latter case not only is there every prospect of the narrowest portion of the border becoming much too dry, but that at the deepest side will also be robbed of much moisture by the hot-water pipes. Plenty of cases are met with where the return pipes are actually buried in the soil or mulchings, rendering this "as dry as a bone," and destroying all active roots that come into contact with it. Once borders thus situated become dry, it is next to impossible to remoisten them by ordinary measures, and if the roots leave such unsuitable quarters and force their way through brick or stone walls into the open ground, this is nothing to be wondered at. In this neighbourhood there are two vineries with inside borders necessarily made sloping to the pathway, but, fortunately, the gardener in charge fully realised the danger of allowing them to become quite dry, and the quantity of water applied during the growing season was almost startling. They are well watered sometimes once and frequently twice in one week, and if only there had been more head room allowed, no fault could be found with the weight and appearance of the crops produced during the past six years. But what if water had been scarce, and it is far from being plentiful in the majority of gardens? Or, again, what would happen if a fresh man, who did not consider the risks to be run, or, in other words, either did not believe in the necessity for or neglected to give so much water as previously, took charge of the place? Failure inevitable and complete would be the result of either a scarcity of water or neglect to apply it in abundance, always provided the Vines were unable to send their roots out into a moister root-run on the other side of the foundation walls.

Having pointed out the evils attending the construction of sloping borders, it is only right that I should suggest a way out of the difficulty. This is simple enough as far as outside borders are concerned. In not a few cases it would be a very judicious proceeding to considerably reduce the width of these borders, at any rate for some three or four years. Many of the old roots found might well be cut back 4 feet or more, while those better furnished with fibres or presenting a healthier appearance generally, few of which probably would be found within 4 feet of the boundary wall, might be preserved. A width of from 4 feet to 6 feet having been cleared, the latter figure being by no means extreme, especially in the case of very old or much exhausted borders, add a fresh width of 2 feet or rather more of good, fresh loamy compost. This must be kept up together by means of a wall of turfs, the next best thing being a loose brick wall, which will be found quite strong enough for the purpose. A perfectly flat outside border is neither necessary nor desirable, but it ought to be made very nearly so, the front wall being built up to a good height accordingly. The new portion of border should be sufficient for two years, and when the time has arrived for adding another width, the front of the turf wall may be shaved off with a spade, and the new soil be packed firmly against the old loam. The latter being well stocked with roots, it will not be long before the new soil is also taken possession of, the consequence being an improvement in the Vine's health. It may not always be convenient or possible for a new width of border to be added, good loam, for instance, being very scarce in many gardens. In this case the slope of a border may be gradually lessened by simply lightly top-dressing the deepest part, and more heavily so the front,

with fairly rich loamy compost. This should attract many roots, and in any case render it a much easier matter to well moisten the border whenever necessary. Doubtless, the autumn, or before the leaves are changing colour, is the best time for interfering with the roots of Vines, but there is no good reason why it should not be done any time before top-growth is far advanced this spring. Top-dressing may be applied with advantage at almost any time of the year.

Inside borders may be levelled up in much the same way, turf walls answering even better under glass than they do in the open. I have seen them bristling with great white roots, and the borders when raised well above the level of the walks and kept well supplied with water must derive great benefit by the extra exposure to heat, air—moist or otherwise. Better by far be content with a comparatively narrow square border, say, half the width of the house, than have a much wider sloping border that cannot so readily and surely be made congenial to the roots. Every drop of water applied to a level border must find its way downwards or to where it is most needed; whereas there is very much waste connected with those that are sloping, especially if, as before hinted, they are allowed to become the least bit dry before the attempt is made to properly moisten them. Square or level borders are, therefore, the most economical in every way, and there is no mistaking which prove the best for the Vines to root into.

W. IGGULDEN.

EARLY MELONS IN POTS.

EARLY Melons are very valuable to those who have a large and varied dessert to supply in the spring, and though I well know there is nothing new to add to their culture, much time is saved by growing in pots and growing early varieties. Some may say there is little difference in Melons as to earliness, as they all take much the same time. There is, however, a great difference, some kinds being three or four weeks in advance of others. This is easily accounted for, as a Melon with a thick skin or rind takes much longer than a thinner skinned one; for instance, Davenham Early is far earlier than some others. For early fruiting I prefer a yellow or golden-skinned variety, and a moderately sized fruit with some of the Cantaloup blood in it. For mid-season fruits a green-fleshed Melon is difficult to beat. Whatever kind is cultivated, much depends upon the consumer's taste, one preferring scarlet-fleshed, another green-fleshed. There are few fruits that deteriorate sooner than Melons. When several kinds are grown it is impossible to keep them true, so that I consider raisers are justified in the work as long as such deterioration goes on and a high standard in new kinds is maintained. For early fruits bottom heat and a small house with a sharp pitched roof facing south are essential to success. Such a house is not always to be had and good fruits may be grown in frames. For years I grew Eastnor Castle, and got ripe fruits the second and third week in May out of a small six-light frame well heated and facing due south. My employer at that time thought it the best Melon of all, and it was the only variety grown so as to keep it true. My plan in frames was to plant at the end of January in 18-inch pots plunged in the fermenting material, placing the pot on another one inverted so as to prevent the large one sinking down. I then made a rough trellis 12 inches from the glass and trained the vine, and thus got every ray of sunlight, besides keeping the fruits clean and free of insect pests. By having a free circulation of air under the plants the early blooms set freely and the fruits ripened well. As regards Melons for house work, I adopt the same plan, plunging the pots or standing them over the pipes on other pots, and planting as soon as young plants in the rough leaf can be secured. I always find there is nothing gained by potting on; I prefer to sow in

3-inch pots in good loam and a little mortar rubble or charcoal refuse, placing in a brisk heat, and when the third leaf has developed, plant at once if the soil in the pots is in a nice warm condition. For Melons I prefer a strong loam cut the previous year and stacked with a layer of horse droppings between, adding some old mortar rubble or charcoal refuse. Firm planting induces a sturdy growth. It is also advisable with Melons cultivated thus early in the season to fruit sparingly, two to four fruits on each plant being ample, and to get all the fruits to set at the same time on all the plants. To get flavour in the fruits, keep a warm dry atmosphere, which is impossible with fruits ripening and others swelling. With Melons in pots, feeding after the set is secured is less difficult than when planted out, as the roots of the latter often get down to the manure in search of food, and setting is difficult, as growth is too robust. With pot plants a heavy mulching can be given that goes direct to the fruits and thus induces a quick growth. Cracking or splitting at the base or collar is less frequent, the stem being firmer and more exposed. Melons often get rich soil at the start, and thus early setting is out of the question, a gross growth being the result. In pots this is to a great extent avoided, and for early or late work pot culture has much to recommend it. Some may object to use any manure whatever for early fruits, but so far with pot culture when used in moderation as advised it is most beneficial. Frequent waterings with liquid manure after a set is secured and swelling of the fruits has commenced are necessary, and a high temperature with little or no air for early fruits. S. H. B.

APPLE D'ARCY SPICE.

SINCE my notes on Pippin Apples appeared (see p. 38) I have received samples of the true D'Arcy Spice, or what most probably are such, together with a very interesting letter from Mr. F. H. Deaves, foreman in the St. Leonards Gardens, West Mall, and from which it appears I am wrong in making this variety synonymous with the London or Five-crowned Pippin. This is what Mr. Deaves says of it:—

The D'Arcy Spice, or Spice Pippin, appears to be little known except just round Colchester, as when I was at Gosfield—this being only fourteen miles off—no one seemed to have heard of it. I have often wondered at its not being more popular and more generally grown, as it is a good keeping Apple and the tree a fairly strong grower and productive, being also a comparatively early bearer. There are some very fine fruit of this variety grown in an orchard at Highfields Farm, West Bergholt, rented by Mr. J. B. Daniell. I helped to gather nearly 70 bushels of splendid fruit there about five years ago, and they were much more highly coloured than the examples sent, but I think position accounts for that, as the orchard is situated on a side hill facing south or south-west. It is a very late Apple, the growers never commencing to gather it till the first week in November, and the fruit commands a better price in Colchester than any other variety grown. It is considered too good to use other than for dessert.

According to competent authorities, the D'Arcy Spice is a very old variety, and was first discovered in a garden at Tolleshunt D'Arcy, near Colchester. It has also been called the Baddow Pippin, Essex Spice, and Spring Ribston, but I have never met with it growing under either of the names by which it is known. About four years ago I received a box of fruit from Witham, in Essex, presumably of the D'Arcy Spice, and they were sent by a friend for the purpose of proving that he was right in making it synonymous with the London Pippin. Evidently these could have been none other than the latter, as they were totally distinct from what I now have before me, and exactly corresponded with samples of the true London or Five-crowned Pippin. The fruit of the latter is usually fairly large, flattish round in shape, or of greater width than depth, having prominent ribs, which terminate in five ridges on the crown, this being a distinguishing characteristic. The skin is green at first, changing to a pale yellow, there being occasionally a little dull red colour on the

most exposed side. As I have previously stated, it is a good serviceable Apple, but I should certainly prefer the D'Arcy Spice. The fruits of the latter are of medium size, ovate shape, or of greater depth than width, and also are slightly ribbed, the ridges terminating much as in the case of the London Pippin, but not to such a prominent extent. The skin is green, with a good patch of dull red on the exposed side, the whole being largely covered with russet. In some respects it resembles the Ribston Pippin in appearance, but is scarcely so wide at the base. No fault can be found with its spicy flavour, but in my opinion the flesh is a little too soft and dry, in this respect more nearly resembling Margil than Ribston Pippin, and it is more than doubtful if longer keeping will correct this fault. The samples sent by Mr. Deaves were procured by him from the neighbourhood of Colchester, and in all probability the journey first into Kent and then by parcels post to me in Somerset has militated against the quality of the fruit. In any case it appears to me to be a variety well worthy of being extensively grown for the markets, good "taking" late dessert Apples (it is said to keep good till May) being comparatively scarce, and that is my principal reason for writing upon it at such length. W. IGGULDEN.

The proposed international fruit show.—

I quite agree with all that "Cornubian" (p. 2) says on this subject, for being a grower on a small scale I should like to be able to compete if there were classes suited to large and small growers, especially if indoor fruit was excluded from the classes that market growers were to compete in. It is quite useless sending up *bona-fide* open-air-grown Apples or Pears even from the south coast to compete with those grown under glass. Only a limited number of dishes should be allowed, for at present a few of the large growers of young trees are certain to take all the best prizes by sending up about 150 or 200 dishes of distinct varieties. Of what use are so many varieties to a market grower who has for years been trying to cut down the list and to select the sorts that are suited to his locality? If classes of a dozen dishes of dessert and cooking Apples and dessert Pears with even a more limited number of other fruits or collections of fruits in season at the time the show were made, some good results might be obtained. I am sure that plenty of southern growers who now stand aloof would gladly assist such an exhibition. It is not that plenty of good home-grown fruit is not forthcoming, but because the conditions as at present existing make it hopeless for those who grow hardy fruits in their proper place, viz., the open air, to compete at all.—J. GROOM, Gosport.

Raspberries.—In THE GARDEN for January 2 there are some useful hints on the methods of growing and sorts of Raspberries. Baumforth's Seedling is there named among other good varieties such as Fastolf and Carter's Prolific. This is good so far as it goes, but it is not praise sufficient for Baumforth's Seedling, which for some years I have considered by far the finest Raspberry in cultivation. Within the last few months I have conversed with several very large fruit growers, not one of whom had so much as tried this fine Raspberry. It is described in the "Fruit Manual" as an improved form of the Northumberland Fillbasket. This is no mean praise, but it fails to convey a sufficient description of the superior character of this Raspberry. It is a strong grower, a superb bearer, the fruit being very large, of a dark crimson colour and rich flavour. I know no Raspberry so much esteemed for dessert, while none fills the peck measure so rapidly for preserving. Nor do those qualities exhaust all its merits. The suckers of Baumforth's Seedling run further from the bearing stools than those of most Raspberries, and grow stronger in consequence. So vigorous are some of these at times, that they fruit the first season after the manner of autumn bearing varieties in September and October. Strong shoots thrown up from the base of the bearing wood also frequently bear in the autumn, and these symptoms of autumn-bearing qualities have suggested the cutting

down of last year's rods in several cases with the happiest results. Possibly, in fact, this quality of late fruiting is inherent more or less in all Raspberries, while it is more strongly accentuated in the large monthly and the October red and yellow. But to have these in full perfection in the autumn, all canes should be cut level with the ground in the spring; then by thinning the suckers to say six or nine to a stool, autumnal Raspberries may be had in perfection alike in quantity and quality.—D. T. F.

Old varieties of Apples.—The bringing to light of some of the old Apples of the country is undoubtedly excellent work when those sorts show meritorious features and especially are available when other Apples are scarce. The fine cooking Apple exhibited and certificated at the James' Street Drill Hall on the 11th inst., under the name of Albury Park Nonsuch, is one of these old sorts, for if from very old trees presumably 100 years of age the fruits are of good size and good quality, what may not be expected from younger trees. Very probably there are many other fine Apples about the country that similarly need looking up—purely local Apples which have been raised in their respective districts perhaps and have never got beyond them. I met with a very fine late-keeping Apple at Shiere, near Guildford, recently, and showed a fine sample of it at the Drill Hall also on the 11th. Only Mr. Bunyard could at all recognise it as bearing some resemblance to his nursery-grown samples of Brabant Bellefleur, and yet it was not apparently identical. These Apples were from some old trees believed to be of purely local origin. It would be most useful to pomological knowledge could the Royal Horticultural Society provide at Chiswick a small nursery of stocks for Apples, Pears, Plums, or other fruits, where any of these apparently local or old varieties could be worked and tested both for general value and to furnish if possible identity.—A. D.

DELICATELY FLAVOURED APPLES.

THERE are a few varieties of Apples so pronounced for their tender flesh and delicate flavour, that they can be recommended for cultivation by those who find the ordinary run of varieties too crisp or firm to digest properly. I refer to such varieties as American Mother, the Melon Apple, Northern Spy, Washington, and a few others which I shall refer to. What could be handsomer amongst Apples than well-grown fruits of American Mother? Not only is its outward appearance its only recommendation, for the flavour of this Apple is equal to that of the best of the more crisply textured varieties with the advantage of a melting flesh. The Melon Apple is another tender-fleshed variety of exquisite flavour. The true Melon Apple is a somewhat flat and angular fruit, with a delicate crimson cheek next the sun. I have seen the Cornish Aromatic passed off for this variety, but this latter named kind is quite distinct. Northern Spy and Washington are also very delicately flavoured Apples. The latter variety generally is grown in an orchard house, and Mr. Bunyard has exhibited some splendid fruits grown in this manner, but I have had it of excellent quality and also appearance from a cordon growing against a south wall. All the above-named varieties are of American introduction, and this special trait of tenderness in connection with good outward appearance appears peculiar to the varieties of Transatlantic origin. All such as these require a warm soil to ensure their succeeding, and are also the better for the protection of a wall. Any of the above-named kinds are well adapted for growing against walls, and on cold soils this protection would be necessary to ensure their succeeding. There is one notable exception amongst the above-named kinds as succeeding in the open, and that is American Mother.

Where wall space is scarce, open spaces need not be given up for trained trees, as there is often room between trained trees of other kinds of fruit. Well-coloured fruits from cordons form a very pleasing feature in the dessert, and are likely to be

appreciated by those people who generally turn away from the ordinary run of varieties.

Amongst our British kinds that show the special character of tenderness may be instanced that fine old variety Irish Peach. This variety is best eaten from the tree, and when fully ripe it is delicious. Pine-apple Russet is also an excellent tender-fleshed fruit, but, like the American kinds, it requires a warm soil. Last, but not least, is the Pomeroy of Herefordshire; this latter distinction is needed, as there are other Pomeroy; for instance, the Pomeroy of Somersetshire, and also a variety grown in Lancashire. The first-named kind is the best flavoured. This old variety was largely grown in years gone by, but it had nearly died out until the Woolhope Club rescued it from obscurity. It has not made such headway as one might have expected, probably on account of its being rather shy in bearing; nevertheless, it is a fine-flavoured, tender-fleshed variety. There may be other kinds known to readers of *THE GARDEN*, and I should be glad to hear of them.

Y. A. H.

WIREWORMS.

A VERY interesting pamphlet by Messrs. Comstock and Slingerland has lately been published by the Agricultural Experiment Station of the Cornell University in the United States on wireworms, those well-known pests to gardeners and agriculturists. It gives the results of various attempts which were made to find some means of destroying these pests, and though but little success was met with and the experiments were not of much positive value, they were of considerable negative utility in showing that various expedients which had hitherto been relied on as efficacious in destroying or banishing wireworms were of no practical service for that purpose. With the pupæ or chrysalides and the perfect insects or click beetles the results were different, as they showed how they may be destroyed or caught, and so prevent a future attack by wireworms. The authors say, "When we began our experiments three years ago we confidently expected to be able in a short time to tell farmers how to protect their seeds and their growing crops from these pests. We thought that the greatest part of our work would be to determine which of several ways is the most practicable, the easiest used, or involving the least labour or expense. We have done our best, and we have failed to discover a single satisfactory method of protecting seed or of destroying immature wireworms in the soil." This is very discouraging, but we must still hope that some means may yet be found for preventing the wireworms attacking seeds. Some substance which has not yet been tried may prove effectual. As regards destroying the wireworms with an insecticide, it seems impossible to solve the problem of how to make any insecticide of sufficient strength reach them without injuring the crop they are attacking. The same difficulty arises in trying to cope with every insect which attacks the roots of plants an inch or more below the surface. The experiments were carried out with great care and extended over a period of three years. They would have been more satisfactory if so many of the wireworms had not died from the attacks of a fungus.

It would be a great boon if this fungus could be cultivated in cornfields. For the purpose of these experiments, various plants, according to the question under investigation, were grown in specially prepared garden pots and boxes, the latter being deep and very narrow with a glass side, through which by removing a shutter the wireworms could be observed. The questions which the authors sought to answer were: Can the seed be protected from attack? can the wireworms be killed by starving them? or by planting crops which are obnoxious to them, or by insecticides? and how the pupæ or chrysalides and the perfect insects (the click beetles) may be destroyed? Seed was experimented with which had been coated with the following substances: Paris green and flour-tar, and soaked in solutions of salt, copperas, chloride of lime and copperas, kerosene oil, turpentine, and strychnine. The result of this

series of experiments was that none of the materials afforded sufficient immunity from attacks to the corn to in any way encourage their use. It has been very generally supposed that wireworms could not live long in soil in which no vegetation was allowed to grow. This, like many other popular theories, when put to the test proved fallacious, for at the end of ten months wireworms were found alive in earth in which no vegetation of any kind had been allowed to grow. The authors say: "From our experiments, therefore, we would not advise the farmer to lose the use of his land for a season and the labour necessary to keep it free from all vegetation in the hope that he may thus starve out the wireworms." It is not quite fair to judge from this experiment what the result would be in a field entirely devoid of vegetation, as the cultivation necessary to keep it in that condition would necessarily more or less expose the wireworms to the weather and the birds, both of which diminish their numbers to a certain extent. Buckwheat, Mustard and Rape have often been recommended as crops to be grown on land infested with wireworms, as the latter have such a dislike to them, that they either die or leave the field. But it has been shown by experiment that these crops are perfectly useless for that purpose, as the wireworms lived just as long in boxes in which these plants were grown as in others planted with Timothy Grass and Clover. The insecticides experimented with were: kerosene oil, kerosene emulsion, crude petroleum, and (as an emulsion) dough poisoned with arsenic; bi-sulphide of carbon, salt, kainit, muriate of potash, lime, chloride of lime and gas-lime. As the results of these experiments, it was found that kerosene, crude petroleum, muriate of potash and chloride of lime "must be applied in very large quantities, sufficient to kill most vegetation, to be destructive to wireworms," and "that they cannot be profitably employed on a large scale to kill wireworms." Poisoned dough neither killed nor attracted the pest. Bi-sulphide of carbon, a most evil-smelling and very explosive liquid which has been very successfully used to destroy ants and Phylloxera, is useful if small holes be made in the ground and stopped up again immediately the bi-sulphide is poured in. This liquid volatilises very quickly, and the gas emanating from it passes into the soil for a considerable distance and kills any wireworms it may reach. The expense of bi-sulphide of carbon renders its use impracticable except in a small way, as 150 gallons would be required to treat an acre properly. Salt, applied at the rate of 9 cwt. per acre, which is injurious to wheat when germinating, had no effect on the wireworms. No benefit was found to result from the use of lime or of kainit, even when applied at the rate of 9 tons per acre. As regards gas-lime, "on the whole, our experiments indicate that the killing properties of gas-lime soon pass away, and it has to be used fresh and in such large quantities to be effective that, notwithstanding its cheapness, it is hardly practicable on large areas." The authors of this pamphlet recommend autumn ploughing as most useful in reducing the number of wireworms; they explain this most clearly in the following words, which I have slightly abridged: "Wireworms live for at least three years; they cease feeding early in November and hibernate until spring. When they are fully grown, they change to soft white pupæ (or chrysalides) within a cell in July, and resemble the beetle in form; in about three weeks they change into beetles, but the insects remain in the cells until the following April or May. In every case where the soil in the breeding cases was disturbed after the insects had undergone their transformations they perished, and we were unable to rear the beetles unless we left the soil undisturbed." This shows that by autumn ploughing we can destroy the beetles in the soil and thus prevent their maturing and depositing their eggs in the spring. As soon as the crop is harvested, plough immediately to a depth of at least 6 inches, and keep well stirred until ready for sowing winter Wheat or Rye. It is probable that this system would be more successful in the experiments than in actual practice. No doubt the insects will not live after the earthen cocoons in which they have

ensconced themselves have been broken, but in ordinary field cultivation many would escape unharmed. Experiments were also made to trap the fully matured beetles. It was found eventually that the best traps were handfuls of freshly-cut Clover dipped into Paris green water, and placed under boards in different parts of the field. Twelve traps, after being left undisturbed for three days, yielded nearly 500 beetles. Trapping by lanterns was also tried, but with little or no success. Trapping the wireworms by means of buried baits was not very successful in fields, but in gardens in England it is often tried and found very useful.

G. S. S.

MARKET GARDEN NOTES.

A SPELL of wintry weather has given a seasonable check to vegetation and enabled market growers to get manure carted on to the land in readiness for the early crops that will speedily claim attention. Owing to the excessive rainfall of the early part of the winter, it was impossible to get such work done, but now the land is in fine condition for cultivating and seed-sowing, and planting will be in full swing. The crops that claim the earliest attention are:—

BROAD BEANS.—These are usually got in as early in January as the state of the soil will permit, and as it is only the early crops of these that are grown in large quantities for market, the earlier they are got in the better.

PEAS are a very important crop, and great pains are taken to have the soil in good condition. Of late years the dwarf Peas have become very popular with market growers. Varieties with large pods with wrinkled Peas are the ones that find the readiest sale, and although the seed is considerably dearer than that of the smooth round Peas, the outlay is more than made up by the extra returns. American Wonder and William Hurst are the most popular here.

RADISHES are grown in large quantities, both in frames and the open air, and the very early crops invariably sell readily. In the open air, beds 4 feet to 5 feet wide, with alleys between, are sown with Wood's Early Frame or French Breakfast and covered with stable litter until the seed germinates, when the litter is raked off during the day and replaced at night, or left on if cold winds prevail.

EARLY POTATOES are being planted in frames and on warm sunny borders, the sets having been sprouted in warm houses. Early Ashleaf and Sharpe's Victor are the best sorts for frames. A thin sprinkling of Radish seed is usually sown on the surface and the Radishes pulled directly they are of serviceable size, so as not to interfere with the top growth of the Potatoes. In the open air, a good mulching of stable litter is put over the sets when frost is imminent and removed on sunny days.

SPINACH is sown about the first week in February on good rich soil, the round-seeded summer Spinach being the variety used. It is sown rather thickly in the rows, and as soon as it has made a good growth it is cut right off and the ground dug and cropped again directly.

BRUSSELS SPROUTS, SAVOYS and all kinds of winter greens are now being sent into market in good condition.

CELERY is remarkably fine, the excessive rainfall having suited this crop on our light soil. The growth is remarkably clean and free from insect pests that in dry seasons are very destructive.

RHUBARB is now being sent to market plentifully. It is forced either in Mushroom houses or under the stages of forcing houses. Large quantities of roots are being lifted and placed in heat for successional crops, and old-established crowns for the earliest crop out of doors are now being covered with litter. The highly-coloured sorts are the ones that find most favour.

THE MUSHROOM HOUSE is now in full work, the beds being in various stages of bearing or in preparation for spring crops. During the spring months the highest prices are realised; at present

the price ranges from 1s. 6d. to 2s. per lb. The floor of the Mushroom house is utilised for forcing Seakale, and by merely bedding good strong crowns in moist soil they quickly produce well-blanching heads. Mustard and Cress sown thickly in boxes made very shallow and set in the warmest forcing house are soon ready for market and can be cut as required, thereby obviating the loss that occurs when it is cut and not sold for a few days.

FORCING PITS, HOUSES AND FRAMES are now either in active work or being prepared for the coming season, by filling up the pits with fermenting manure and getting fresh soil under cover. Seed-sowing now demands frequent attention. Cucumbers, Tomatoes, French Beans and similar crops are being got in.

FRUIT being sent to market of home growth is now mostly confined to late Apples and Pears. Of Apples, the Blenheim Orange is most conspicuous as a dessert fruit, and Hambleton Deux Ans for cooking. Pears are getting scarce for dessert and the demand slack, but good cooking sorts, such as Catillac, sell freely and are really the most profitable to grow. Several of the so-called late dessert kinds have ripened fully two months before their usual date this year.

J. GROOM.

Gosport.

NOTES OF THE WEEK.

Claytonia sibirica is said to be the correct name for a plant known in gardens as *C. alsinoides* and *C. unalaschensis*. It has been used with perfect success and great effect on wooded slopes in the north of England. It flowers very freely, and as it is able to hold its own against most of our native plants, the large patches or sheets of pink or bright rose form a pleasing picture. It is said to be sometimes found apparently wild in England. *C. perfoliata*, which is more curious than beautiful, might be sown at the same time, the yellowish green leaves of the latter not being at all out of place with the bright rosy flowers of *C. sibirica*.

Cyananthus lobatus is a plant that many lovers of hardy flowers seem to have a difficulty in managing, and yet in many gardens it is almost a weed. It is a native of the Himalayas, and may, as a rule, be treated much in the same way as most plants from that country. Together with *Primula capitata* and *denticulata*, this beautiful *Cyananthus* has formed a tuft with us nearly 2 feet in diameter, around which many young plants have established themselves, the result of self-sown seed. The soil used for this plant should be largely composed of peat and loam, with a little leaf-soil added, but the whole must be well drained and raised a little above the surrounding ground. It may be increased readily from cuttings, which should be taken off in early spring with a heel, and placed in a close frame. If properly managed these young plants will flower by September. Seeds ripen only in dry warm summers.

Cyclamen repandum is one of the most charming hardy species we have in cultivation. It is just now showing flower, although we never remember it to have been earlier than *C. coum* in any previous year. It is a very old species, and was, along with the autumn-flowering *C. neapolitanum*, called *C. hederæfolium* by the older botanists. It was figured by Lobel as early as 1581 under the name of *C. vernum*, and is the only spring species of the western half of Europe. *C. repandum* most nearly resembles *C. persicum* of any of the hardy *Cyclamens*; the flowers, large, deep rose-red, with a deep purple basal blotch, are always produced in profusion towards the latter end of February, which is its usual time of flowering. It is more easily managed than either *C. europeum* or *C. Atkinsi*. It is known on the Continent under the names of *C. ficariifolium* and *C. vernum*. *C. repandum* is, however, the recognised name.

Eupatorium grandiflorum.—Although this species of *Eupatorium* is as yet but little known as a winter-flowering greenhouse plant, it is not inferior

in value to any of the more generally grown species. It is of erect habit, and has broad, ovate, toothed leaves several times larger than those of *E. riparium* or *E. odoratum*. The flowers, which are now just opening on a few specimens in the greenhouse at Kew, are almost pure white, and the corymbs in which they are produced are from 3 inches to 5 inches across. A portrait of it is given in the *Revue Horticole* for 1882, but, although agreeing with the *E. grandiflorum* as it is known here in foliage and inflorescence, the flowers are coloured rose, showing that there are two varieties of it in cultivation. Mons. E. André describes it as hardy in Southern and Central France. He speaks of it as of unknown origin, but it appears to resemble a species figured in Regel's *Gartenflora* as *E. grandifolium* forty years ago, and which is said to have been raised from seeds found in the dust of a packing case that had been sent full of Orchids from Guatemala.

Apple French Crab.—Those contemplating planting late-keeping Apples should certainly add this variety to their list if they do not already possess it. It is certainly the very latest Apple I grow. With me it is a regular and free cropper, and never fails to realise a good price even in the most plentiful of Apple seasons. The tree is also a good grower, not over gross. The fruit is now (the third week in January) as green and sound as when fresh gathered from the tree, but if kept until April or May it assumes a golden colour and emits a rich perfume, and is then probably the best home-grown Apple we have. It succeeds well in almost any form of tree, and I find it one of the best to grow on its own roots, as it strikes root more readily than many kinds. It is very distinct from any other sort, and being dark green and hard, there is not much fear of its being confounded with any of the imported fruit. I believe that anyone making a speciality of really late-keeping Apples for market after Christmas would find it a good investment to plant this variety largely. I have never known it fetch less than 5s. or 6s. per bushel after this time of year, and frequently considerably more.—J. GROOM, Gosport.

Cypripedium Boxalli.—Although this plant has rightly been reduced by Messrs. Veitch to a variety of the older *C. villosum*, its superiority in a horticultural sense will tend to keep up the older distinction. Amongst warm Orchids none enjoy a higher popularity with amateurs than *Cypripediums* do, and there is no species more suitable for those commencing to form a collection than *C. villosum* and *C. Boxalli*. They are perhaps the most robust of the Old World Lady's Slippers, forming handsome specimens whether in flower or not. Neither do they require so high a temperature as most of the genus. They commence to flower about the end of the year, continuing up to March. The scapes are one-flowered, a foot or more high, and very hairy. The colour of the flower is chiefly of various shades of green, but in *C. Boxalli* especially this is relieved by numerous large black spots on the upper sepal, the apex and margin being also pure white; the petals and lip, too, are stained with purple. But what adds most to the handsomeness of the flower is the shining, varnished appearance of its whole surface. *C. villosum* was discovered near Moulmein by Lobb, and was sent home by him in 1853. According to the Rev. C. Parish, who has long resided in that region, it does not grow at a lower elevation than 4000 feet. *C. Boxalli* was introduced over twenty years later.—B.

Acacia leprosa.—Being of tall, slender growth, this species is one of the most useful of the Australian *Acacias* for treating as a climber, and no better plant could be selected for covering columns, &c., in high greenhouses and conservatories, especially amongst those which flower as early in the year as this does. Like most *Acacias*, its flowers are bright yellow, and they are produced in great abundance on the pendulous or arching branches, the flower-heads being globular. It is easily distinguished from any other *Acacia* in cultivation by its foliage. Although it bears no true leaves, the

phyllodes are exactly leaf-like and perform the same functions; they are of a deep shining green, and measure from 2 inches to 3 inches in length and about a quarter of an inch in width, narrowing towards each end. In the variety *tenuifolia*, which is equal to the type in value as a greenhouse plant, the branches are even more slender and the leaves longer and narrower. Grown in pots and kept well supplied at all seasons with water, these two, *Acacias* may be grown to large size, but where convenient they should be planted out in a compost of peat and loam. Under the latter conditions they make most luxuriant growth, the long pendent branches being extremely graceful. The time at which this species flowers varies with the treatment. Plants grown in a temperature of 50° are now in blossom, but in a house 10° lower they are still in bud, and will not be at their best until February and March.—B.

Masdevallia melanopus.—Whilst this *Masdevallia* falls considerably short of *M. Harryana*, *M. Veitchi* and others of the same group in the size and showiness of its flowers, it is all the same a very desirable and pretty little species. There is perhaps, with the exception of *M. triangularis*, no other species that flowers more freely or grows more quickly. Its leaves, produced in dense tufts, are 4 inches to 5 inches long and are broadest towards the top. The species belongs to that section of *Masdevallia* with racemose scapes, these being erect, an inch or two longer than the leaves, and bearing from five to seven blooms. The flowers are small, measuring about half an inch in length, white, speckled with purple, the short tails into which the sepals are reduced being bright yellow. This *Masdevallia* was originally discovered in the Andes of Northern Peru by Roez, the famous collector to whose memory a statue has been recently erected in Prague. He only met with some four or five plants, and these he sent to Zurich. No species of this genus is more easily grown or rapidly propagated than this. It should be potted in rather shallow, but well-drained pans, using a compost of fibrous peat and Sphagnum. Owing to their quick growth the plants are apt to become crowded; they should, therefore, be occasionally divided. They are now coming into flower, and immediately after the flowers are past is a favourable time to do this.

Inula Oculus-Christi.—In THE GARDEN, Jan. 16 (p. 48), a note by "A. Y." on this plant is entirely wrong, he falling into the very error which the Rev. W. Dod tried to warn him against. Mr. Dod was perfectly correct in saying that *I. Oculus-Christi* is not worth cultivating, and I may better explain the difference between *I. glandulosa* and *I. Oculus-Christi* by comparing the former to *Chrysanthemum latifolium*, and the latter to the annual Daisy, which is smaller even than the species so plentiful on our lawns. *I. glandulosa* appears to be a very variable species. It has, I believe, been largely raised from seed, and I know at least one dealer who has been sending out one of the forms of this magnificent species for *I. Oculus-Christi*. I believe that some of these forms differ quite sufficiently to have distinctive names, but that of *I. Oculus-Christi* is already occupied by a plant that may be described briefly as follows: Stems 1 foot to 2 feet high, very slender, and bearing few narrow-pointed, white woolly leaves, clasping the stem and having a somewhat cordate base; flowers two to five, barely an inch in diameter, with very narrow yellow rays. It flowers in July and August, and belongs to the section *lasiocarpa*, which includes *I. montana*, *I. britannica*, &c. *I. campestris* is a synonym, and the plant is distributed through Hungary, Transylvania, Servia, Dalmatia, &c. The true *I. Oculus-Christi* has been for many years growing in the collection in the herbaceous grounds at Kew, and I scarcely ever expect to see it outside such an establishment. I agree with the Rev. Wolley Dod that the majority of *Inulas* are unfitted for the flower border, but I should like to mention *I. hirta*, *I. ensifolia*, and the better forms of *I. salicina*, which I find excellent for the rock garden, where they flower with the greatest profusion all through the summer and early autumn months.—D.

AN OLD MILL-HOUSE GARDEN.

(MOUNT USHER, CO. WICKLOW.)

NOW-A-DAYS it is a well-established fact or truism that the largest of gardens is by no means the most enjoyable, nor does it, as a rule, follow that the richness of a garden's flora can be measured by the number of acres contained within its boundary. In the garden here illustrated, many rare and beautiful plants, and not a few alpine, do remarkably well. It is a garden that pleases people of the most divergent tastes and for different reasons; but see it whenever one may—spring, summer or autumn—it is ever fresh in leafage and gay with many flowers. The place consists of the quaint creeper-laden cottage or mill-house at Ashford, in the Co. Wicklow (as shown in the illustration), and of an acre

are golden with the two kinds of our native Gorse or Furze. One or the other is sure to be in flower, very often both together, but my special favourite is the dwarf tufted *Ulex nanus*, the Irish Furze proper, than which there are few finer flowering shrubs to be found in any part of the world. The wonder is that we so rarely see it naturalised on a bit of sunny rockery in our gardens. The village of Ashford itself is peculiar—little thatched cottages of stone set at all levels and at all angles—a veritable squatters' village; everybody his own landlord, and no rent to pay! But it is of the garden itself that I would more fully speak, because it is quite unlike any other garden I have ever seen. To see it in the time of Lilies, Roses, Peonies, Poppies, and Delphiniums, is to see a blaze of

did so well, further additions were made from a bed of this plant, which had long been established in the garden, although the *Zauschneria* had never flowered so profusely as it has done since transferred to the wall. This is one of the points of Mount Usher as a garden; Nature's hints and suggestions are watched for and promptly acted upon, and the results are most satisfactory.

On another portion of the same river wall *Aubrietias* are rampant, single plants hanging 3 feet to 4 feet deep with flowers of all shades of purple and lilac. One seedling form here is nearly white, and seedlings from the Max Leichtlin strain are, on the top of the wall, all shades of rosy red, verging on crimson. *Valeriana* is beautiful in its pure shades of salmon-red, and *Anemone japonica hybrida* and alba, soft rose and pure white, make a tasteful combination all throughout the autumn months.

An old Ivy-covered wall makes a fresh and sombre background for the brilliant *Tropæolum speciosum*, which everywhere runs wild about the place, throwing its soft green wreaths over twig and branch, their tips scarlet with blossoms, or heavily laden with turquoise-blue berries. Here also the soft rosy *Hydrangeas* bloom, and you may see the big scarlet hips on the great Apple Rose of Parkinson (*Rosa (pomifera) villosa*), with its large glaucous leaves scented like those of the Sweet Brier. It is a Rose to be desired of all those who admire distinct kinds other than those of the show board, while as a handsome fruited Rose it holds its own with the *Rosa rugosa* of Japan, although in a very different way, the fruits being as large, or even larger, but oblong or ovoid, and hairy, instead of oblate and smooth. Although alluded to and figured nearly 300 years ago by Parkinson, and mentioned by many others since his time, it is so rare in gardens, that to most people the sight of it is quite a new experience. It was brought to Mount Usher from an old garden or cottage site in the celebrated Devil's Glen, a noted spot to tourists, and one of the most lovely bits of river and wood scenery perhaps in the world.

To see this glen at any season is like a beautiful dream, but as the tints change in sunny September and October, it is a sight not readily forgotten. Oak, Chestnut, Ash, Alder, silvery Birch and Mountain Ash rise on both sides, intermingled with Larch, Spruce, Scots Fir, and great Silver Firs here and there form avenues beside the path, while the river rushes and foams among the great mossy boulders in the valley below. Close beside the river, and especially beside the shady reaches and on the outcropping rock grow Lady Ferns, *Lastreas* and *Polytrichums* of such enormous proportions and of such a dense green hue, that one can only compare them to the groves of *Todæas* in the mountain valleys and gulleys of New Zealand.

To Mount Usher the bird visitors are numerous, and some are rare. The gold crested wren breeds here freely, so also the active little dippers or water ouzels, and the little grebe is often seen, while the great herons



Old mill-house garden at Mount Usher.

or two of ground, partly wooded, through which the silvery Vartry river sparkles and flows, gently musical as it falls over its little rocky weirs in summer, but swollen and turbid after wintry storms. The place is really an island, or delta rather, at the bottom of a valley, and the hilly country around is beautifully diversified, and is graced by the finest of native timber trees, such as Yew and Scots Fir, Oak, Ash and Sycamore. There are also very fine Larches and Silver Firs, Limes, Spanish and English Chestnuts, Beech, and many other rarer trees and shrubs introduced by planters long ago. The common Cherry Laurel forms fruitful trees from 30 feet to 50 feet high on the banks or hangers of the domain of Rosanna, of which classical spot Mount Usher forms a part. This portion of the Co. Wicklow is a delightful one in which to spend a summer's day. You can get out at Rathnew Station, where the railway banks

glowing colour amongst the rich greenery of the surrounding trees and woodlands. In autumn the colour is less brilliant, but equally satisfying as the eye wanders from the Torch Lilies and Gladioli to the blue *Agapanthus*, and thence to the blue Pine and Fir-clad hills far away.

One of the autumnal features at Mount Usher is the wonderful luxuriance of *Zauschneria californica*, as seen growing out of the face of the old grey river wall. I never saw this plant so showy nor so luxuriant anywhere before, and when I took a friend to see this garden last autumn he also shared with me this view, after having really seen the plant "at home" in California. It is growing out of the face of a limestone wall, about 5 feet deep, which protects the garden from the river below. The first suggestion was the accidental appearance of a plant, presumably a chance seedling, and as this

come to the river for fish from their nests at Kilmacurragh, a domain only a few miles away. A grey heron sails overhead; the brown squirrels are naturalised here (not native of Ireland) and fly from tree to tree overhead; the woodcock breeds here, and the kingfishers dart from one side of the stream to the other like blue arrows shot from an invisible bow.

The visitors to the Mount Usher garden are many and varied in tastes, but as I have said they all admire the place. Artists, anglers and gardeners alike find something here to interest them, and good botanists are sometimes perplexed to name the pretty weeds of Alp or Apennine or Pyrenees, those from New Zealand, the Rocky Mountains or of the Himalayas, that here find a home. One day I remember myself and four or five others could not recollect the name of the lovely *Cyananthus lobatus* that was holding up its bluish-purple cups to the sun. There is here a wood garden, not so large, perhaps, as that at Wisley, but it has been modelled on similar lines. Here in a snug opening a pond has been filled with M. Marliac-Latour's choicest hybrid Water Lilies, white, sulphur and rose-tinted, as well as with other aquatic vegetation. Rhododendrons and auratum Lilies here do well, but finest of all the Japan Lilies is *L. speciosum rubrum*, 5 feet to 7 feet in height of stem, and some plants had spikes fully 3 feet long, studded with shapely buds and great, reflexed, wax-like rosy flowers. Peonies of the herbaceous type (*P. edulis*) and also the Moutan varieties of China grow here and blossom luxuriantly, and their highly-tinted autumnal foliage is nearly as fine as that of the cut-leaved Maples or the species of *Ampelopsis* that cling to and wreath the outhouse and other walls about the place. The bit of climber clad roof shown in the engraving is a sight in April and May, being snowed over at that season with *Clematis montana*, while later on in the year the purple Jackman's *Clematis* and the larger varieties of *C. lanuginosa* parentage hang out their great white and lilac and purple stars on the outer walls. Then soon after the Mountain *Clematis* is over comes the *Wistaria*, and later still *Myrtle*, *Eccremocarpus* (*Calampeiis*), *Roses* of many kinds, including many dainty Tea-scented varieties, as well as other more old-fashioned kinds. A little mill-race is fringed on one side with choice Ferns and alpine, these being brought near the eye as elevated on the rocky banks 5 feet or 6 feet above the water's edge, along which runs a little path for visitors. On the other side of the tiny torrent are planted Bamboos, *Arundo donax* and *A. conspicua*, and great clumps or branched trunks of the Ti tree of New Zealand (*Cordylina australis*) of several forms. One very fine single-stemmed specimen has flowered and seeded for several years in a little enclosed court or yard, wherein two fresh and healthy golden flowering Palms (*Chamerops humilis* var. *Fortunei*) keep it company. Every year one or other of the many *Cordylines* flowers and seeds plentifully, so that there are now hundreds, if not thousands,

of their progeny scattered throughout the gardens of Ireland. Nowhere else have I seen *Arundo conspicua* so luxuriant, bearing aloft its feathery wands, the longest stems being 10 feet or more high, being here even more luxuriant than is the Pampas Grass which blooms much later in the year. It is a curious contrast to see these pale nankeen or whitish plumes of the *Arundo* on the riverbank waving above the *Typha* or "Black Heads" that rise erect from the margin of the river below. Everyone knows the native Reed Mace or *Typha* as a native of our flora, but everyone does not know that in the south and west of Ireland the name for it is "The Banshee's Rod." As luxuriantly grown in the deep rich mud of river or pond this plant is very distinct and effective in port and in colour.

I could say a good deal more about this old mill-house and its garden, but no pen could express half of its attractions to visitors fond of choice garden flowers. Our illustration gives a mere glimpse of its richness and quaintness, but there are other views many and varied equally as well worthy of being reproduced by the camera or the graver. It is like a gem in a suitable setting, the garden being a focus-spot of interest, in the midst of a most beautiful part of the country. From the earliest Aconites, Snowdrops, Crocuses, Irises, and Daffodils of spring to the glowing Beech, Chestnut, and Maple leaves of autumn there is always something to see and to admire. Like all good gardens, it is always growing; an addition here, an alteration there, and it is a garden of which its genial owners are justly proud.

F. W. BURBIDGE.

KITCHEN GARDEN.

ORDERING SEEDS.

THE seed catalogues now coming in remind us that the time has arrived when we must once more order the season's supply of seeds. To the old hand this is certainly not difficult, but to the young hand it often appears very perplexing. The varieties of the different kinds of vegetables which are supposed to follow each other in regular rotation and the long lists of novelties appear very bewildering. A young man entering upon his first responsible situation should secure a list of the kinds and quantity of seeds ordered the previous year. The seedsman would no doubt be only too pleased to supply this. This being at hand, then a part of the supposed difficulty would be got over. The list could then be carefully looked through and the order regulated according to taste. I always retain a copy of the previous year's seed list, and regulate the quantity according to the likely demand, and also vary the kinds or add novelties according to fancy. It is a great mistake to order too many varieties of one vegetable. Relying on two or more varieties of the well-tried standard vegetables will give far more satisfaction. It is very annoying to employers when a vegetable is sent to table, and the quality gives satisfaction, to be able to have it perhaps only two or three times on account of the supply running short. It would be very difficult to gauge just the quantity of any kind of vegetable seed, for what with destruction from insects, indifferent soil,

or a poor seed-bed, and other unforeseen difficulties, it would be very unwise to cut the order down too low. With a good seed-time, there are often fair quantities left over in the seed bags. For this reason one is apt to think that the coming order could be lessened, with the result perhaps of there being a partial failure with some varieties, or even entire failures with others.

In ordering too many varieties, the climax in this respect is generally reached with Peas, there being often as many varieties as quarts ordered. Probably several of these, although they may have proved themselves in some gardens worthy of praise, yet these may be totally unsuited for the purpose in question in another garden. The quality also of some may not be cared for, as with Peas even flavour differs. Some of the varieties are very sweet and also soft—Telephone for example, and although this might suit some palates, it would not others. Growing too many varieties of Potatoes is also a mistake, four or five kinds, or even less, being sufficient for any garden, unless the wish is to try the varieties as they are introduced to test their qualities. If I try a new variety, it is to satisfy myself whether it is worth cultivating.

Collections of vegetable seeds have latterly come to the fore, the majority of seedsmen making them up to suit the different sized gardens. For gentlemen who do not keep a gardener, and who may not be sufficiently acquainted with the different kinds, these collections are useful, but otherwise the lists are best made out, as amongst the kinds enumerated may be some not really required, and not sufficient of others. I am well aware that in many small gardens these collections have given unbounded satisfaction, but where the kinds and varieties are known, ordering separately is likely to give the most satisfaction. In some cases before ordering, some people look up the old seeds, or those left over from the past year, and retain for sowing what they may think the best, and lessen the annual order to this amount accordingly. This, I think, is a very unwise proceeding, for although some varieties may have sufficient vitality to grow the second year after purchasing, the results are far more satisfactory by relying upon new seed. New seeds germinate more readily, and the seedlings also make a far better growth. Even when new seeds are sown the seedlings come irregularly through the ground, thus showing that the seeds have been mixed. It will therefore be gathered from the above how essential it is to purchase good seeds from a reliable house. It must be borne in mind that the past season was one of the worst on record for the harvesting of seeds in good condition, and, if I am not mistaken, some of the stocks will be very weak. This, again, is sufficient reason why the seed order should not be cut down too closely. The advice generally given by nurserymen when any kinds are known or supposed to be weak in germinating powers is to advise that such be sown more thickly than usual. As a rule, seeds are more often sown far too thickly, and in these cases, if sown thicker still and a fair percentage germinate, they will be very thick indeed. When the advice to sow thicker than usual is given, the seeds no doubt have been previously tested by the vendors, but in any cases where there is a doubt it is well to sow a little in a pot, and if placed in a moderately warm structure the seeds will not be long in germinating, and the quantity germinating will be a test as to the quantity to sow. Sowing seeds thickly is a great mistake, and sowing them so that

they appear through the ground in such a crowded state as to require heavy thinning cannot but be very injurious. A. Y. A.

Truffles.—Truffles, except by name, are quite unknown to many people now-a-days. Now that attention is being turned to these edible fungi, the following observations may be interesting to those people who may not be acquainted with their habits, as no doubt there are many districts where they grow naturally, although quite unknown. Hunting them out with dogs is not at all a recent innovation, for as a boy I remember my father having a Truffle dog which used to go and hunt when any were required, a man going along to take care of them. These dogs are trained to have a special fondness for Truffles, and hunt them out by scent with marked assiduity. I have found them growing under old Laurels, also under Oaks, and they have also been found under Rhododendrons and Cedar of Lebanon. The Truffles are seldom found growing under the full shade of the trees and bushes mentioned, but on the outer edge. A light calcareous soil is supposed to suit their requirements, but I have found them growing in the red sandy loam of Herefordshire. Upon clearing out the shrubberies during the autumn or early winter, we used to come upon quantities. The soil was very solid, not having been disturbed for years. Upon the Continent, especially in France and Germany, Truffles are cultivated with marked success, as the recent statistics published in *THE GARDEN* testify. In years gone by they were also cultivated in England, although never to a large extent. The experiment of taking up perfectly ripe tubers with a portion of the natural soil and planting in likely places where conditions, such as a light calcareous soil, would be in their favour, is well worth trying. It is essential that the tubers be perfectly ripe, in fact advancing to rotteness to ensure their succeeding; this would be in October and November. If the experiment of importing tubers from France be adopted for the purpose of artificial cultivation, the above stage would have to be reached if they are at all likely to succeed, and a little soil for surrounding them would also be an advantage, in fact a necessity. Mr. Tillery, when gardener at Welbeck, succeeded in cultivating Truffles by laying them on the surface in likely spots under Oak trees and covering with a layer of Oak leaves, these being kept in position by covering with hurdles.—A. Y. A.

Coleworts.—Speaking after the reading of Mr. Iggulden's paper at the meeting of the Royal Horticultural Society, Mr. G. Bunyard, referring to the eulogy of Coleworts as winter vegetables by the writer, said that there was now grown about Maidstone a small precocious Cabbage, which was held in higher esteem than were the Coleworts. Perhaps he will not mind giving readers of *THE GARDEN* further information respecting this variety. It is very obvious that two things conduce to the popularity of Coleworts with market growers. One is their comparative precocity, not requiring to be on the ground long, and second, their admirable adaptability for bunching just as pulled, as that is the ordinary way in which these little Cabbages are sent to market. I do not admire the plan, and find that the hearts get greatly damaged in the bunching and transit. I suppose it is too much to ask of every grower that he should send his Coleworts in those large covered baskets which some few of the better class growers favour, the useless stems being left at home. It would be so much better for all our Cabbages or garden produce of any description were this plan to be a common one. Whilst the choicest Colewort is the best for bunching, because the heads are flattish and broad, without doubt the hardy green variety is at once the sweetest and best for ordinary use. Being conical also, it does not suffer so much from frost or snow as do the broad flat heads. Then it is a merit of the Coleworts that they can be planted so closely together and immense numbers may be grown on an acre of ground. Unless the Cabbage to which Mr. Bunyard referred is very precocious and will bear planting out a foot apart to heart in, it will

not do to compete with the Colewort. The Brassica family is fertile in giving us hardy winter vegetables; the best of all perhaps is the Brussels Sprout, but of all the rest few are more acceptable in their season than are the hardy Coleworts.—A. D.

Brussels Sprouts.—From what is being written and said against the large varieties of these, it would seem that they have had their day. They lasted in favour much longer than I expected, but the craze of late years in matters floral, vegetable and fruit has been for size more than quality, and it is therefore subject for congratulation that the latter is being recognised and will prevail in the end. At first the big forms came as a surprise and took the eye, but when it came to the cooking and eating they were not in it, as they have not the mild rich flavour of the old Imported, but are coarse and strong and less close. It is to be hoped, therefore, that the true type may be retained in all its purity and not get mixed or blended with the new-comers, which there seemed much danger or likelihood of being done. Instead of crossing them it will be much better to keep selecting the very finest sprouted stems of the Imported and seed from them. In a large or even small batch of plants there is great variation, some of the stems being thickly set with bullet-like sprouts, while those on others are loose and do not turn in.—S. D.

ONIONS.

THOSE who saw the fine collection of these bulbs staged at the meeting of the Royal Horticultural Society at Westminster on the 12th by Mr. Deverill will have noted what progress has been made of late years, and though I am not one who admires every vegetable because it is large, one cannot help feeling gratified to see our own countrymen growing this bulb as well as foreigners. As is well known, there is a great demand for extra large Onions. Years ago such fine examples were comparatively unknown. By growing these fine varieties an extra dish for winter consumption is obtained at a time when vegetables are scarce. When nicely served these large Onions form an excellent dish, being much milder and better flavoured than the older kinds. This is no doubt owing to many of them having a great deal of the Spanish blood in them, and though some may object to the latter on account of its bad keeping qualities, by crossing it with such well-known kinds as James's Long Keeping, a medium or winter keeper can now be relied upon, provided the bulbs are well harvested. To get these large bulbs special culture is necessary, and it is not every gardener who can give the attention or have the convenience. Those who have must begin operations early in the year, so that to get large Onions from 1 lb. to 2 lbs. in weight, sowing in the ordinary form is out of the question. To get large bulbs, the seed of some of these improved types, such as Rousham Park, Ailsa Craig—a fine selection—should be sown at once. Very fine specimens of the latter variety were exhibited at the international show at Edinburgh last autumn, twelve bulbs weighing 22 lbs. It is an excellent Onion for general purposes sown in the open, as it keeps well, is a sturdy grower, and is less subject to grub than others. Wroxton is also good, so is Anglo-Spanish. A new kind named Advance seems to be the perfection of what a good Onion should be. This was specially noted at the late vegetable conference at Chiswick and certificated. There are also others, such as Royal Jubilee, Cocoa-nut, and Lord Keeper, but I have named those above as really valuable for the purpose named. Those who are unable to devote a small pit or heated frame to get their early plants may grow a few in boxes, and finally plant out on a warm border in thoroughly prepared soil. The Onion is one of the best and most accommodating of roots. The ground should be deeply worked, and the seedlings should be carefully planted out of the boxes or frames after thoroughly hardening them. Last year, at this date, I found we should be short of winter Onions, owing to the severe weather. I sowed some seed of Rousham Park

and Ailsa Craig in boxes with White Spanish, and the result was bulbs far exceeding my expectations. For general purposes it is difficult to beat James's Keeping and Bedfordshire Champion. The latter I have grown for many years. As is well known, medium-sized bulbs keep best, so that for the main crop it is best to grow in the usual way. For early use sow some of the Nuneham Park or Reading type with the White Spanish or Portugal. For autumn sowing Tripoli suits most soils, and is one of the best and hardiest varieties grown. The soil for Onions cannot be made too firm; indeed, looseness at sowing time is the beginning of many failures. Onions also like assistance just at the critical moment, that is, when about 6 inches high. I have used guano, taking care to apply it in showery weather; indeed, it is a good plan to thoroughly water afterwards. Manure, used at the time referred to, often checks grub and gives the seedlings a start. In many gardens, especially old ones, the culture of Onions is often a difficult matter on account of the ravages of grub after a certain stage of growth is reached. Much can be done to prevent this by attention to the soil in the winter months by exposure, deep cultivation, and a free use of soot, lime, and wood ashes. Where charcoal refuse can be had, it is an excellent preventive, and in badly affected ground I would advise using gas-lime in the autumn by spreading it over the surface, letting it lie for a time, afterwards digging it in, taking care that the lumps are broken as the digging proceeds. I have also given a lighter dressing early in the year on land not previously prepared. In many gardens even burnt garden refuse, placed on the surface and forked in, would save a crop. Dusting with soot, lime, and other remedies after the maggot has begun its work may to some extent prevent its ravages, but it is the safest plan to prevent it altogether at the start by good cultivation, and by the use of manures at the moment the young bulbs begin to make their growth.

G. WYTHES.

New Zealand Spinach.—Useful as all kinds of Spinach are, the one under notice is by far the most valuable, as from a single plant it is astonishing the amount that can be gathered. Last year I began to gather from some plants of this Spinach at the commencement of July, and at the latter end of November many dishes could be had. I simply protected it by a few mats on frosty nights. Some may say it is not of as good a flavour, but I never hear any complaint.—DORSET.

Winter Spinach.—In the admirable paper on "Winter Vegetables," furnished to the Royal Horticultural Society on the 11th inst. by Mr. W. Iggulden, he put in a strong plea for the larger use of Spinach for winter consumption. I have to differ from him on the minor point that a sheltered position is absolutely essential for Spinach, because it is grown in the market fields in great breadths, and always proves to be a very profitable crop. Its great merit to the grower lies in its never creating a glut, and every week all through the winter, except when the ground is covered with snow, some two or three gatherings can be had. Whilst Mr. Iggulden naturally urges the special preparation of the soil for the winter crop, it is a fact that out in the fields the preparation of the ground is rarely other than turning it over with the plough once after early Peas or Potatoes have been taken off, then rolling and harrowing it. The seed is drilled in, the ground again harrowed and rolled, and so left. Market growers thin somewhat hard; indeed, I have often thought much too hard, but they may have good reasons for so doing. Of course, the work of thinning is usually done by labourers, who, whilst expert with the hoe, yet are none too careful in the thinning of the plants. The severe picking to which the foliage is subjected during the winter renders very hard thinning of the plants needless. Two good sowings, one early in August and one about the third week, usually suffice, but the crop materially depends upon the quality of the soil and the nature of the weather during the autumn. Spinach is not so much in demand until the autumn Cauliflowers are getting scarce, but it comes in

admirably with Brussels Sprouts. Spinach does not take much out of the ground, whilst few similar winter crops produce so much leafage at such small cost or sacrifice.—A. D.

FORCING EARLY VEGETABLES ON HOTBEDS.

THOSE who are responsible for keeping up the supply of vegetables are aware of the advantages of obtaining early those kinds which may be forwarded by forcing, and such being secured, it generally gives satisfaction to all concerned. It does not matter to what extent the usual winter kinds have been provided, such as the various Kales, Broccoli, Leeks, and the usual routine of root crops, the palate is apt to tire of these unless they can be varied by forced produce. Certainly, it will depend upon the means or appliances provided whether forced produce may be secured or not, for without the ways and means, no man—let him be ever so painstaking or persevering—can be expected to cope with the difficulties which would beset his path without the aid of pits or frames and also a certain amount of fermenting material. With these aids provided, then the forwarding of early vegetables could be carried out in a successful manner. I look upon a good supply of fermenting material as being a surer aid to secure good produce than even heated pits, unless it be with such vegetables as French Beans, or even Potatoes and Asparagus, although these two latter kinds are generally the most satisfactory when one is supplemented by the other. Fermenting material stimulates growth without unduly drying up the atmosphere, and with a body of this for bottom-heat root crops are more satisfactory in every way. Carrots, Radishes, and Potatoes, as root crops, are seldom found fault with for being too early, and, of course, the same may be said with the top-growth kinds, as French Beans, Asparagus, or even Lettuce. Rhubarb and Seakale can hardly come under the heading of forced vegetables in the same sense as the other varieties mentioned, for although these are forced, certainly they are different from the other kinds, so need not further be referred to.

Gentle and lasting hotbeds are what is needed, and this can only be provided with abundance of good stable litter and a plentiful supply of leaves, preferably Oak or Beech, although others may be relied upon when these are not forthcoming. At the present day, now that heating by hot water and light structures may be had at a much cheaper rate than formerly, the old system of heating by fermenting material has gone out of date. Merely carting the litter from the stables, and mixing a quantity of leaves with it, to be made up into a bed at once, is almost worse than nothing at all. In the first place, this would heat so violently as to be dangerous to plant any kind of vegetable for fear of its being injured by burning, and also because when once this violent heat stage has passed, the bed as rapidly cools, until the heat is very quickly expended, and of little use for stimulating the crop. A gentle and lasting heat is what is wanted, and this can only be secured by properly preparing the material. The litter must be well shaken out in the act of turning, the leaves also being added as the work proceeds. In the course of a day or two the mass will require turning again, and perhaps again and again, until the violent heat is expended, when it will be ready for forming into beds. In my own case I have deep brick pits, and although with these linings cannot be added, yet by well preparing the material, the brick walls confine the heat sufficiently to bring the crop to maturity. The heating material being confined, the heat is not blown out to the same extent as when the beds are exposed. This is the more reason why hotbeds are best formed in sheltered places out of the range of rough winds. In making the beds well shake out the material as the work proceeds, building the sides up perpendicularly, beating them well with

the back of the fork. Placing the material on in layers and trampling it down is not the best system to adopt in making a hotbed. The depth of the beds must be gauged by the crop it is desired to plant. For instance, a depth of 3 feet will be ample for Carrots and Radishes, the same for Lettuces, and for the earliest Potatoes 4 feet, although later on 3 feet will be ample. The beds should be formed about 6 inches larger than the frames to be placed on them, and it may be necessary to place other fermenting material within the frame to assist in bringing it up to the desired height.

Ordinary garden soil is not the best for the crops to root into, unless leaf soil and burned garden refuse or any lighter material that will assist in ensuring a genial root run be added to it. Old potting soil, also the old material which has been utilised for Cucumbers and Melons with the addition of burned refuse, is as good as anything for the purpose, and a depth of 8 inches or 9 inches of this spread equally over the frame will ensure rooting space suitable for any vegetable crop. Carrots and Radishes may well have a frame or part given up to each, although the latter may well find a place in the Potato frame, being ready for use before being smothered up with the Potatoes. The evil generally is in sowing the Radish seed too thickly, as in this case one crop spoils the other, and especially the Radishes. The Potato sets being previously sprouted, these should be set out not less than 15 inches apart in drills drawn 4 inches or 5 inches in depth. Whatever crops are grown, it will greatly depend upon the management of the frames whether they turn out satisfactory or not. Allowing the soil to become so dry as to shrink from the frames is a grievous evil. Although Potatoes do not show signs of distress so quickly as Radishes, Carrots or even Lettuce, yet the produce will be very scanty unless the soil is kept nicely moist. Radishes and Carrots would also be poor in quality and tough in texture, and the quicker they are grown the more satisfactory the crop. Keeping the frames unduly close, and perhaps forgetting about the ventilation until the temperature is raised high by sun-heat, and then suddenly giving perhaps a great amount of air, cannot but affect the crop to a serious extent. Leaving the ventilation on too long, although this may not affect the growth to a serious extent, yet by closing early so as to retain as much solar heat in the frame as consistent with safety, often makes a difference of a fortnight in the time of the crops coming to maturity, and which is to be considered when perhaps forcing against time. Covering up the frames during the night is another detail which should not be neglected, taking the precaution, however, of not covering up so early as to exclude daylight, also uncovering early enough in the morning for the same means—small points certainly, but often neglected.

Coming to Lettuce, see what capital produce may be had by the aid of shallow and gentle hotbeds. Forcing Lettuce is resorted to a deal more than formerly, and this change was brought about on account of the Parisian market gardeners supplying our markets with sweet and tender Lettuce, whilst in our own gardens such produce was conspicuous by its absence. And indeed our markets are still principally provided from that source. At one time this kind of Lettuce was looked upon as only being able to be produced in France, but quite as good may be grown in this country, adopting the hotbed system. Varieties of the Early Paris Market are the kinds used, and from plants provided by autumn sowing already under hand-lights or cloches placed rather thickly together on long and shallow hotbeds, the earliest are now ready and followed by others. Certainly light, artificially heated structures have superseded hotbeds, and have to be resorted to where fermenting material cannot be had, but the latter is still the best for many purposes. A. Y. A.

Cocoa-nut refuse as a protector.—Cocoa-nut refuse is now largely used to protect plants and bulbs from frost during the winter, and when moderately dry it has great resisting power, but of

course when saturated with wet the frost penetrates much more deeply. When it is employed in this way the fact should be borne in mind that new refuse will resist the frost far better than the old and partially decayed will do. In the case of imported Lily bulbs which are intended for flowering in pots many prefer to lay them in a little while before potting till the roots just show signs of starting, and where this is done, no better covering could be found than this refuse which keeps out the frost and maintains just sufficient moisture around the bulbs to allow them gradually to recover from the period of dryness through which they have passed. All except one of the Lilies that are largely grown for flowering in pots root much better if they are in the first place laid in a sheltered spot out of doors and covered with cocoa-nut refuse than they will if taken indoors at once. The exception is the longiflorum group, one of which, *Harrisi*, comes from America in large quantities about the month of August, and when needed for early flowering they should be potted at once, as the roots at the base are by the time they reach here ready to start. One very necessary caution to be observed in the case of cocoa-nut refuse is on no account to employ it as a medium in which to lay in bulbs or tubers of any kind that are to be kept in a heated structure, as the refuse becomes dry and draws all the moisture from the subjects committed to its care. This applies more particularly to such things as *Achimenes*, *Tydas*, *Gloxinias*, *Gesneras*, and *Caladiums*, which if turned out of the pots they have grown in will keep much better in sand than in cocoa-nut refuse, for unless damped frequently they are in this last very liable to perish from dryness, and if to obviate this they are frequently watered, decay is apt to set in.—H. P.

TREES AND SHRUBS.

PITT AS A TREE PLANTER.

THAT the Right Honourable William Pitt was fond of trees and planting, Holwood Park plainly shows, for not only were the ramparts of the British camp planted by him, but likewise many of the shrubberies around the mansion, while at least two giant Oaks, remnants of the old Kentish forests, perpetuate the memory of the great statesman. With what ardour Pitt applied himself to planting will be seen in a letter addressed from Downing Street to his mother, dated November 13, 1786, in which he says: "To-morrow I hope to get to Holwood (Pitt always spelt Holwood with two l's) where I am impatient to look at my work. I must carry there, however, only my passion for planting, and leave that of cutting entirely to Burton." It is recorded that when night drew on the work of planting was frequently not interrupted, but completed by lantern-light. Mr. Wilberforce, who was exceedingly fond of visiting his friend at Holwood, says in his diary: "Walked about after breakfast with Pitt and Granville. We sallied forth, armed with bill-hooks, cutting new walks from one large tree to another through the thickets of Holwood copses." Sir George Rose says: "Pitt took the greatest delight in his residence at Holwood, which he enlarged and improved (it may be truly said) with his own hands. Often have I seen him working in his woods and gardens with his labourers for whole days together, undergoing considerable bodily fatigue, and with so much eagerness and assiduity, that you would suppose the culture of his villa to be the principal occupation of his life."

Pitt's Oak stands within a stone's-throw of Holwood House and without the garden wall. The tree stands upon a conical mound, part of the old encampments, and, though hollow, is in

a healthy and thriving condition. It was Mr. Pitt's habit to sit and read beneath the spreading branches of this stately Oak. The dimensions are as follows: At 1 yard from the ground level the stem girths 20 feet 1 inch, and at 8 feet it divides into four massive limbs, the two largest of which girth 9 feet 6 inches and 9 feet 4 inches at 2 feet from point of juncture with the main stem. The branch-spread is wide in proportion to the tree's height, covering as it does a space of 57 feet in diameter, while the total height is only about 36 feet. The stem is hollow from 4 feet upwards to the point where the branches begin to ramify, but the tree is otherwise in a very healthy condition, as is clearly demonstrated by the rich abundance of glaucous green foliage, as well as by the numerous strong shoots that are annually emitted by the stem and larger branches. To prevent

tion to bring forward the abolition of the slave trade." These words are engraved on a stone chair which Earl Stanhope had set up close to this historic tree in 1862, by the permission of Lord Cranworth, who then owned the estate. At 3 feet and 5 feet from the ground the stem of this ancient Oak girths 18 feet 1 inch and 18 feet 3 inches respectively, the total height being 42 feet, and the spread of branches 51 feet in diameter. At 6½ feet from the ground this tree divides into two (formerly four, two having been broken off) massive limbs, the girth of each at the point of junction being 11 feet 4 inches and 10 feet 3 inches. The centre is hollow and forms an open space 4½ feet in diameter, while the roots extend, on the lower side in particular, for 11 feet in length above ground, thus affording a convenient seat for the weary traveller or hard-worked politician.



The Wilberforce Oak at Holwood Park.

damage by the wind, the larger limbs have been bound together by iron bands and rods, and altogether the tree may now be pronounced as in a very satisfactory condition, and, considering its age, in a very flourishing state. It is the variety known as *Quercus Robur pedunculata*.

The "Wilberforce" Oak (here shown previous to its being fenced in) stands alongside the public path that leads through the park. This is supposed to be the tree under which Pitt and Wilberforce were seated when the latter resolved to bring forward a Bill for the abolition of slavery. The following note in reference to this episode is extracted from Mr. Wilberforce's diary of the year 1788: "At length, I well remember, after a conversation with Mr. Pitt in the open air at the root of an old tree at Holwood, just above the steep descent into the vale of Keston, I resolved to give notice on a fit occasion in the House of Commons of my inten-

In 1889 the tree was surrounded by an iron fence to prevent public interference, the stem, branches and even outer twigs, but particularly the bark, having from time to time been cut and broken, to be carried away as relics of the tree and its associations. Previous to the fencing being erected the hollow stem was thoroughly cleaned out and the aperture covered with lead, thus to a great extent preventing the ingress of water and assisting in the preservation of the tree. The larger branches were at the same time bound together by iron bands and rods, these weighing fully 360 lbs. The fence was erected on the spot, this being found necessary owing to the irregular ground surface, the total cost of protecting the tree being £51.

That Pitt planted the trees on the ramparts of the camp there is conclusive evidence, while that many others on the Holwood property were planted at his instigation I have had ample chances of observing, as on cutting over

such as had been uprooted by the wind I carefully counted the annual rings of woody matter, and in most cases these coincide with the time that has elapsed since Pitt lived at Holwood. The trees used by Pitt for the ornamentation of the fortifications are principally the Scots and Cluster Pines (*Pinus sylvestris* and *P. Pinaster*) and the Cedar of Lebanon; indeed, in judging from the number of these dotted about, usually in formal-shaped clumps of from seven to a dozen trees in each, they would appear to have been his favourite Conifers. The planting of the camp has been executed in an admirable manner, great skill being displayed in the arrangement of the various clumps, so that they present quite a natural appearance, especially when viewed from the centre of the area enclosed by the ramparts. Generally the trees have been arranged in clumps of five, seven, and nine, but occasionally in twos and threes, and single trees have also been used with telling effect in adorning these grounds. Immediately to the right of the remains of the old road from Caesar's Well to the camp is a clump of Scots Fir, seven in number, and planted in an oval. These trees are of about an equal height (68 feet) and the largest girths, at 3 feet and 5 feet from the ground, 6 feet 10 inches and 6 feet 7 inches; while the distance apart at which they stand is 9 feet. Further along, towards Holwood House, another clump of seven trees, planted in circular form, is to be seen, the individual trees standing 5 feet apart. The largest tree of this clump girths 7 feet 3 inches and 6 feet 7 inches at 3 feet and 5 feet from the ground. Many other instances might be given of the formal planting of Scots Firs on the British camp, but those already given are enough to show the peculiar way in which these historic remains were rendered beautiful by tree planting. Several specimens of the Cluster Pine (*Pinus Pinaster*), the Weymouth Pine (*P. Strobus*), a couple of Lebanon Cedars, some Birches (these may, however, be self-sown), and a specimen or two of the Strawberry tree (*Arbutus Unedo*) may also be included amongst the trees that were used by Pitt in planting the entrenchments of the camp.

Pitt was severely censured for his decided improvements in planting and laying out the camp at Holwood, but this was only what might have been expected, as it should be remembered that in dealing with relics of the past one has to tread on hallowed ground, and universal satisfaction in such cases has been proved to be quite out of the question.

Mr. Long, afterwards Lord Farnborough, when shown Pitt's improvements exclaimed, "You have spoilt the camp for ever!" referring, however, more to the levelling than to the planting. Lord Bathurst says, "Mr. Pitt was fond of Holwood, and showed taste in the planting, but mismanaged the water sadly, and laughed when I remonstrated against his levelling, as he did, part of the fortifications in the Roman (British) camp there."

The Rev. W. H. Hewlett Cooper, author of "Old Keston," says, "That though Mr. Pitt acknowledged a 'passion for planting,' planting was certainly not that great man's forte. It is surprising that a lady of so much taste as Lady Farnborough, with whom Mr. Pitt chiefly planned his alterations, did not restrain him from affording a proof to posterity—at least in his arrangement of the Holwood grounds—of his deficiency in taste and artistic arrangement. What, for instance, could be worse taste than to plant upon the ramparts of the camp those clumps of Firs, whose roots have greatly distorted their original conformation?"

Now this is rather severe criticism, and, particularly the latter, must have been written by those who were unacquainted with the art of landscape gardening. The planting of the camp is admitted by those who are well competent to judge to have been performed in an admirable manner, great skill having been displayed in the arrangement of the various clumps, so that they present quite a natural appearance, especially when viewed from the centre of the area enclosed by the ramparts. From the narrowness of the ramparts, it must have been a matter of great difficulty to arrange clumps so that they would harmonise with their surroundings in so fitting a way as Pitt planted those on the camp. The narrowness of the ramparts, too, explains why the clumps were composed of so few trees in each, and of the rather unusual shapes they took. Than the particular trees used by Pitt for the ornamentation of the camp, no more suitable kinds could have been employed; indeed to a much greater extent than any other the Scots or Highland Pine is peculiarly in character with a British fortification.

In the removal of trees and shrubs, Pitt showed himself to be an arboriculturist of no mean taste, and some of these "cuttings" at Holwood were decided improvements—that, for instance, through the northern shrubberies, opening to view a magnificent landscape of the surrounding country, and to which a writer in the *European Magazine* alludes as follows: "The house stands on a high hill. The gentlemen who have hitherto lived in it, judging not much good was to be had from the north, had defended it in that quarter by large plantations of Evergreens, but the present possessor (Pitt) has cut down these plantations, and seems to be open to everything that comes from that delightful region" (an allusion to Mr. Pitt's coquetting with Lord North).

A. D. WEBSTER.

Hollydal, Keston, Kent.

HARDY SHRUBS THAT HAVE RECEIVED CERTIFICATES DURING 1891.

THE list of hardy shrubs that have been awarded certificates by the Royal Horticultural Society during the past year is not an extensive one, and several of those so honoured have been known for some years, and are now pretty well distributed; while, on the other hand, a few are quite new, or put into commerce so recently that they are but little known. There was nothing exhibited during the year that showed so wide a divergence from its allies already in cultivation as the red-flowered Broom (*Cytisus scoparius Andreanus*) of 1890, which quickly rose into popular favour. *Hamamelis Zuccariniana*, which was shown by Messrs. Veitch on February 10, was the first shrub to which an award was given. It is one of the Japanese Witch Hazels, a good deal in the way of *Hamamelis arborea*, of which a coloured plate was given in *THE GARDEN*, June 13, 1891. *H. Zuccariniana* differs from this last in being less vigorous in growth, while the blossoms are also of a paler yellow. Of *Azalea sinensis* or *mollis*, some double-flowered forms were shown by Messrs. Veitch, and to two of them awards of merit were given. They were *Norma*, of an orange-red colour, and *Mecene*, white with a yellow tinge on the exterior. These double-flowered forms of this popular *Azalea* will no doubt be grown extensively in the future, especially for flowering under glass, as not only do they afford variety, but the individual blooms also last longer than the single ones. In both cases the doubling was caused by an inner row of segments the same in number as the outer ones. The plants shown had evidently been brought on indoors. Lilacs with double flowers were represented by some half-a-dozen varieties at the Temple show, and awards of merit were bestowed upon two of them, while

a third had been recognised in the same way at the previous meeting. The names of the three varieties are *President Leon Simon*, a kind of pinkish lilac; *Madame Lemoine*, white; and *Michael Buchner*, lilac shaded with purple. The whole of these Lilacs were raised by M. Lemoine, of Nancy, who has put into commerce a number of other varieties all with double blossoms. As the range in colour is not great, the three varieties enumerated above are sufficient for all ordinary purposes, and they also appear to be the most distinct of any that I have seen. *Spiræa Bumalda* Knap Hill Crimson is a very superior form of *S. Bumalda*, and one of the most charming of all low-growing shrubs. The typical *S. Bumalda*, which by the way is usually regarded as a variety of *S. callosa* or *japonica*, reaches a height of about a couple of feet, and during the latter half of the summer every shoot is terminated by a flattened corymb of pretty pink blossoms. This new form is in all respects a counterpart of the type, except in the colour of its flowers, which are of a rich carmine, almost crimson, and very striking indeed when at their best. It is perhaps the finest flowering shrub that received an award during the past season. This variety originated, I believe, at Knap Hill, and I do not think that Mr. Waterer has yet sent it out.

Hypericum Moserianum is remarkable for its hybrid origin. It is the result of crossing the Japanese *Hypericum patulum* with the European *H. calycinum*, and in appearance is about midway between its parents. This shrub was raised by M. Moser, of Versailles, after whom it was named, and was sent out in the spring of 1889, so that being of easy propagation it is now pretty well distributed. *Weigela hortensis nivea*, for which Messrs. Veitch were awarded a first class certificate on June 23, is a very beautiful white-flowered *Weigela*, but is now an old and well-known variety, in proof of which I may say that it was offered in Messrs. Veitch's catalogue for 1881 at quite a cheap rate, so that even then it was far from new. This variety is of a rather loose spreading style of growth, while the leaves are broad and rugose in character. The clusters of pure white flowers are borne in great profusion, and it is in that stage a very handsome shrub. There is, as far as I am aware, only one other white-flowered *Weigela*, and that is *W. candida*, totally different from the preceding, forming as it does a somewhat upright-habited bush, with rather long pointed leaves. The flowers are during their earlier stages slightly tinged with green. *Azalea odorata alba plena*, shown by Messrs. Paul at the Temple, is a very pretty hardy *Azalea*, with double blush-coloured blossoms. *Rhododendron Rosalie Seidel*, of which some beautiful dwarf flowering examples were shown by Messrs. Veitch, is one of the hardy varieties with large heads of blossoms, their colour being pure white with the exception of a few pink spots in the interior. *Escallonia exoniensis* is a very pretty *Escallonia* of hybrid origin, that forms rather a compact bush, clothed with deep green leaves. The flowers, which are borne in great profusion, have the tube pink, and the expanded portion of a lighter tint. *Elæagnus pungens variegata* is a very pretty variegated form of the evergreen *Oleasters*, the nomenclature of which is, however, in a very confused state. That shown under the above name by Messrs. Veitch is dwarfier in habit than most of the others. The central portion, and indeed the greater part of the leaf is yellow, the green being limited in some cases to quite a narrow, but irregular margin. *Indigofera Gerardiana floribunda alba*, a pretty leguminous plant, for which Messrs. Veitch were awarded a first class certificate on June 27, was so attractive as to well merit the honour, that is if a certificate has not been before bestowed upon it, but on July 8, 1884, an equal award was made to a plant from the same exhibitors under the name of *I. floribunda alba*. It is difficult to say without actual comparison, but last year's plant, if not identical with the older one, reminded me greatly of it, and *I. floribunda* is really but a synonym of *I. Gerardiana*.

Clematis Smith's Snow White Jackmani, though not actually a shrub, is of a woody character, so that it is entitled to a place herein. It is a pure

white-flowered variety, but little can be said as to its merits, unless it is tested out of doors under the same conditions as Jackman's *Clematis*. T.

SHORT NOTE.—TREES AND SHRUBS.

Chimonanthus fragrans, or, as it is frequently called, *Calycanthus præcox*, well deserves a wall, and no garden, however small, should be without it. I recently saw this plant so treated upwards of 7 feet high and laden with its delightfully fragrant flowers. It is a fine old-fashioned shrub, which cannot become too well known.—G.

WINDOW PLANTS.

THERE are many people who are devotedly fond of flowers and yet have no gardens, or only an apology for a garden in a sort of yard behind the house. I believe such people often thoroughly enjoy reading some weekly periodical on gardening, and derive a great deal of pleasure from perusing its pages, though they may not have much scope for following out any suggestions which they may read in them. If the house happily possesses a good bay-window, it will afford ample opportunity for the owner, if really fond of gardening, to grow many favourite flowers which will give interest and pleasure all through the circling year.

One great difficulty in growing window plants is the want of light; another is the dust inseparable from a sitting-room; and still another from the variable heat, as very probably the room may be left without a fire occasionally, or, if not this, the nights will be colder in proportion to the daytime than in a cool greenhouse. All these things are against window plants; indeed I may well mention yet another difficulty arising from draught. For those who have any regard for their health know well that it is necessary to air sitting-rooms and bedrooms by throwing open the window from time to time, or sometimes daily to make the air fresh and good. I notice that cottagers, as a rule, get over this difficulty by never opening the window in winter in which their favourite flowers are kept, and that is enough to make one hesitate in encouraging the growth of window plants by the poor, for health is surely more important than growing plants for pleasure. But besides cottagers and those who have fairly good houses in town without a garden, there are invalids who often relieve the monotony of indoor life by tenderly watching their pet plants in the window. There may be a greenhouse, or a vinery, or both, but the damp air of such places in the winter, and also perhaps their distance from the dwelling house, may be a stern prohibition to enjoying the beauty of their winter flowers. The result is that window plants are an important element in garden work, and attention should be paid to find out and cultivate specially those plants which are most suitable for such a trying situation, and which will at the same time afford the most pleasure to the grower. Of course hardy Ferns and Palms submit readily to the peculiarities of the sitting-room. Palms are becoming common window plants, and are often grown in rooms without a fire, such kinds especially as varieties of *Phoenix*, *Chamærops*, and *Corypha*, and they do well under such circumstances if tolerably well attended to in the matter of watering. But Palms are slow growers, and therefore are not so interesting as other plants which give more change and variety. The very slowness of growth is, however, useful in one way, that it is a long time before a Palm becomes too large a subject for a pot in a room. It looks green and handsome and its foliage is always elegant; it may therefore be considered almost essential to put amongst flowering plants which will require more care, and give more pleasure on that account. The graceful Palm with its green fronds will help to throw out the beauty of the flowers. The same thing may, to a certain extent, be said of Ferns. But then it is well known that they do not resist equally well the pernicious effects possibly of gas, almost certainly of room dust, with which they will have to contend. If sheltered in a Wardian case

the glass becomes covered with the steam which arises from the leaves, and it is almost impossible, therefore, to enjoy the beauty of the plants inside, unless the shape of the case is so contrived that a glass side large enough to give a view of the whole of the interior be easily opened and shut. In this way delicate Ferns and even Orchids might be grown as well as Selaginellas.

The very name of Orchids suggests to most people utter impossibilities, first, on the ground of expense; secondly, on the ground of difficulty of culture. This is a mistake. Cool Orchids are easily grown, and can be had for a mere trifling outlay. Not long ago I was going round my garden with a man who had come for orders from a nurseryman for fruit trees, &c. When we came to the Orchids he said, "They are very beautiful, but a very expensive taste for a gentleman"; whereas not a single plant which he had to offer cost so little as the Orchids which happened at that time to be in bloom. I remember seeing some time ago that Orchids of the *Odontoglossum* tribe would ere long be cultivated out of doors. I do not know whether such an attempt has been made in the Scilly Islands or in warm places on the south coast, but I can hardly imagine it would come to much. But long ago Mr. D'Ombraïn, of Deal, used to advocate growing certain Orchids in pots in the house, and I am certain it might be well and easily accomplished. The species Mr. D'Ombraïn specially recommended for this purpose was one which he had tried himself, *Lycaste Skinneri*. But there are certain objections to this Orchid for the purpose. Its leaves are very long, and they are not very beautiful. They hang about and require a great deal of room. Now a pot plant should, if possible, be pretty, or at all events unobjectionable when it is not in flower as well as when it is so. *Lycaste Skinneri* would singly be most objectionable in the way when it is out of flower. The only thing in its favour then could be that which it may be said to share with almost all other things, the interest of watching the new growth, and hoping that it would be well developed. Moreover, *Lycaste Skinneri* is not after all a very beautiful flower. Alba is distinctly beautiful, but then it is as yet highly priced—too much so to warrant growing it in a room. The common *Skinneri* is certainly a fine flower, and it comes at a time of the year when all flowers are precious. But is it worth while making room for the long and ugly leaves? I think not. It seems to me that the *Odontoglossum* are better adapted for indoor work, that is, for window plants, and that they would afford constant interest and pleasure in that way to those whose sphere of work in gardening is necessarily limited to the dwelling house. *O. Rossi majus* is exceedingly neat in its growth; the leaves are at all times green and pretty. The flowers are extremely pretty and go on for months. With six or eight plants flowers may be had from November to March; and they can be grown in baskets and suspended in the window, or in ordinary 5-inch or 6-inch pots. Moreover, these *Odontoglossums* revel in *Sphagnum Moss*, which kept well watered forms a perpetual damp cushion round the plant, and my experience is that they like to have it damp all the year round. This damp cushion would prevent ill effects from the dry atmosphere of the room, or if grown in a Wardian case would ensure sufficient moisture. *Sphagnum* is interesting in itself, and little Ferns speedily grow in it, and are no hindrance to the welfare of the Orchid. The flowers themselves are perfect marvels for lasting after they have been gathered, or if they are left on the plants when grown in a cool place. I should put *O. Rossi majus* forward in the front rank for giving pleasure to those who for any reason are obliged to devote their gardening propensities to window plants. *O. Alexandræ* is in some respects more beautiful; the long sprays of pure white flowers are most lovely. But this *Odontoglossum* is hardly so well adapted for the window as the others. It is slightly more crochety in its requirements, and I think it likes more heat when it is making its growth. If a warm damp place could be secured for *O. Alexandræ* when making its growth and forming the pseudo-bulb,

the flowers would readily push forth and open in a drier atmosphere, and one not quite so warm.

The next plant which I think specially suited for window work is the Scarborough Lily (*Vallota purpurea*). It is true this bulb flowers only once a year—in autumn—but it is at all times a beautiful object; the bulb stands more or less out of the ground, and the leaves, as in almost all liliaceous plants, are graceful, so as to make this Lily always a pleasing object the whole year round. It seems to do better in a window than anywhere else when once the right mode of management has been found out. I notice strong, tall stems, bearing a large group of flowers, in the windows of several cottages in this place. Few *Amaryllids* are more beautiful, but its chief characteristic as a window plant is that it keeps its foliage green and fresh all the year round. Crocuses are not to be recommended as window flowers, but Snowdrops bear such a mode of treatment much better, and Tournesol Tulips will make the window bright for a while in early spring. Hyacinths are amongst the sweetest and best and most popular of window flowers in spring, but one rarely sees the Roman Hyacinth so grown. And yet what is more delightful at Christmas-time than a good potful of Roman Hyacinths, bearing a number of their sweet and delicate white flowers? Cyclamens are beautiful in the window when in flower, and they might be removed out of doors, and be properly cultivated at other times, otherwise they could never be fine; and for my part I would rather never have and never see plants in the window than see the wretched, half-starved and miserable-looking subjects one too often finds there. Variety is pleasing and interesting, and there is a certain amount of pleasure in growing things not usually attempted in the window if they succeed. On this account, as well as for others, I believe *Odontoglossums* might be made specially attractive, and some of the low-growing Irises, such as *reticulata* and *persica*, but the latter will not do so well as when planted out in the garden. They can be admired more, because frost and snow are a hindrance to seeing the beauty of very early flowers out of doors. A common wild yellow Primrose, well surrounded by good Moss, in a saucer is a beautiful object in early spring, and also a constant reminder that bright days are near at hand. It will grow well and do well for some time in captivity. Nice young plants of *Forget-me-not* can also be made showy, with their cheery-looking blue flowers for a while. Such plants can be thrown away when done with to make room for other and more lasting plants as the year goes on.

A GLOUCESTERSHIRE PARSON.

CHRYSANTHEMUMS.

EXHIBITING JAPANESE CHRYSANTHEMUMS.

TO THE EDITOR OF THE GARDEN.

SIR,—Your correspondent "A. D." touches a key-note of very considerable importance when he suggests that Japanese Chrysanthemums should be, in certain classes, judged from the standpoint of "high quality, mere size being deprecated." Heartily do I agree with him that "it would indeed be a pity were many of our existing very beautiful flowers, which cannot be termed large, banished altogether from the show-tables because inadequate to the filling up of the new boards"—or the present board, I would add.

Banishment from the show board is too often synonymous with banishment from our collections altogether, and unless some step be taken in the near future to limit the influence of mere bigness of variety, very great harm must result to the future of showing. High quality and superior cultivation can be exhibited equally well in a variety of naturally moderate dimensions as in one of the "giants," and yet we are witnessing

the displacement of such refined beauties as Florence Piercy, the Lacroix family, and others by such coarse monsters as Etoile de Lyon, Mrs. Wheeler, and others of that ilk.

The mere "covering of the board" is unquestionably, under present conditions, too often presented as the object to be achieved rather than the exhibition of the results of superior cultivation. I have no hesitation in saying that were an exhibitor to stage a "twelve" of the smaller varieties cultivated to perfection according to the possibilities inherent in the varieties selected, he would, at nine shows out of ten, have no chance whatever against the current "big dozen" exhibited in appreciable inferiority of potential condition.

This should not be, and it seems to me that some remedy might be found in the formulation of carefully considered and definite instructions to the judges as to the conditions to be observed in arriving at their conclusions. Every bloom should have its separate award of "points," and quality irrespective of the size of the variety should be the dominant consideration. A good bloom of Mlle. Lacroix or Florence Piercy should entitle the exhibitor to as many points as an equally good bloom of Etoile de Lyon or E. Molyneux; but who can say that this is always, or often, the case at present?

The more keen the competition and the closer the results achieved, the greater the need for definite rules for the guidance of the judges, so that something approaching to uniformity, of principle at least, may be attained.

One other point. I am glad to see that Mr. Douglas and "A. D.," and also Mr. Shoesmith carry onward the protest against the system of "mixed" classes. The adoption of a larger standard size for the show-board for Japanese will, I trust, effectually settle this question.

The Elms, Foot's Cray. C. E. SHEA.

Chrysanthemum W. G. Drover.—This immense flowered Japanese variety must not be confounded with Messrs. W. and G. Drover, which belongs to the *Anemone*-flowered section. The former is one of the best Japanese for late blooming; in fact the flowers are less coarse and altogether more attractive at Christmas or later than they are during the height of the Chrysanthemum season. From this circumstance it was passed over when first exhibited in the autumn of 1887, but on January 5, 1888, it was shown in such good condition, as to be awarded a first-class certificate. The flowers are white, shaded more or less with purplish lilac, but late in the season they are of a paler tint than in November. This variety finds a place in the catalogue of the National Chrysanthemum Society among the best of the incurred Japanese, with an intimation to the effect that the blooms are rather coarse early in the season. It is considered identical with Mrs. Frank Thompson, which is, I believe, of American origin.—T.

Chrysanthemum stands.—Mr. Molyneux in THE GARDEN (Jan. 2, p. 15), in reference to the size of Chrysanthemum stands, points out that one objection to increasing the size would be that more length of table would be required. I would ask, why not exhibit on stands deep enough from back to front to hold four rows of flowers instead of only three, as at present? If this plan were adopted, the spaces between the flowers could be widened without taking up any more length of table. The Royal Horticultural Society of Ireland, at their shows in Dublin, insist on the flowers being put up for exhibition in this way, viz., on stands 2 feet from front to back and four rows of flowers. Having seen the Dublin shows (also the Aquarium and other Chrysanthemum exhibitions in England), I do not hesitate to give it as my opinion that the four-row system is by far the more attractive. In the classes where half the blooms are to be Japanese and the other half incurred, it would seem

to me the best plan to place the flowers alternately, thus allowing the extra room for the Japanese that the incurved would not require. If the National Chrysanthemum Society would allow the innovation, I have no doubt some exhibitors would try the four-row system, and I think the three-row exhibitors would soon follow, as their stands would compare badly with those having four rows of flowers. Supposing that some exhibitors use three and others four-row stands, would it not be helping to break up the sameness so much complained of? The stands for four rows should be a little higher at back than those for only three rows. Another matter requiring consideration is, what is the best way of placing the names to the flowers? I am in favour of using wire pins made something like an ordinary scarf pin, the head of the pin formed so as to hold the name card. No matter how close the flowers are together, the pins can be stuck down in front of each, so that the public can see the name at a glance. F. TOBY, *Gloster, Roserea*.

MARKET CHRYSANTHEMUMS.

THE supply of cut blooms has this year been in excess of the demand, and as a natural sequence prices have been in many instances very low. For such kinds as White and Yellow Ethel and Boule de Neige the average price in Covent Garden at the Christmas market was about 2s. 6d. per dozen bunches of about a dozen blooms to a bunch. This is really not enough, and I doubt if Chrysanthemums can be made to pay at so low a figure. At from 3s. to 5s. per dozen bunches growers can be content, but at less than this there is little or nothing to be got out of Chrysanthemums at that late period of the year. In such weather as we have this year experienced the cost of firing is a serious item, and the plants demand a good deal of attention to keep them going. Some of the better kinds, such as Princess Teck, Mrs. Davis, and Fair Maid of Guernsey, gave better returns, but those that can be grown in a more rough-and-ready way were this year a drug in Covent Garden. These remarks apply only to the Christmas and new year markets. As January advances the value of the blooms increases, especially in the coloured kinds, and this year has been no exception to the rule. It is, however, not so easy to get blooms in a perfectly fresh condition during the first and second weeks of the new year. I find it very difficult to keep them on plants that have been grown as generally practised in market gardens. Plants lifted in October get a check at the roots, and this tells on them very markedly in the depth of winter. I am now (January 10) cutting blooms of Golden Gem and grandiflorum as fresh and good in colour as early in December, but they come from plants in pots in a thoroughly root-bound condition. I have also quite fresh blooms of Ceres, a very late kind, but much too undecided in colour to be of value as a market kind. On plants that were grown on the planting-out system I have not a good bloom left. I finished cutting from them at the new year. As before mentioned, the defect of the planting-out method is that the blooms will not keep in good condition after the end of December, and this is especially the case with the white kinds, which, if they open so late as the end of December, take on a pink tint in the course of ten days or so, but when grown in pots the active condition of the roots keeps them in good colour for quite a month. The most popular Chrysanthemums this year appear to have been Source d'Or and Golden Gem, blooms of the latter having made in Covent Garden in the first week in January as much as 10s. per dozen bunches. Source d'Or is rather the better of the two, but it is really a midseason kind, and by ordinary treatment is over long before Christmas. I was told, however, of a market grower who has succeeded in prolonging its season in rather a novel way. The first week in September he cut back a few plants quite to the old wood, and they were just in bloom at the end of the year. He intends next year to treat a quantity of plants in the same way. It was but reasonable to suppose that among the number of

varieties raised during the last few years, some would be found of special value to growers for profit. As a fact, some of the kinds hitherto much in favour will soon be extinct in market gardens. Among these are Ethel and its yellow variety and Mrs. Carey, which are being driven out of cultivation by kinds purer in colour and of finer form. It was only the dearth of kinds suitable for giving late bloom that brought Ethel into repute as a market Chrysanthemum, and its defects in the matter of colour and form are fatal to its popularity. I am told that single Chrysanthemums are becoming popular, and the number of varieties of them that find a place in trade growers' lists seems to indicate that this is the case, but at Covent Garden there is at present no signs that single flowers will be in demand for some time to come. The fact that Ethel (White and Yellow) are being discarded on account of their showing an "eye" is a proof that only perfectly double blooms as yet meet the popular fancy. This season I have not been able to dispose of blooms of Ethel to local florists until all other white kinds were over, and those I sent to Covent Garden were sold at a very low figure. I am sorry that this should be the case, as Ethel is such a fine vigorous-habited kind, does not suffer from mildew, and comes up with a good ball of roots when planted out. But the requirements of the market must be studied, so Ethel must go. Boule de Neige is not likely to go out of culture for some time; florists like it, and it suits growers. Being dwarf, it is suitable to the low houses in which they have in a general way to be accommodated. There is, however, a decided preference for flowers like Mlle. Lacroix, which have both purity and elegance of form to recommend them. This is not naturally one of the latest whites we have, but one grower had a large number coming in just right for Christmas, so that it is evident that with suitable culture it may be had in good condition at the time when good white blooms are most wanted. Princess Blanche has been highly recommended to me by one who is well acquainted with market requirements. I have never grown it, but am told that it is very late, and has, what is wanting in the majority of late kinds, a very dwarf compact habit. I cannot of course say whether the quality of its blooms fit it for market growers. Lady Lawrence I have not tried, but intend doing so, for it has certainly been accorded this season a warm welcome in Covent Garden. It has been the leading white Chrysanthemum from a market point of view. Market growers must not now-a-days be too conservative in the matter of varieties. It is well to be constantly trying some of the newer kinds, for from among them may be selected a variety that will be a pearl of price. I was one of the first that discovered the merits of Cullingfordi for late work, and I well remember that I got 10s. per dozen bunches, about eight blooms in a bunch. In the course of a couple of seasons others found out its worth, and then the price came down to the ordinary level. Variety is eagerly sought for, and anyone discovering a kind that will hit the popular fancy is sure to reap a rich reward for a season or two.

For Princess Teck and its varieties there is still a demand, but certainly not so brisk as formerly. At one time this was considered the acme of perfection as a market Chrysanthemum, but the growing taste for more informally shaped flowers has deprived it of its former high supremacy. Two or three years ago I could make 3s. and 4s. per dozen blooms, but the last I marketed only realised 2s. per dozen, so that I now grow but few Tecks. In the way of pure yellows there is nothing new worthy of note. Goldfinder is grown by some, and Sunflower is being tried, but whether it will prove a reliable late Chrysanthemum I cannot say. In my opinion, the old grandiflorum is still the best in this colour. One could scarcely get a better shade of yellow, and in form it is all that can be desired. Governor of Guernsey, which was sent out with a great trumpet flourish, had a short life. It is a nice flower and peculiarly pleasing in colour, but too lanky of growth and rather weak of constitution. Moderate sized blooms that

can be cut in sprays of from four to six together appear to best meet the requirements of florists, large high-class flowers being but moderately in demand. J. C. B.

Chrysanthemum Macaulay.—The flowers of this peculiar and distinct variety keep very well, and on this account a place should be found for it where late blooms are in demand. It is by no means new, having been awarded a certificate as long ago as the autumn of 1887, at which time it attracted a good deal of attention, by reason of its curiously slashed and crisped florets, which being very numerous formed a full flower, in shape a good deal like a small, but well-curled Endive. The colour of the flower is a clear golden yellow, with a bronze reverse. Being unfitted for exhibition in a cut state, this Chrysanthemum has almost dropped out of cultivation, but those who require flowers at Christmas and the new year would do well to bear it in mind.—T.

Half-a-dozen useful late-flowering Chrysanthemums.—Not having grown any of the latest novelties of Chrysanthemums, I know nothing of their merits as extra late-flowering kinds; but of the older kinds I have the following half-a-dozen now (Jan. 7—11) in full bloom, well developed, fresh and useful, with a good variety of form and colour. Their names are Pelican, Maggie Mitchell, Mr. H. Cannell, Gloriosum, Golden Gem and Comtesse de Beauregard. In addition to these I annually save a few plants each of Roseum Superbum and Cullingfordi after the terminal blooms are cut, allowing and encouraging them to throw later buds up the stems, which they do freely. These, although naturally small, come in useful now, and the colour of the flowers of both is much more beautiful in this state than in the larger blooms.—J. R., *The Gardens, Tan-y-bwlch*.

GARDEN FLORA.

PLATE 841.

ROSE MME. NABONNAND.*

It is probably not a matter for surprise, seeing how Continental Rose raisers annually inundate us with their long lists of novelties, if some variety really possessing distinctive charms and merits is at the time overlooked, and in consequence ever after neglected. This would appear to be true as regards the Rose now figured in the accompanying plate, and, moreover, this appears to have been the fate of many of Nabonnand's Roses, as he has raised many kinds, but few of them are to be found among what we regard as the best varieties. As Tea Roses, however, are more extensively grown, and for other purposes than that of show alone, some of the older varieties may be sought after, and amongst them Mme. Nabonnand. The flowers of this variety are characteristically depicted in the plate, but in colour they are exceptionally rich, being in this respect, like some other Teas, subject to a pleasing variation. A flesh-pink, shaded with coppery rose, is the colour usually seen. The buds are fuller and the expanded flowers much more double than those of some of the popular kinds that are considered indispensable at the present day. This Rose must not be confounded with Mme. A. Nabonnand, which is from the same raiser, but of more recent origin. Mme. A. Nabon-

* Drawn for THE GARDEN by H. G. Moon at Grave-tye Manor, July 16, 1891. Lithographed and printed by Guillaume Severeyns.



nand which I noticed last year in one of the great Rose nurseries appears worthy of more than passing notice. It is distinct and very free, the flowers being of a pale flesh colour, the bud large and long, but globular, and the expanded blooms fine and full, with a more than ordinary amount of sweetness. There is distinctiveness between the flowers of the two kinds, but with names so similar a mistake might easily be made, and therefore it will be a guide to have a description of the two kinds for future reference. M. Nabonnand has at last, however, raised a Rose destined to live long in our gardens, and one that of itself would alone suffice to keep his name in remembrance. I allude to the Rose L'Idéal. We have nothing like it either among dwarf or climbing Teas, and to the climbing section it is a most valuable addition, and a Rose that will doubtless be largely planted, as the colour combination in its flowers is practically unique. A. H.

THE WEEK'S WORK.

ORCHIDS.

THE time has now come when many Orchids may be repotted. I hope next week to do a number of Cypripediums that are repotted annually at this season. C. Spicerianum grows with the greatest vigour in the warmest house with annual repotting about the end of January or early in February. I have taken note of a single plant which I obtained about six years ago with one good growth. There are now twelve plants propagated from this single plant; some of them produced from four to six flowers in November and December last. I do not know any Cypripedium that grows more freely in fibrous loam, a little peat and Sphagnum. C. Lee-anum is also a free-growing plant, but cannot in this respect compare with C. Spicerianum. They are both being repotted now. A few seedling Cypripediums not large enough to be repotted in the autumn will be done now. Plants of the C. Sedeni type soon get pot-bound, C. grande even more so, and all such ought to receive a liberal shift now, or it will be necessary to repot them again during the summer. It is astonishing how the roots of these and kindred garden varieties lay hold of the sides of the pots; so firmly do they cling to them, that the only way to get the plants out in anything like good condition is to chip the pots to pieces with a hammer and pick the fragments off with the fingers. The Calanthes are truly useful plants at this season. The cut spikes of bloom last a very long time in good condition in a cool room. Calanthe Veitchi was the first hybrid of the vestita section obtained, it having been raised from seed in Messrs. Veitch's Exeter Nursery in 1856. It may be worthy of remark that the first hybrid Orchid (Calanthe Domini) produced its flowers in that year. This is an evergreen plant, raised by crossing C. masuca with C. furecata. The garden variety, C. Veitchi, is still much valued, for although the hybrids from it are very numerous, they are as yet too dear to be grown in almost every garden, as C. Veitchi is. We have still about a score of spikes of it left, and we have had a goodly show of this variety since before Christmas. The Calanthes are amongst the easiest Orchids to raise from seed, and now would be a good time to hybridise the flowers. It is well known what a slow process it is to raise Orchids from seed. Sometimes it will take twelve months from the time of pollenising a flower until the pod is ripe, and as long before any plants appear, and the patient cultivator may have to wait fifteen years before his plants produce their flowers. No such test of patience need be feared with the deciduous Ca-

lanthes. Flowers fertilised in January will produce ripe capsules in May or June, and if the seeds are sown at once the young plants will appear in some cases in a month. The plants will produce flower-spikes in two or three years from the time of sowing the seeds. Another easily hybridised genus of Orchids is the Phajus, but it is so nearly allied to Calanthe, that the two can be crossed, and a new genus has been thereby produced termed Phaiocalanthe. The Phajus can be produced from seed in as short a period as the Calanthes. Most of the garden hybrids have been raised from C. vestita in the first place. The most beautiful, so far, are C. bella, rose with a white flush; C. lentiginosa, white and rose; C. porphyrea, white with rich carmine; C. Sedeni, rose-coloured, like C. Veitchi, but of a deeper colour; C. Veitchi, white variety; C. Williamsi, very deep colour. Other seedlings are being introduced annually, and any intelligent gardener can soon raise plants in his own garden. They have the advantage over most Orchids in that they can be cultivated without peat. We are now keeping the plants rather dry at the roots, for, although they are in flower, there is no growth. They are placed under the stages as they pass out of bloom, and are kept dust-dry at the roots until it is time to start them into growth again early in March. The potting soil we use is fibrous loam, sand, and decayed cow manure. This is a good time of the year to repot the Miltonias. The plants may be repotted in a compost of about equal portions of peat and Sphagnum. The position of these plants in the house is of some importance. They evidently do not like sunshine, as exposure to it has a tendency to cause not only the leaves, but the growths to become quite yellow. Ask an Orchid grower why the plants are so yellow, and most likely his reply would be, "It is natural to certain species." They are mostly Brazilian, and certainly require a warm Cattleya house temperature, and if placed on the shady side of the house, they are not so likely to become golden tinted, which some may admire. M. spectabilis is one of the best known species, and the best known variety of it is Moreliana, easily distinguished by the deep blood-purple of the sepals and petals. They are useful for flowering in the end of summer or early autumn. The plants may be placed in pots, though pans are preferred by some, but the fibrous peat and Sphagnum mixed with potsherds and charcoal should be raised well above the rims. Of M. Clowesi there are several varieties; the major form is the most handsome. M. Regnelli and the variety purpurea are very desirable plants to cultivate; the last-named is known by its rich purplish-crimson lip, the ordinary form being of a white and rose-pink tint. M. candida and the much superior variety grandiflora are most useful Orchids. The flowers are borne on spikes half a yard high, the sepals and petals densely blotched with reddish-brown, the lip white. Those who require Orchid blooms in September and October may find the above well adapted for their purpose. They may all be safely repotted now. We are taking advantage of the slack time of the year to get all our plants made as clean as possible by washing the leaves and bulbs carefully with a sponge and soft soapy water, looking into holes and corners for slugs, woodlice, &c. It requires a careful man to wash the leaves of some Orchids, such as the Cypripediums and Miltonias of the vexillaria type. I have seen the leaves much bruised and broken by men who have not enough sense to understand the importance of such work. The leaves of some Cypripediums are snapped off by bending them upwards too much to get at their under-sides. The weather has been very cold lately—frost almost every night, and until milder weather sets in it will be better not to increase the temperature of the house above the lowest minimum for winter; the cool house 45° to 50°; Cattleya house, 50° to 55°; East India house, 60° to 65°. Ventilation has been treated of in previous numbers, but I would urge the importance of renewing the air inside the houses at midday, even if the weather is very cold. The ventilators in the side walls are opened daily to allow of a circulation over the hot-water pipes. J. DOUGLAS.

THE KITCHEN GARDEN.

FORCING ASPARAGUS.—The main consideration in the forcing of Asparagus is an ample supply of strong roots, for with these secured there will be little difficulty in forwarding the produce in either gentle hotbeds or in a heated pit, the latter being the simplest method other than forcing properly arranged established beds. In the former case a gentle hotbed of leaves and manure should be formed, and after the heat has subsided, a thin layer of soil should be placed over the surface and the crowns packed closely together, afterwards spreading a layer of light and fertile soil amongst the roots and over the crowns to a depth of 2 inches. A soaking of water heated to about 80° or 90° will assist in starting the heads into growth. The top-heat should be kept at about 60° with a little ventilation during fine days when the sun is shining. Heated pits (where these are deep) are best filled up with some fermenting material to bring the roots up near the glass. Too much artificial heat must not be applied, or the produce will be spindly and small in size, also tough.

FORCING ESTABLISHED BEDS.—Oftentimes where it is not convenient to break up a bed on account of the supply of established roots being scarce, a short length of an established bed might be forced where it is growing. This method is adopted with marked success in some gardens in the case of beds provided for the purpose, the sides being bricked up and pigeon-holed to allow the heat to enter the bed. When this plan is adopted a space should be excavated on each side of the bed to the depth of 3 feet and width 2 feet, the sides being cut down perpendicular. Over the bed place a light, narrow, or, what is to be preferred, a span-roofed frame of the same width as the bed. The space excavated must be filled up with fermenting material and should be renewed if occasion requires. The shoots are longer in appearing than in the case of roots taken up and forced on hotbeds. This, however, is an advantage rather than otherwise, as the growths are stronger.

AUTUMN-SOWN CAULIFLOWERS.—Autumn-raised plants are very healthy, the present rather severe weather being more beneficial than otherwise in retarding growth. Whenever the weather is mild take care to remove the lights off the plants, or otherwise the plants are apt to become too large by planting time. As large plants lift badly and are also apt to button, every means must be taken to check their progress at this season of the year. When the plants are of a large size they are apt to be put out before it is time; consequently they are very likely to receive a check upon inclement weather occurring. The surface soil should be stirred about the plants, and a dusting of wood ashes will also be beneficial. If there should be any plants likely to be too forward, cut around them with a sharp spade or trowel, afterwards pressing the soil about them. Giving the plants a partial check by cutting around them at this season defers the planting for perhaps a fortnight—no mean advantage during an inclement time.

SOWING CAULIFLOWERS.—Where the practice is not adopted of sowing the earliest batch of Cauliflowers in the autumn, it is now time the seed was sown, so as to get the plants as forward as possible by planting-out time. In conjunction with such varieties as Early London and Dwarf Erfurt, one or more of the earliest varieties must also be sown, either selecting Snowball or Veitch's Early Forcing, as these two latter turn in earlier than the former. Veitch's Early Forcing is also a capital variety for forcing on a gentle hotbed in brick pits, but with a supply of the latest varieties of Broccoli it is not so generally relied upon, unless these latter should be cut up by inclement weather. The seeds should be sown thinly in shallow boxes, using light soil. A gentle warmth is necessary, but as soon as the seedlings are through the soil about an inch, remove to cooler quarters to a shelf near the glass. Water carefully, or the seedlings may damp off. As soon as large enough pot off singly into 4-inch or 5-inch pots, as small pots are an evil by causing the plants to become root-bound to a serious extent,

and if so, premature buttoning will be the result when planted out. As soon as established remove to light greenhouse shelves, when by careful and regular watering the plants will grow satisfactorily. Later on the plants may be removed to cold frames to prepare them for planting out into their desired positions. The seedlings may also be pricked out into frames 4 inches apart, taking care to place the rooting material on a hard bottom. Too much depth is not needed, about 2 inches of rotten manure and the same of holding loam, with a little leaf-soil intermixed, being the best.

A. YOUNG.

HARDY FRUITS.

MANURING FRUIT TREES.—Advantage will have been taken of the frosty weather to get a considerable amount of wheeling done, all vegetable quarters vacant being, perhaps, heavily manured. In the general distribution, the requirements of various fruit trees and bushes ought not—as they too often are—to be overlooked. Manure of a solid nature being scarce, let the trees be favoured at the expense of the vegetable quarters, which in very many instances get far more of it than is either required or good for the vegetables. Old hotbed manure is not of great manurial value, but it would serve to enclose moisture and to attract roots to the surface, and if a good soaking of liquid manure is given when the frost is out of the ground and again before top-growth commences, this, coupled with the mulching, would have a most beneficial effect. The very best form of manure that can be applied is that which is obtained from covered farmyards, while that wheeled out from ordinary mixed farmyards is far superior to what is made in stables. If the roughest portion of the latter were carted to the farmyard or stalls where beasts are being fatted, it would soon be converted into first-rate manure. Much also might be done in the same direction by shaking out the stable manure, disposing it into a good square heap to ferment. The mass would be greatly improved if the heap were formed on a layer of loamy earth and thoroughly soaked with liquid manure or drainings from a farmyard and piggeries, more of the earth (to the depth of about 1 foot) being then spread over the surface of the bed. Drainings from the heap will be soaked up by the soil underneath, while the surfacing of soil will prevent a too rapid fermentation, also absorbing much of the ammonia that would otherwise evaporate. There being no stint of liquid manure, or, failing that, water, decay will be rapid and a fine lot of manure be available for mulching in the course of six or eight weeks. A thorough turning and mixing of the soil and manure are advisable prior to using it.

PEACHES AND NECTARINES.—Although these do not need, or are better without, any solid manure mixed with the soil in which they are planted, they are yet greatly benefited by good surfacings of the same, especially when they have been several years in one position. In dry, hot positions they stand particularly in need of surfacings of solid manure, a mixture of the latter and fresh loam being perhaps the best for trees in cooler positions or richer soils. The surface roots ought to be bared to a distance of from 4 feet to 6 feet from the stems, and after a liberal top-dressing of manure or rich compost has been given, this will be kept more moist and congenial to the roots if well covered by some of the surface soil that has been thrown back. There is not much likelihood of this liberal treatment causing the trees to grow too strongly, but, on the contrary, they will become far more profitable than formerly.

APRICOTS.—These are naturally of more robust habit than Peaches, being, in fact, liable to grow too vigorously to be fruitful. Not till the trees have arrived at a productive state do they require much assistance from the surface, but it often happens this help is delayed much too late. Large old trees are the most often neglected. Those under copings are especially liable to become greatly impoverished at the roots, more moisture as well as manure being needed. Give these a

good soaking of liquid after the roots have been bared, a liberal top-dressing of manure following soon after, this being duly soiled over. Before the year is past this top-dressing will be well taken possession of by hungry roots, and a marked improvement in the quality of the crops result.

PEARS.—Large old wall trees of Pears are more often neglected at the roots than any other class of fruit, yet none better repay for more liberal or rational treatment. When greatly impoverished at the roots, the fruit produced is small and poor in flavour, this being quickly altered for the better by a heavy surfacing of solid manure. Treat them much as advised in the case of old Apricot trees, not omitting the liquid manure, and let the dressing extend to a radius of 6 feet from the stems. Younger trees may not require to be thus manured, but they may well have a good surfacing of ashes, not necessarily sifted very finely. These serve to provide a clean pathway, as well as prevent the loss of moisture, cracking, and other evils, the roots also being attracted upwards by them.

CHERRIES AND PLUMS.—Large trees of Morello and other Cherries should have occasional surfacings of solid manure, strong liquid manure, including drainings from piggeries, applied during the winter being most beneficial to the former. Young Plum trees grow very strongly for a few years, but the time soon arrives when they should have manure given them much as advised for other stone fruits. Fruit trees generally in the open are better able to forage for food, but in very many instances good soakings of liquid manure and manurial dressings would be of the greatest benefit to them as well as bush fruits, but there should be no digging of it in.

W. I.

PLANT HOUSES.

STOVES.—**WATERING.**—With extra heat in the pipes the plants will dry up much more quickly as a natural sequence. The watering will, therefore, need looking after, if not oftener, at any rate much more closely than in mild weather. Ferns that are growing in warm houses and near hot-water pipes will take a good supply of water; these suffer as soon as anything when the plants are pot-bound with a crop of fronds upon them. Many of these will take the second dose to entirely penetrate the ball. Palms, again, require a free treatment; these should not, in fact, ever become dry at the roots; the plants may not show any signs of distress at the time, as in the case of Ferns, but they feel it nevertheless; the ultimate result being a premature fading of the colour in the older leaves. These, as in the case of the Ferns, should be well watered when in good condition at the roots. Ixoras suffer if they are allowed to become dust-dry whilst there is still a good crop of foliage upon the plants, and the pots small in proportion to the top growth. Large plants in proportionately large pots will not require watering nearly so often; these may be kept fairly dry with advantage in the sweetening of the soil. Crotons, again, will take a liberal supply, particularly if they are (as they should be) full of roots; it is ruinous to the plants to keep them dry, causing the loss of foliage long before its time. The only case in which they should be dried off, or partially so, is when old stools are to be soon cut down. Then it will be better to have them dry at the root with less liability to bleeding. Dracenas should not be kept sufficiently dry for the plants to suffer. If pot-bound, they will take as much water as the Crotons. Where these plants are near hot-water pipes, see that the thrips peculiar to Dracenas do not increase.

Dieffenbachias that are to be cut down shortly should be kept quite dry; otherwise these will also bleed. Cupania filicifolia, the stove Aralias, Jacaranda mimosæfolia, Allamandas, Bougainvillea glabra, and the Clerodendrons should all be dry at the root prior to pruning or cutting down. In keeping all or any of these plants dry, it must not be inferred that extreme dryness is recommended. In the case of the Pandanus and other members of the Pine-apple family, a moderate course is the best. Such as the Billbergias must be kept the driest of

these; the variegated Pine-apple comes under the same category, whilst only in the case of large specimens of the Pandanus in vigorous health is any large amount needed. For instance, take Pandanus Veitchi. If this be watered too freely in the winter-time there will be a tendency towards a greenish growth. Early winter-flowering plants, as Poinsettias, Plumbagos, Euphorbias, and Eranthemums, should, as they cease to make any display, be dried off. The Poinsettias will be safe enough in a dry pit with an average temperature of from 50° to 55°. Ours are in a house cooler than this even, but the plants of the Poinsettia are near to the hot-water pipes, being laid upon their sides to keep them quite dry. Unless Eucharis are just about pushing up flower-spikes, only a moderate supply of water will be required at this season. Sufficient only should be given to keep the foliage fresh whilst the plants are still inactive. Those that have flowered freely may be kept somewhat drier without any fear of injury, particularly if they have been watered liberally whilst the plants were in bloom; this will needs have been the case when the pots are full of bulbs. Other bulbous plants allied to the Eucharis, as Pancratiums and Hymenocallis, should still be kept comparatively dormant. The first of these to come into flower under similar treatment will be the Hymenocallis, but for some time yet it will, in most cases, be possible to avoid recourse to any undue excitement. With a drier atmosphere the syringe will needs be used more freely, but at the same time it should be in accord with the subjects chiefly grown. Light syringings will be preferable, additional humidity being also obtainable by damping down the floors and between the plants when these latter are not stood upon any material that gives off a good amount of moisture. Evaporating troughs should not be allowed to dry up; if these are not cast upon the pipes, then it is always well to have some of zinc in hand ready for any particular purpose. The sides of span-roofed houses could be made much more comfortable at night by having either mats or canvas covering fixed around them; such covering even could be left up during the day where the situation was an exposed one, and that during extra cold times. Firing can also be modified in the case of low houses or pits by means of either of these coverings; by pits I mean such as are entered by doorways and narrow walks; ordinary pits are usually covered up.

Early potting may have attention now where an early start is needed. Gloxinias should be chosen for this purpose which are showing signs of growth, although not already actually started. The earliest of the Amaryllis should also have attention; if in need of a shift, give it; but if still in good condition at the root, I cannot see the force of shaking them out annually. A succession of Tuberoses should also be got in; a few of these at the time are better than a quantity with a possibly longer interval in the latter case between one crop and another. Those who desire to have a show of Caladiums early in the spring might now pot up some of the most promising bulbs, placing them afterwards in a fair bottom heat until well on in growth. The main bulk of these should still be kept dormant, particularly all the stock of Caladium argyrites, which will start much more kindly a little later on.

JAMES HUDSON.

Odontoglossum cariniferum.—Up to within about twenty years ago this species was one of the rarest of Odontoglossids, and although since that time Messrs. Veitch and others have re-imported it, it still remains among the least known of the genus. It was first discovered by Warszewicz in Central America about the year 1848, and having been sent by him to Germany, was in cultivation there for some years before reaching England. It is a species of stout habit, having oblong pseudo-bulbs from 2 inches to 4 inches high, bearing a couple of leathery leaves a foot or more in length. The flowers, which measure 2 inches in diameter, are numerous borne on the long, stout scapes. The sepals and petals are chiefly of an olive-brown, but are yellow at the

tips and edges; they are lanceolate and pointed, and their having keels at the back is the character on which the specific name is founded. At the first expanding of the flower the lip is white, but afterwards it assumes a yellowish tinge; it consists of a broadly cordate blade attached at the base by a long narrow stalk. The species with which this is found growing wild are *O. Oerstedii* and *O. Schlieperianum*, occupying, with them, the tops of trees in mountain forests. It is, however, apparently to *O. hastilabium* that it comes nearest in relationship, although that species is found in New Grenada, and therefore on the opposite side of the Isthmus of Panama. It may also be said to equal it in beauty. It is usually to be seen in flower during late autumn, but a plant is now in flower at Kew.

STOVE AND GREENHOUSE

FORCING LILY OF THE VALLEY.

Not a few gardeners still hold the idea that to be successful in forcing Lily of the Valley the crowns or clumps must be obtained from the Continent, but they are mistaken all the same. As a matter of fact, quite as good crowns can be grown in this country, and this is asserted without any wish to depreciate or detract from the value of imported supplies. Doubtless those very plump Viennese crowns do produce extra fine spikes of flower, but the case is very different with the Dutch clumps, the fault in this case lying not so much in the preparation of the crowns as in the variety itself. Given plenty of roots to commence with of the large-flowered variety, I would undertake to produce crowns equal in every way to the best imported. So also could any other gardener with sufficient garden room for the purpose. Even the common or wild form to be found growing in woods can be considerably improved, or grown to equal the Dutch clumps, unless the latter happen to be of the larger or major form. The notion that some crowns force better than others owing to being better ripened will not bear the test of experience, and if any fail to flower properly or refuse to start at all, this must be attributed to causes other than faulty ripening or maturation of the crowns. It is possible to flower Lilies of the Valley at almost any time after the leaves are fully grown, and I have had at one time fresh spikes of flower, spikes of bright red berries, and strong green leaves, all connected with the same crown. If there is no spike formed in a crown before the old leaves are nearly dead, none will be forced out during the following winter or spring, ripening not affecting the case in the least. Undoubtedly an enforced rest, such, for instance, as exposure to frost would give, is favourable to an early and strong spike growth, but it is by no means absolutely necessary. Most gardeners have probably had one or more batches of crowns fail to start at all, and I well remember a strong lot of crowns that behaved in that way. They kept active or plump and green for a whole year, but nothing I could do had the effect of promoting either a root or top-growth, and they were eventually thrown away. At that time the blame was put upon the quality of the crowns; they were supposed to have been badly ripened. Since that time our views have changed, and I may safely state that those crowns, and very many more that have behaved similarly, were too much exposed at the outset. Instead of plunging the pots only in a brisk bottom-heat, it is of the greatest importance that the crowns also be well covered up, a surfacing of about 4 inches of cocoa-nut

fibre or leaf-soil answering well for the purpose. In order to have plenty of flower-spikes, say, for the Christmas festivities, all that is necessary is to plunge deeply in a moist bottom-heat of about 80°, with a top-heat nearer 65°, on or about December 1, the required number of pots well filled with crowns; they will start quickly and surely. It should be added that they ought to be abundantly supplied with water and be early transferred from the forcing pit to shelves in forcing houses, or other well heated houses, and gradually exposed to full light and a lower temperature. At the present time, January 13, I could point to a long row of 6-inch pots filled with Lily of the Valley, carrying on an average twenty-four good or fully-grown spikes of bloom and a fair amount of foliage, all of which were started on December 16. The crowns were home-grown, though a local trade grower could hardly credit that fact when he saw the results.

No particular pains are taken with the preparation of the Lily of the Valley for forcing, and now a good start has been made, or in other words a rather long length of border has been filled with strong crowns, a fourth and sometimes more of those longest planted can be annually lifted and forced without interfering with the requisite heavy supply of flowers that are required for table decoration during the natural flowering season. The plan of preparing single crowns answers very well, but the more common method of planting broadcast, so to speak, is, in my estimation, the simplest and best. In lifting, only the plumpest crowns are reserved for forcing, the rest being replanted on the first favourable opportunity. All the latter require is a breadth of fairly rich, well-worked ground, west borders seeming to suit them well, and they may be disposed 3 inches apart each way, only the points appearing above ground. A mulching of leaf soil given at planting time and another every winter is all the further attention ours get, though in hotter or drier positions they would be all the better for occasional soakings of water in hot dry weather. In three or four years' time strong crowns are plentiful, a fairly good lot of flower being obtained annually after the first season. If enough of the large-flowering variety cannot be obtained, be content to act as I have been obliged to do and plant the common form. Too many cannot well be grown or forced, the Lily of the Valley being one of the most popular flowers in cultivation.

GROWER.

Tillandsia splendens. Though it usually flowers during the summer months, a spike is occasionally pushed up in the autumn. It is among the commonest, and at the same time showiest of Bromeliads, being well worth growing for its foliage alone. Its recurved leaves, which are arranged in a vasisform manner, are of a bright green above, and underneath they are of a lighter tint, irregularly barred with blackish-brown. The flower-scape stands well above the foliage, and though the blossoms are whitish and in no way showy, they are almost hidden beneath the large fiery-coloured bracts, which are arranged in two rows and closely imbricated. These bracts retain their brightness long after the flowers fade.—H. P.

Dædalacanthus macrophyllus.—Where *Eranthemum pulchellum*, by reason of its beautiful blue blossoms, is assigned a place in the stove, attention may be directed to a near ally thereof, which, besides the generic name given above, is also met with under that of *Eranthemum*. It forms a free-growing subject of a half-shrubby character, whose leaves are a good deal like those of *E. pulchellum*, but larger and of a paler green. At this season of the year each shoot is terminated by a branching, pyramidal-shaped raceme of flowers. The individual flowers are about an inch in dia-

meter and pale blue in colour, except the lower petal or lip, which is of a deeper tint. Such a quantity of flowers are produced by a single plant, that the upper part of a specimen will be at its best quite a mass of blue. Like its allies, this *Dædalacanthus* is of easy propagation and culture, for it may be readily increased either by seeds or cuttings, while those struck in the spring or early summer, form, if grown on freely, good flowering specimens by the winter. Pretty though the plant is, it must not be grown to the exclusion of *Eranthemum pulchellum* or *nervosum*, as it is also called, whose flowers are of a much brighter blue, while they are also rather later in expanding.—H. P.

Begonia Haageana.—This *Begonia* has been several times noted in THE GARDEN as a very desirable species for winter or rather all-the-year-round blooming, while the last two winters have shown that in one respect at least it stands out superior to many of the *Begonias* that flower at this season. I allude to its fog-resisting qualities, for in the neighbourhood of London, where the atmosphere is laden with sulphur during the prevalence of a dense fog, many *Begonias*, in common with numerous other plants, suffer greatly, among them being *Begonia metallica*, to which *B. Haageana* bears a good deal of resemblance. Singularly enough, *B. metallica* loses a great number of its leaves, while *B. Haageana* is scarcely affected by it.—H. P.

COOL GREENHOUSE AND TEMPERATE PALMS.

AMONGST all the kinds of cool or temperate house fine-foliaged plants the Palms must take a prominent position. They are, it is true, of somewhat slow growth when not hastened on in a higher temperature, but in the long run this will be all the better for the plants. Hardly any plants can be considered easier to cultivate than the majority of these Palms. Keep them well supplied with water and the foliage clean, shading during bright weather from the end of March to the same in September, and they will thrive well. White scale is rather troublesome upon some kinds—more so than in the case of those grown in the stove as a rule. Other insects will give but little trouble. Amongst the hardiest must be included *Chamærops Fortunei*, the variety usually planted out in the south of England. As a pot plant it is, however, extremely useful in the coolest of greenhouses. A good companion to the foregoing is *Chamærops humilis*, which is of more elegant growth; the leaves of this species have a glaucous tint upon them, more apparent in some cases than in others. It will do well wherever the frost is excluded. *Corypha australis* is a first-rate Palm; in some respects (and if not looked into closely) it is not unlike *Chamærops Fortunei*; it is, however, armed with stout spines upon the leaf-stalks; whereas the other is destitute of this appendage. It is a most enduring kind, retaining its foliage for a considerable time. *Areca sapida* is another excellent Palm for a cool house; it is one of the grossest feeders of any. When it approaches specimen size it is a fine object with its long, spreading pinnate leaves. *Seaforthia elegans* is of the two safer in a little more warmth; at any rate, it should not be in a house that falls below 40°; whereas the afore-named kinds will not hurt at 32° occasionally. *Rhapis flabelliformis*, *R. humilis*, and *R. gracilis* are three Palms well suited for small houses, or where much room cannot be spared for such as spread out a considerable distance around. *Phoenix reclinata*, *P. tenuis*, and *P. sylvestris* are three of the most useful of the genus. The last is the strongest grower and the hardiest also. The first-named makes a splendid specimen, and is one of the best of all Palms for living rooms, keeping in good condition longer than almost any other; the second kind is one of the best growers, being also comparatively compact, a medium-sized plant, looking better than either of the others. The two varieties of *Sabal* usually grown (*S. Blackburneana* and *S. umbraculifera*) are two Palms of very robust character; both, although coming from the West

Indies, may be readily grown in cool houses where there is a good amount of room. I remember one plant in particular which has occupied the same position in a conservatory for more than twenty years, a stem being formed very slowly. Of the afore-named kinds, I consider the best half-dozen for a cool house to be *Chamarops Fortunei*, *C. humilis*, *Areca sapida*, *Rhapis humilis*, *Phoenix reclinata*, and *P. tenuis*.

In a warm greenhouse, or what is termed by some a temperate house, the foregoing can also be grown, increasing in size more rapidly. To these must be added *Areca Baueri*, a Palm of upright growth compared to some; it is a strong grower, and makes a fine conservatory specimen. *A. rubra* is a distinct kind, not unlike a *Kentia*, but larger in all its parts; the young foliage is suffused with a reddish tinge, making it very ornamental. The *Kentias* were alluded to amongst stove Palms, but if it is not necessary to push forward the growth, and the plants are not injured by use in the house, then the temperate house will suit them admirably. *Phoenix rupicola*, one of the most elegant of the Date Palm family, will make much better growth in the temperate house; thus treated it is seen to much better advantage. It is the lightest kind of those that are best known, and more adapted for decoration in a small state than the three other varieties previously named. As it increases in size it maintains a most graceful style of growth, being in all respects a most decided acquisition. *Latania borbonica* needs hardly any recommendation, being so well known; the temperate house is the best place to grow it in. If it is grown in a cooler house, the leaves assume a sickly appearance; whereas in the stove the leaf-stalks become too much drawn. It is seen to better advantage as a medium-sized plant, with the leaves in their true character and not semi-erect. *Pritchardia filamentosa* (a Californian Palm) should only be grown in houses of good size and fairly lofty; then as it gains strength it is a very noble-looking plant, producing large massive leaves, which present a singular appearance with the thread-like filaments hanging from the same. Of the *Chamædoreas* there are some that will do very well for the temperate house. *C. Wendlandi* is one of these; it may also be used in rooms during the summer months; those mentioned for the stove might be grown here with care. *C. elegans*, another Mexican species, would be one of the best of these. Taking Palms as a whole, with regard to the soil used in their potting, they may be classed under various heads. The vigorous growers with the large fleshy roots, as *Seaforthia elegans*, the varieties of *Phoenix*, *Areca*, and *Chamarops*, will all do well in nearly all loam, the remainder being leaf-soil and sand. Others, as the *Kentias*, *Chamædoreas*, *Geonomas*, and *Cocos*, will be all the better with about half peat and half loam with sand. Such as the *Stevensonia* (*Phœnicophorium*) and *Verschaffeltia* require nearly all peat to grow them well. When Palms are planted out they attain to much larger dimensions. I have grown them in this manner in a large conservatory. For some years they are thus splendid objects, but the time comes when the glass is reached; the leaves must then be pulled down gradually to prevent injury. After that, unless they can be lowered, removal must be thought of. With care this may be done, giving more heat and moisture for a time if they are taken into a still loftier house, otherwise they will suffer to some extent. PLANTSMAN.

Hothouse climbers.—Frequently one may see in plant-stoves and greenhouses climbers allowed to become matted for want of thinning. They are often allowed to grow too gross when space is limited, and trained over the glass roofs, shutting out light and air from plants on stages or floors underneath. If the climbing plants can be planted in open beds where the roots can be curtailed or pruned at pleasure, they are more manageable than when they are allowed unlimited space. Many species when grown in pots are liable to suffer at the roots and thus become a prey to vermin. A

favourite system of mine is to grow certain robust species in pots half plunged, and with holes made large enough in the bottoms to allow the roots to egress when the pots are full. In plant-stoves we have doing well *Allamandas*, *Ipomæa Thomsoni*, *Stephanotis floribunda*, *Dipladenia boliviensis*, and others; a main shoot of each is trained to a rafter, and flowering growths hang down. An occasional use of the knife keeps all within the space assigned to them. Gross growth is checked by cutting the roots outside the pots as may be necessary. In greenhouses and other cool structures, *Lapagerias* (scarlet and white), *Clematis Beauty of Worcester*, variegated *Cobæas*, *Niphetos*, *W. A. Richardson* and *Maréchal Niel* *Roses*, *Habrothamnus* of sorts and other climbers do admirably, the plants rooting through the pots into beds of soil.—M. T.

SHORT NOTE.—STOVE AND GREENHOUSE.

Cineraria lanata This is a fine old species, which I recently saw in bloom in an old-fashioned garden. Its foliage is of a dark green on the upper side, the lower surface and the peduncle being of a soft woolly white. The flowers are large, deep purple without, soft purplish-white within. It has been in our gardens over a hundred years. It may be kept in the greenhouse, and is easily increased by cuttings.—W. H. G.

ROSE GARDEN.

FORCING ROSES.

A FEW blooms of the Tea-scented and Noisette *Roses* are always very serviceable and pleasing, but perhaps never more so than at the present time of the year. During this week I have cut several very good flowers of *Francisca Krüger*, *The Bride*, *Perle des Jardins*, *Mme. Lambard*, *Mme. Falcot* and *Goubault*. I think the two last-named *Roses* are the best of all for early forcing, and certainly they are unsurpassed by any for this purpose. *Goubault* is a somewhat thin flower, especially during the summer months, but as an early forced *Rose* it retains its colour and shape for a long time. Then it is so very free flowering and possesses such an exquisite perfume, that it should always have a place among forced *Roses*. Under glass and during early spring it comes of better colour than *Souvenir d'un Ami*, and in fact very much resembles that grand variety as regards growth, &c. When I say that it is more sweetly perfumed than *Souvenir d'un Ami*, I am aware that I am advancing a great deal, but it is undoubtedly one of the sweetest scented and most useful *Roses* grown for early forcing. *Niphetos* is by far the finest white *Rose* for early work, and seldom if ever fails to give a reliable crop, provided the plants are not allowed to receive any appreciable check to their growth, more especially just as the flower-buds are forming. If this occurs, the bulk of the flower-buds will turn yellow and black, and eventually drop off. A better white *Rose* in this respect is *Souvenir de S. A. Prince*, but this variety does not make such long-pointed and serviceable buds and flowers as *Niphetos*. *Safrano*, *Sunset* and *Mme. Falcot* are excellent varieties of an orange and apricot colour. All of them are good growers and very free flowering. I have plants that are 6 feet high and some 3 feet to 4 feet through; these will soon be covered with flowers.

Isabella Sprunt and *Perle des Jardins* are a couple of grand pure yellows, the former being considerably paler in colour than *Perle des Jardins*. *Isabella Sprunt* opens well; in fact, one must perforce choose those varieties which burst into a shapeable flower almost from the bud. If growing those of a more double form, such as *Ernest Metz*, they are seldom thoroughly open before their freshness goes off, and at this time of the year thin varieties like *Isabella Sprunt* and *Safrano* do not fly open and drop for many days.

For deep pink colours I should choose *Goubault*, *Red Safrano*, *Mme. Lambard* (more often red than not early in the season), and *Camoens*. All of

these are good growers and open their blooms freely. For darker shades than these none surpass the old General *Jacqueminot*, while *Gloire de Margottin*, a newer introduction, must take rank as one of the most useful red forcing *Roses* we have. This variety has buds of exquisite shape and length, and is the nearest approach to a self scarlet-coloured *Rose* there is. *Fisher Holmes* is darker than either of the preceding kinds, and is well worthy of a place, but for ordinary purposes it will be found best to stick to the Tea-scented section for the earliest crop of blooms. In the early forcing of *Roses* start them early, but let them come on very steadily until the flower-buds can be perceived. After this time they can have more heat, and will soon derive much benefit from the same; the flower-buds will soon swell out, and good blooms result. But if you force them hard from the first, a great number of the shoots will turn out blind and minus any flowers; this is the result of too hard forcing from the commencement, and also from the plants not having been fully matured during the previous autumn. Keep the atmosphere moist, but not wet, the same conditions applying to the state of the soil. *Roses* in pots force more readily and freely than do plants turned out in borders. When in pots and half plunged in a bed of decayed leaves with a sprinkling of stable manure, they come on quickly. The half plunging also secures them from becoming parched at the roots, and at the same time the slight bottom heat assists them. A good temperature for forced *Roses* is 55° at night with a rise of 10° during the day. RIDGEWOOD.

ROSES IN THE COOL HOUSE.

THERE are very few subjects more suitable for an unheated greenhouse or conservatory than a few *Roses*. Where these exist it is quite time they were pruned and generally attended to. Mine are being done now, and at the same time being carefully looked over to be sure they are free from scale. Teas and Noisettes of such habit of growth as *Niphetos*, *The Bride*, *Madame Lambard*, &c., will need fairly close pruning, as you do not obtain a greater quantity of flowers by allowing the plants to carry an excess of wood, while they attain to too rambling and straggling a character if not kept in bounds by the judicious use of the knife. But stronger growers of climbing habit of whatever variety are frequently ruined for the season. Lately I was asked to look at a *William Allen Richardson* that the owners had got out of patience with, and which they proposed cutting out. It was a splendid specimen, and the complaint was that it made ample growth, but never flowered. Of course it did all the while they continued to prune it so injudiciously. Each spring they had been in the habit of pruning it similar to such *Roses* as *Jean Ducher*, *Souvenir d'un Ami*, &c. The consequence was, more long and healthy growths were made; but before these could possibly flower they were removed again. Now, had these growths been left almost intact, simply cutting away the little immatured wood at the ends of these shoots, an ample crop of bloom would have been sure to follow.

The same remarks apply to the following varieties, all of which are grand for a cool house, and throw quantities of first-class flowers if so treated: *Madame Chauvry*, *Bouquet d'Or*, *Reine Marie Henriette*, *Brunnet Fridolin*, *Kaiserin Friedrich*, and in fact all the strong growing Noisettes and Dijon Teas.

I always rub over my plants with a small piece of sponge well saturated in a rather strong solution of soft soap and brimstone. By taking the strong shoots of the smoother wooded varieties, such as *Madame Bérard*, *Brunnet Fridolin*, &c., in the left hand, you can rapidly wipe up the whole length of the shoot. If you do this in time, it will not injure the eyes, and will at the same time kill any stray insect pest that may be about. Having pruned and cleaned the plants, I give a good mulching of well-decayed manure. It does not matter much what kind this is, but I do not use horse droppings

if I can find anything stronger and heavier. Roses like a stiff close soil, and horse manure is not moist and cool enough for them. Fork the manure in lightly, and then give the borders a thorough soaking with rain water. In quite cool houses, such as I am now thinking of, it will be well to delay the watering for a week or two longer, or your plants may come on too rapidly for their own good, and get seriously checked by a severe late frost.

Follow the advice I gave in a recent issue as regards syringing and keeping the plants perfectly clean from the very first, but you must choose your days and times for syringing cool houses. Too damp an atmosphere in these is apt to cause sad havoc among the young growths, especially just as the flower buds are becoming visible. These damp off in a most tantalising manner, and one night of over-dampness may cause a lot of mischief.

RIDGEWOOD.

ORCHIDS.

PROMENÆAS.

THIS family of small-growing handsome plants has been bandied about by different authorities, having been first assigned a place in the genus *Maxillaria*, from which Lindley removed it to generic rank. Later authorities, however, include them in the genus *Zygopetalum*, but with this I do not agree, and still adhere to the Lindleyan name of *Promenæa* for this group of plants, which are all Brazilian. In habit and general contour the different species resemble each other, being of dwarf growth, with a one or two-flowered scape. Mr. Sander, of St. Albans, has done well in recently figuring *P. xanthina* on t. 11 of the second series of the "Reichenbachia," the same species having been figured in the "Orchid Album," t. 7, under the name of *P. citrina*, a name by which it is more frequently to be met with in collections, and by which name I had known the plant. *Promenæas* should be grown upon blocks of wood or in shallow earthenware pans. I prefer the former, and I like good sound Willow for this purpose, fixing the plants upon the wood with a little Sphagnum Moss only. In this manner I have grown the plants well, and have had them flower abundantly; they, however, require strict attention under this system of culture, because they enjoy abundance of moisture in the summer season during the time of growth. When resting, these little plants, which seldom exceed about 4 inches in height, require to be kept just sufficiently moist to prevent shrivelling. To obviate this, the system of growing them in shallow pans has come into use for them, and when grown in these they must be well drained and a mixture of good peat fibre and Sphagnum Moss used, making it firm round the plants, which should be set upon a little elevated mound above the pot's rim. They should be hung up near the glass in the Odontoglossum house during the summer months, removing them to the Cattleya house during the winter. I have grown them in the Cattleya house during summer, but they are very liable to suffer from the attacks of insects. There are only a few kinds of this genus, and I look forward to the list being added to when fresh districts in Brazil are visited. The flowers of the *Promenæas* will last three or four weeks in full beauty.

P. XANTHINA, known in gardens by the name of *P. citrina*, is a pretty and bright-coloured plant. The peduncle is one-flowered, the sepals and petals spreading, thick and fleshy in texture, and of a clear rich yellow; lip three-lobed, larger than the other parts of the flower; side lobes yellow, spotted with crimson, the middle lobe clear rich yellow. It

usually flowers in the autumn. C. Appleby sends me some flowers from a plant which he tells me were brought from the Organ Mountains, in Brazil, a locality I have often received it from.

P. MICROPTERA is a plant nearly related to the preceding. Its peduncle is one-flowered, having the sepals and petals spreading and nearly equal, of a creamy-white; the three-lobed lip is lanceolate, front lobe white, with two very small side lobes, spotted more or less with purple. It was introduced by Mr. Williams from the Organ Mountains.

P. ROLLISSONI.—A stronger-growing kind than the preceding. The scape usually bears two flowers; the sepals and petals are lemon-yellow, the front lobe of the lip oblong and apiculate, creamy-white, the small side lobes being erect and spotted with crimson.



Promenæa Rollissoni.

P. STAPELIOIDES is also a strong-growing plant. The scape is two-flowered, the flowers being much larger than any others of the genus, the sepals and petals greenish yellow, barred and spotted with deep purple; the three-lobed lip is somewhat small, the front lobe deep blackish purple, paler towards the margin. It blooms during the summer and autumn.

WM. HUGH GOWER.

Lycaste Skinneri alba.—T. Jones sends me a remarkably fine variety of this plant, which he says is bearing eleven blooms. The sepals are broad, thick and fleshy in texture, and they measure nearly 8 inches across.—W. H. G.

Lælia Gouldiana.—I have received a spike of the above from W. Holmes, gardener to Mr. Hardy, Pickering Lodge, Timperley, Cheshire, from a plant which has borne ten flowers. The more I see of this the less I am inclined to the belief in its hybrid origin. It has been sent home in large quantities, so that it would appear to be a regular and established species. It grows well along with *Lælia anceps* and *Lælia autumnalis*, and it appears to have done well with Mr. Holmes. This plant, like the white-flowered *anceps*, only requires to get over its removal from its native home to become

very free-flowering. Mr. Holmes tells me the flowers have come through one or two fogs. W. H. G.

NEW AND NOTEWORTHY ORCHIDS IN 1891.

ORCHIDS have during the past year been shown most profusely before the Orchid committee at the R.H.S.'s meetings, whilst the gorgeous display made by private growers and the trade at the splendid show in the Temple Gardens under the auspices of the same society will be long remembered as one of the finest collections ever brought together. Not only have we several decided acquisitions in hybrid forms, but imported species have also been added to swell the list of good things amongst Orchids. There have also been shown several very superior examples of older kinds, some of which are not only notable by their extreme beauty, but

are also instances of high-class culture, such as one rarely sees in some cases to which attention will be drawn. Of these older varieties, particular note should be taken of the two exhibits of *Disa grandiflora* sent from Chatsworth, than which nothing could possibly be finer. Larger plants may have been shown, but as regards culture and the rich colours of the flowers, they were as fine as anyone could wish. *Vanda teres* should be cited as another instance as shown from Gunnersbury Park at the Temple show. Such a collection of plants, so freely flowered and in such vigorous health, probably has never before been staged. The specimens of *Saccolabium Blumei majus* (cut) exhibited from the Hatfield Park collection were in their case quite unique; the noble spikes betokened the highest possible state of cultivation. In the palmy days of these Orchids, from twenty to thirty years back, no finer ones could be cited. Another instance was only seen at the last meeting of the year, in the Drill Hall, in the splendid lot of plants of hybrid *Calanthes* from Burford Lodge. No group of plants shown at any of these meetings has created more interest than these, wherein utility and beauty were combined. The singular-looking *Dendrobium Brymerianum* is not often seen so freely flowered or so good as

it was shown last spring from Warnham Court; the beautiful lace-like labellum is so distinct, and the whole colour of the flowers so rich in this variety. The group of rare and extremely choice plants from The Dell at the first April meeting was a very fine exhibit, including as it did such unique kinds as *Lælia Digbyana Mossii* and *Cypripedium Morganii*, the latter a grand specimen. From the same collection a grand group of plants was staged at the Temple show, and another at the same place from Burford Lodge; such comprehensive collections as are rarely ever seen in any exhibition. The richest treasures of our Orchid houses were here brought together. At the Temple also particular note should be taken of the grand lot of Orchids from St. Albans. If one variety more than another struck me there it was the splendid examples of *Odontoglossum citrosum* and the rose-coloured form; these were remarkably fine specimens of cultural skill. The way in which they were shown greatly added to their beauty; seen suspended, as these plants were, with the spikes drooping down in long racemes the effect was excellent. The other varieties of *Odontoglossum* in the same collection were of the finest, whilst the *Cymbidium Lowianum* (several plants)

were also most noteworthy. From Holloway several of the best hybrid *Cypripediums* were from time to time exhibited, and on one occasion a very fine lot of *Vandas*, chiefly forms of *V. suavis* and *V. tricolor*, was staged; these *Orchids* are not seen at the shows nearly enough, presumably through not being good travellers. Note should also be taken of the group of *Oncidium*s at one of the meetings from Cumberland Park, Willesden Junction, consisting of varieties of *O. crispum*, *O. Forbesi*, *O. curtum*, *O. Rogersi*, and *O. tigrinum*; these were well-grown, freely-flowered examples. In the spring there were a few excellent exhibits of *Cœlogyne cristata*, notably those from Cheshunt, amongst which was a pyramidal specimen, a novel and most suggestive mode of growing this plant. The cut blooms of *C. cristata alba* (hololeuca) from one plant at St. Albans made a fine display as it was, but they must have looked better still upon the plant itself.

If one genus has been better represented than another it is the *Cypripediums*, which throughout the year were shown in great variety, this clearly showing how popular these plants are with *Orchid* growers. They have the good points of being such lasting flowers, whilst the plants, through being so compact in growth, can be cultivated in considerable quantity where the room is but limited. The varieties of *Lady's Slippers* are now becoming so numerous, particularly the hybrid forms, as to be most perplexing to all but the specialist. The splendid varieties of these that have issued forth from the Veitchian collection have greatly added to the numbers. The varieties of *Cypripediums* staged at the last meeting were most numerous; prominent amongst these was *C. Leeanum*, of which several superior forms were shown, as *C. Leeanum giganteum* and the nearly allied *C. Masereelianum*, both being decided advances. Seeing the numbers of *C. Leeanum* there exhibited, this fine hybrid should soon become plentiful. In the spring shows there were several choice exhibits of hybrid *Dendrobiums*, a group of *D. melanodiscus* (*Ainsworthi* × *Findleyanum*) being particularly interesting and most beautiful in the colours.

Of new *Orchids* to which certificates have been awarded, attention may well be again drawn to *Disa Veitchi*, the first hybrid *Disa* yet raised, and one that clearly shows the cross between *D. grandiflora* and *D. racemosa*; it is a worthy companion for its parents, with the beauties of both. *Lælia hybrida Arnoldiana* is a valuable addition to its class, and must be considered therein as one of the most select; it has the good qualities of *Lælia purpurata*, one of its parents, with the rich colours to be found in *Cattleya labiata*, its pollen parent. *Lælia grandis* (*Tring Park* var.) should be noted; it is a variety with richly-coloured flowers and larger ones also than the type. Of *Cattleyas*, particular note should be taken of *C. Hardyana* (*Hamar Bass's* var.); it is a very superior form with the rich colours of the type even more intensified, the lip and throat being very fine. Another superior *Lælia*, named *L. Perrini alba*, with pure white flowers, extremely beautiful, was shown at the Chiswick meeting in October. *Cattleya Mossiae gigantea* is quite a major form of this fine old *Orchid*, very superior in every sense to those usually seen. Another addition to the old *Lælia anceps* was shown in *L. a. Ballantineana* at the first meeting in the year; it is remarkable for its rich colours and breadth of petal. *L. a. grandiflora*, at the same meeting, was noteworthy for its massive flowers. The best of the certificated *Cypripediums* were *C. Creon*, a dwarf-habited hybrid with a dark dorsal sepal; *C. Antigone*, a pale-coloured, but beautiful hybrid, its delicate colours being its chief features. *C. insigne* var. *Sanderæ* must be considered one of the finest of imported *Orchids* that has during this year been shown; it has been alluded to more than once, and is decidedly distinct from other forms. *C. macrochilum*, another hybrid, but of the *Selenipedium* group, is a valuable addition to this section; it promises to be a free-growing plant and a profuse bloomer. Another very superior variety is *C. Corningianum*, a hybrid of distinct features with large flowers, having extra fine petals. Of *Odontoglossums* there were a few superior forms exhibited,

amongst which *O. crispum guttatum* is a well-marked variety, and one of the most distinct. *O. vexillarium* var. *Mrs. Henry Ballantine* has deep-coloured flowers with a distinctly marked lip, being a fine form of this good *Orchid*. *O. Pescatorei* var. *Prince of Orange* has something of the appearance of being a hybrid between this species and *O. triumphans*, both having been found growing near together; the flowers are of a rich golden colour, with dark markings. This is one of the finest of all the newer *Odontoglossums*. *O. Halli leucoglossum* is a very vigorous growing variety, at the same time quite distinct from the type. *O. luteo-purpureum* var. *Amesianum* is another addition to this section, with pale-coloured flowers. *O. triumphans* (*Whiteley's* var.) is a very superior form, the colours being much deeper than in the ordinary variety. There have been some few good additions to the *Dendrobies*, both of hybrids and imported species. The best of these is *D. hybridum Venus* (*nobile* × *Falconeri*), a most interesting and very promising hybrid, the characteristics of both parents being quite evident; the flowers are also of superior size. *D. melanodiscus pallens* and *D. m. Rainbow* are two more hybrids of very superior merits; this cross has been previously alluded to. When shown they found many admirers; both have pale-coloured flowers. *D. Leeanum* is an imported species, habit not given; it savours much of *D. superbiens*, and I should not be surprised if it came from the same quarter or near to it; it promises to be a profuse flowering variety. *D. Phalænopsis* var. *Statterianum* is an improvement upon an already beautiful variety.

Of other *Orchids* there have been shown some good varieties, as *Oncidium Larkinianum*, one of the best additions to this family for a long time. The plant shown bore one good spike; the lip is its most distinctive feature, this being of a rich yellow and of good size. *Epidendrum dellense*, a hybrid between *E. xanthinum* and *E. rhizophorum*, is a decided acquisition; the colour a rich orange-scarlet, the growth erect. *Sobralia Kienastiana* is a lovely pure white variety, with a faint blotch of pale yellow; it is a dwarf form of *S. macrantha*. *Phajus maculato-grandiflorus*, a hybrid that promises to be of strong growth, with noble spikes, was recently shown; should it continue to flower at the same season, this fact will make it still more valuable.

The foregoing varieties were noted as they have been exhibited, having struck me as being amongst the best of new kinds; others also have been shown and received distinctive awards according to their respective merits. I consider that the exhibits of *Orchids* in 1891 at the London meetings have been a distinct advance in every respect. It clearly shows by the large numbers of exhibitors, some from long distances, that the interest displayed in the culture of these beautiful flowers is still on the increase. At the meetings of no other society have there been such displays of *Orchids* as at the Royal Horticultural Society's gatherings from time to time. Had the old society done no other good work during this year, they deserve the cordial support of all orchidists by the advantages that are thus afforded of comparison, and for the opportunities of mutual intercourse between cultivators. The exhibits of old, but notable kinds first alluded to were no mere chance display; this was fully proved by the numbers of plants shown in each instance. One omission amongst these was inadvertently made; this was the instructive exhibit of *Cattleya citrina* by an enthusiastic cultivator from Yorkshire, several plants being shown growing upon different kinds of wood, some of the plants having been in his possession for several years, this going to prove that although a rather fickle kind, it can be grown well when its wants are understood.

PLANTSMAN.

SHORT NOTES.—ORCHIDS.

Cypripedium Amesianum. S. Johnson sends me a flower of a *Slipper Orchid* which he says he has obtained between *C. villorum* and *C. venustum*. I daresay these were the parents of the flower sent, and so they are of the variety named above, the only differ-

ence being that the flower sent represents an inferior form. This may arise from the fact that this is the first time of its flowering. The first flowers are always slightly inferior to those produced the second season. W. H. G.

Lælia anceps Protheroeana.—From W. H. Hines come blooms of what appear to me to be this variety. The flowers are large and of a very dark colour. They were shown up better by a flower of *L. anceps* representing the type enclosed with them. There are numerous forms of *L. anceps*, which differ only in colour, and this is a very fine one. G.

Lælia autumnalis atro-rubens.—A fine flower of this variety comes from "York." It was first introduced by Messrs. Backhouse and Son, of York. The flowers are of very much deeper colour than those of the typical form, the lip being of a rich purplish crimson; the sepals and petals also of a deeper colour. These Mexican *Lælias* are becoming better understood, and their flowers coming in at this dull cold season are very acceptable.—W. H. G.

FLOWER GARDEN.

BASAL ROT IN NARCISSI.

If Mr. John Speir (pp. 12 and 28) is not an old or practised grower of *Narcissus* bulbs, he may quite easily have confounded the basal rot, induced by ungenial surroundings, with the partial or total rotting of the base of these bulbs as caused by the larvae of the Merodon, or *Narcissus* fly. A glance at the plate (showing the larvae affected bulbs, as published by Dr. Ritzema Bos) will show that a basal rotting of the bulb disc really does take place, in addition to the rotting of the outer bulb scales after the hearts of the bulbs are ravaged by this pest. Basal rot proper originates outside the bulb, but the rotting induced by the Merodon larvae begins inside the bulbs. In a word, you may have your *Narcissus* bulbs affected by basal rot pure and simple, or you may have them infested by the Merodon, which also causes them to remain rootless wholly or in part. In either case the result is a necrotic condition of the disc or solid basal portion of the bulb, and but few if any roots are emitted.

The *Narcissus* fly is a far more common and abundant pest than is by many supposed. I know several collections in Ireland that have been decimated by it, and the only certain way of dealing with it is to take up and carefully examine the bulbs every year. All soft-necked bulbs should be examined, and it prefers the older central bulbs in the clump to the younger lateral ones. Of course, I know the basal rot, which is not caused by the Merodon, but evidently by something inimical to the soil. *N. spurius* Ard-Righ, *N. maximus*, the vars. of *N. Leedsii*, and the white *Daffodils* are very much affected by this in some soils and not so in others. Even in the same garden, those on deeply-dug and rich borders will suffer, while those on dry banks or on Grass, or amongst the roots of Holly, Roses, or other shrubs, will remain healthy for years. Long ago, the late Miss F. J. Hope, of Wardie Lodge, Edinburgh, in that little garden classic "Gardens and Woodlands," shrewdly remarked that the plant borders were "too good" for some of the *Daffodils*.

When I began an extensive culture of these flowers under many conditions some twelve or more years ago, I soon discovered that many, even if not most, *Narcissus* were the better for being free from the usual crude additions of nitrogen to the soil. Then my friend Mr. Walker observed that whereas species and wild varieties of *Daffodils* did not like manure, many of the garden seedlings liked it, or at least flourished well and did not become unhealthy under its influence. Nearly all the garden

seedlings of *N. incomparabilis*, *N. bicolor*, *N. Emperor*, &c., seem to do well in the deepest and richest of garden soils, but try a hundred bulbs of the wild *Narcissus Pseudo-Narcissus* (English Daffodil) in a heavily manured border and see the result. They die off in a year or two, but will live for ever in a wood or copse, a hedge bank, or a grassy lawn. The old order of gardeners believed in plenty of farmyard or stable manure, but we are now learning that judicious starvation, in moderation, is sometimes good for plants as well as for ourselves.

In a recent work on agricultural chemistry, by M. Georges Ville, he points out that seedlings of any particular species of plant may vary say from one to ten in its capacity for absorbing and utilising nitrogenous food from the earth in which it grows. This is the ever varying basis that underlies improvement in crops by selection from seed; one seedling from a Wheat head, or Pea pod, being in some way, we know not positively how, invested with a greater capacity for feeding, digesting, or utilising its pabulum than its fellows, and so being capable of, it may be, a tenfold or even greater yield. This principle is evident in *Narcissi* as in other vegetation, and, broadly speaking, we now know that wild kinds are not fond of soils rich in nitrogen or in humus, but that the garden hybrids and seedlings do not, as a rule, object to rich soils. Again, we now know that the soil is teeming with bacteria and other low forms of active life, capable of causing nitrifying fermentation quite different from the mere chemical change, and it is very possible that these changes going on in the soil are under certain other adverse circumstances inimical to the well-doing of many delicate bulbs, although beneficial under suitable conditions. My own impression is that imperfect or mal-nutrition lies at the bottom of all questions relating to health and disease in plants as well as in animals. Basal rot is, as I believe, caused by mal-nutrition, i.e., either by food presented to the roots in a form too crude to be readily assimilated, or there may be physical causes, such as too much moisture, absolute injury from frost, or soil unsuitable in one or more of many ways physiologically or chemically, as well as physically. I have proved this pretty conclusively by digging bulbs badly affected by basal rot from rich borders, and planting them in the Grass amongst tree roots, or in a warmer and lighter stony soil without manure, and in both cases they have grown out of the rot, and their offsets have become quite as healthy as if nothing had happened to their parent bulbs. So far this is some sort of consolation to those who have unhealthy bulbs. I think Mr. C. W. Dod told us at one of the recent *Narcissus* conferences that with him the behaviour of the same Daffodils varied much, some doing better by the stones of his rockeries or near walls than elsewhere. This is quite a common experience, and how often are we delighted in some dear old-fashioned garden by the stray or dug-down bulbs of Daffodil, or Crocus, or Snowdrop luxuriant beside a walk or stone border, or in the middle of the Box edging. I am convinced that most bulbs, and especially the unhealthy and delicate growers, like to grow in company with the roots of trees and shrubs, and acting on a hint from Mr. Elwes years ago, I now grow the double var. of *N. cernuus* in a clump of *Rosa gallica* with much success, having time after time failed to grow it healthily on the good borders. Those travellers who have dug up wild Crocuses, Scillas, Daffodils, &c., on the hillsides and mountains of Europe or Asia

Minor will remember what a hard task it often is, and how deeply ensconced are the bulbs among roots and stones. I had a backache the other day in digging a thousand or two of *Scilla verna* from amongst Sedge, Erica, Grass and Burnet Rose roots as netted and intertwined over the surface of decomposed Cambrian rocks on Howth Head. I know of some thousands of Daffodils growing in fields of greasy clay, and they flower splendidly, becoming stronger year after year. As so grown on a broad and natural plan I hear nothing of basal rot or of Merodon. A golden rule, if not a royal road, for all amateur growers of *Narcissi* is this: If your *Narcissi* are healthy and prosperous, you may safely leave well alone; but if weakness or disease of any kind is evident, they should be dug the following July, in some cases even in June, the time for each locality being generally indicated by the turning yellow of the leaves. Red-headed pegs or tallies should be fixed to all unhealthy rows, groups, or clumps at flowering time as an indication of locality, and of the desirability of removal, cleaning, and replanting.—F. W. BURBRIDGE.

— From the remarks of your correspondents during the past two weeks on the above subject, it appears to be the general belief that the Daffodil has two diseases, if one may call them so. Although I have between ten and a dozen acres of Daffodils, I have no hesitation in saying that until the past season I devoted no attention to the subject. Crop diseases (insect and fungoid) I have watched closely for years, and last summer when corresponding with Miss Ormerod regarding them, I cursorily asked if she knew anything of the Daffodil disease, when she referred me to Dr. Bos's pamphlet, which I procured and carefully studied, and from his description I came to the conclusion that what we call basal rot, but what he calls Daffodil disease, were one and the same. Mr. C. Wolley Dod and Mr. Engleheart appear to be quite confident that they are different, and as it is only during the past summer that I was aware of the existence of the *Narcissus* fly, I am quite willing to believe that they are right. There is, however, no disputing the fact that many bulbs have maggots in them, but whether they are the effect of the disease or its cause I am unable to say. Before I was aware of the existence of the *Narcissus* fly, I considered the disease as having the appearance more of a fungoid one than that of being caused by an insect, and I think it will ultimately be found to be so if your correspondents are right.—JOHN SPEIR.

NOTES ON HARDY PLANTS.

Antirrhinum Asarina.—Whatever this may have been when described in "Curtis' Magazine" (pl. 902), it certainly is not a rare plant to-day, at least not in the sense of either being difficult to grow or procure, but it may be in the sense of being seldom seen, the more the pity for those who love beautiful hardy plants, especially those plants of more than ordinary interest. As reference has been made to the description of it plant in "Curtis' Magazine," it may not be out of place to say that we evidently know more of it now than was the case 100 years ago. It is there described, "according to Miller, as a hardy annual, said in the Kew catalogue to be perennial and hardy, but Mr. Donn justly considers it as a greenhouse plant." We now know it to be without doubt a hardy perennial in light soil, but certainly apt to go off in heavy land, which may account for the diversity of ancient opinion. It has grown here for many years without any care or protection whatever, and annually I am able to pot up seedlings from the garden walk. The plant has a peculiar habit, its long trailing stems going out to the extent of 6 feet to 10 feet each when the plant is in good soil. The grey foliage is so arranged, that in the twilight the long stems have the effect of a large-scaled snake of 6 inches or 8 inches in diameter. The flowers, which are yellowish

white and nearly the size of those of the common Snapdragon, are produced all along the stems, but mostly hidden by the leaves. The plate referred to can give no idea of the habit of the plant, and it must have been drawn from a weak specimen; the text anent the plate would imply this.

Lithospermum graminifolium.—Is this plant hardy? I will only answer for myself, and I give a decided negative. So long, however, as we hear of people growing it as a hardy plant, we must allow in this case, as in others, that those who find it such may have soil, climate, or something else that we know not of that enables it to live through the winter; whereas it never fails to die in other gardens. I have grown it well many a summer, and I have even picked favoured spots for it; but as my intention has always been to watch it as an experiment, I could do no more than that for it fairly; that is, if seeking to learn whether it was hardy, I must of necessity keep it under hardy conditions. I also happen to know that many friends have failed with it, and I think under the circumstances it may be termed a more than doubtful or tender plant for out of doors culture.

Eryngiums.—It is quite true that, speaking of these as a group, they are not satisfactory in every garden. Even where they grow well they often become spotty in their stems and foliage when the flowers are just developing, and the bracts, stems, and stem foliage fail to assume those charming sky-blue and steel-blue tints for which this genus is chiefly noted. I am not able to give a reason for this, but I strongly suspect a fungus as attacking the plants at the period when they begin to flower. One thing is certain, however, that although you cannot very well kill the roots in poor land, you may expect the best of results where the soil is rich and deep, and where the land is otherwise kept clean. I have always felt that *Eryngium alpinum* is one of the kinds which does not generally receive the attention it merits. I consider it vastly superior to even the favourite *amethystinum*. Its bracts are enormous, and the half leaf-like and half bract-like stem foliage for a good way down develops the rich bract colour. It is also at once a neat and noble plant, not too tall for its top-heavy character, and the greener foliage is ample from the radical parts. Plant in a rich deep soil without manure, and do not allow it to flower the first year.

Trillium erectum.—If one may guess, it would almost seem as if the great amount of favour won by the better known, and of late much more grown, *T. grandiflorum* is inducing more attention to the whole genus, and certainly the present species is now much more in request than formerly. I have nothing to say against the beauty of this plant, but I should like in some way to warn those whose expectations have been raised to a high pitch from seeing the glorious flowers of *T. grandiflorum*, that, compared with that species, the present kind is a very humble plant indeed. It may, if well grown, prove a little handsomer or a little more showy than our native Herb Paris (*Paris quadrifolia*), but for all garden purposes it is practically little better, and certainly much below the floral standard of *grandiflorum*. The sepals are as large as the petals and alternate with the latter, so that these large green parts, alternating with the purplish-brown petals, may form a quaint, but certainly not a showy flower. And I would also like to say that, as with other genera, it would be well to learn where to stop in our selection of Wood Lilies for decoration, for it is when we take in hand inferior flowers for the sake of mere variety that we unwittingly lower our estimation of the whole group. All the *Trilliums* like cool, rich soil and a little shade—at any rate, until the roots become strong and well acclimatised, when I find they are capable of being grown in open quarters like most other herbaceous plants.

Orobus vernus.—This is one of the early spring flowers, which, where in strong tufts or in groups, makes a rich display, and there can be no surprise that note should have been taken of it as a

plant suitable for spring bedding, only I think it is not suitable in one way. Still I have no wish to discourage a trial of it on some such line, but I fear that it may not answer, at least for such beds as are cleared and replanted, say, twice in the year, because this plant is precisely one of those kinds whose flowers would become inferior were the long roots disturbed. It might be possible to keep a set of strong plants going in big pots for such a purpose; but, as everyone knows who has tried to dig up the plant, the roots are so exceptional in their shape, length, and strength, that it is to be feared also that pot culture might not suit the plants in more ways than one. And there are other indications that might be mentioned which seem to point to this plant as being unsuited to any purpose that implies frequent root-disturbance; but if you have a bed that can be permanently devoted to this plant, you may plant it with great hopes of success, and of seeing a mass of early blossom almost unique for colour effect at any rate in its early season. In any case, however, you must allow two or more years before a newly-planted group can reach its climax of beauty. Do not mix anything else with it; it is very beautiful alone, and I question whether its ropy roots would not strangle neighbours. I may add that its long roots are not of the root-stem character, which, like many other leguminose plants, send up straggling growths, but the crowns of the plants are neat and compact.

Woodville, Kirkstall.

J. Wood.

THE HARDINESS OF FLAME FLOWERS.

DURING the severe winter 1890-91 we had an excellent opportunity to get acquainted with the hardiness of Flame Flowers (*Kniphofias*). The common Flame Flower (*Kniphofia aloides*) and most of its varieties, especially the glorious *gigantea* and *grandiflora*, proved to be quite hardy under cover. Our *Kniphofias* had been planted in spring, 1890, in the open ground, and had formed strong clumps. They were covered well before the heavy frosts began. From several parts of Holland it has been reported that large collections of *Kniphofia aloides* which had not been covered during the winter were lost. The two Abyssinian species, *K. Leichtlini* and *K. comosa*, both of which flowered very well during the past summer, entirely died off, even under thick cover. Herr Max Leichtlin, of Baden-Baden, raised and in 1889 sent out a hybrid *Kniphofia* named *Phoenix*, which in all respects suggests the Abyssinian *comosa*, especially by its beautiful dark red stamens, which, being much longer than the little perianths of the individual flowers, give the well-known *Metrosideros* appearance to these spikes. From this it may be concluded, I think, that *K. comosa* is one of the parents of this hybrid. It appears to be most interesting that this hybrid *Kniphofia*, which at all events is nearly related to *comosa*, in no way has been harmed by the heavy frosts of 1890-91, though it was growing under exactly the same conditions as the parent species. It seems probable that *K. comosa* will become yet scarcer than it has been, if not lost entirely from cultivation. In that case we may be glad to possess such an excellent substitute in *Leichtlin's Phoenix*, which in the greater part of its characters resembles its presumed parent, and as regards brightness of colour, vigorous growth, and especially hardiness, surpasses it. As for the large number of other hybrid *Kniphofias*, I observe that no one of the following in any respect suffered by the severe cold of last winter, viz., *Pfitzeri*, *John Benary*, *H. Cannell*, *Max Leichtlin*, *V. Lemoine*, *Franz Buchner*, *Otto Mann*, *Salmonia*, *Matador*, *Meteor*, *Sirius*, *Clothe*, and *Lachesis*. On the same bed, *K.*

Media (*Deleuil*) and *La Glant* died off, while the following Cape species, *Rooperi*, *Burchelli*, and *Macowani*, and the aloides variety *Saundersi*, were much injured. As regards the other new hybrids and varieties, I could not make notes, as I had not cultivated them in the open ground. It may be of some interest to compare these notes with observations made in English gardens. I hope other readers of *THE GARDEN* will communicate their observations as to the hardiness or otherwise of *Kniphofias*.

ERNST H. KRELAGE.

Haarlem, Holland.

LILIUM GIGANTEUM.

No plant more amply repays a little trouble than this noble Lily, and none is more strikingly beautiful when well placed and well grown. The engraving is from a photograph of a group grown at Munstead, in West Surrey, in a wooded part of the garden. The natural soil is very thin and poor, but a hole was dug about 2 feet 6 inches deep, and filled



Lilium giganteum.

with a couple of loads of good compost. This grand Lily is ornamental, not only when in flower, but from the end of April when its great polished leaves are expanded to the end of October, when they are still retained, and the large, bright green, upright seed-pods give the plant an additional aspect of dignity.

G. J.

PYRETHRUMS.

ALMOST already where the climate is fairly open *Pyrethrum* roots are breaking up, and very soon generally it will be possible for anyone to commence propagation. It does seem odd that such very hardy herbaceous roots as are *Pyrethrums* should yet be so impatient of division and even of removal. Ordinarily all such roots may be divided with ease and safety. These particular plants, however, are exceptions, and need very much care in their winter culture; still, it is far from being difficult to increase stock once the varieties are established, by taking off some of the young growths early in the year and putting them singly into tiny pots, rooting them quickly in a little bottom-heat and thus ensuring in that way not only an abundant stock, but a constant supply of young

plants. When such is the case, it is not worth while to trouble about the retention of very old roots, which may in such cases be dispensed with. Shoots invariably break up rather more thickly from well-established roots than is desirable for retention, and therefore the thinning of them out for the purpose of propagation is good at once to increase stock and to give stouter growths for producing flowers. But it is not easy for the most enthusiastic fancier of these hardy flowers to keep pace with raisers of new varieties, even if thought desirable. Possibly any beginner in the cultivation of *Pyrethrums* would find it difficult enough to make the best selection of a score of double and the same number of single forms out of such a stock as even Messrs. Kelway and Sons have, for they catalogue over 100 double and nearly as many single sorts, whilst other raisers have sorts in abundance. A good selection from any list is not easy, because the differences between one and another or between one score sorts and another score is perhaps trifling. The real advance made in *Pyrethrums* is not to be measured by comparing one variety with another so much as by contrasting what was the best of twenty years ago with the best of to-day. It is specially interesting to find how in that time single forms have become popular. It is very probable that, as a rule, they are more so than the double forms are, for after all a double *Pyrethrum* flower is not one of the most pleasing or attractive forms, especially for what is termed domestic decoration, much as they may be in favour with those whose chief notion of the value of flowers is that they are of rotund form, very enduring, and good for exhibition. The single *Pyrethrums* have given to us in their large *Daisy* or *Marguerite* blooms colours so charming, that they almost resemble *Paris Daisies* artificially coloured, for it is difficult to tell them from the popular *Marguerites*, except by their colours. One particular advantage found in having young plants from cuttings put out every year to bloom is that they not only flower later than do old plants or stools, but may be still later if the flowering stems be pinched when half grown, so as to encourage the throwing out of side flowers, which, if smaller than are the ordinary ones, are not the less welcome, because the bulk of the blooms is 'over. *Pyrethrums* like a deeply-worked and fairly holding soil, well manured, and very clean. Each winter a top-dressing of short manure, lightly forked in, will be productive of much good. It is, however, perhaps best to leave the addition of dressings of this sort until after the needful stock of cuttings has been taken from the stools. The plants should have ample room, as the growths spread widely if not unduly bunched in the tying up.

A. D.

THE AMARANTHUS AS DECORATIVE GARDEN PLANTS.

THESE are remarkably quick growing annuals for which in many spots room might be found. I very well remember the splendid display that was made by *Amaranthus salicifolius* as grown by Messrs. Veitch and Sons at Chelsea for trial the year before it was sent out. This would be somewhat about twenty years ago as near as I can remember. For a few years it was grown in many gardens most effectively. Why it has declined in favour I do not know unless it is because a little careful treatment is needful to grow it well. The seed should not be sown too early, the middle of April being quite soon enough to obtain good plants for bedding out the first week in June, without the plants having become in any way starved, which is an essential point to avoid. When that is the case an attack of red spider may be expected. This *Amaranthus* looks particularly well in lines with other foliage plants or in masses. What is wanted is a rich soil, a warm place with plenty of moisture at the root and dampings overhead in very warm weather, then it will thrive well and make a

splendid show from the middle of July onwards. I have seen it grown as a pot plant, but it does not thus develop its true character so effectively. Another good as well as popular plant in many places is the Prince's Feather (*Amaranthus hypochondriacus*—syn., *cruentus*). This will grow to larger dimensions than the Loves-bleeding when under the same treatment, and can be used in various ways in the flower garden or borders. It would look well when associated with Cannas, *Acacia lophantha*, or other erect growing plants. It is of easy growth and requires no more attention than the two foregoing examples. When not convenient to sow the seed straight away in the beds it should be raised in pots in a cold frame and then be put out before the plants are at all starved. For making a good show at a distance it is very well suited. A dwarfier growing kind with foliage of quite a distinct shade of colour is *A. melancholicus ruber*, which comes in useful as a change to such plants as the *Perilla* or *Coleus*. This variety should be raised in pots, but not in too much heat, being a Japanese variety. If grown in moderate warmth and planted out at the same time as the *Coleus* and in good soil, it will grow away well and bear pinching if growing too tall. *A. nobilis pyramidalis* grows much stronger than the last named, otherwise it can be used for similar purposes as the Prince's Feather; its foliage when the plants are well grown is of a rich crimson shade. This kind should also be raised in warmth. *A. bicolor* is best suited for pot culture; its foliage is green and dark red, tipped with yellow. *A. tricolor* is more showy than the preceding, with rich tints of scarlet, yellow and green, transversely marked. I have grown these kinds very well during the summer-time in a cold frame, but with a close treatment; thus grown they should not exceed a foot or so in height. When of good size they are very useful for the conservatory or greenhouse, lasting there for some considerable time. J. H.

Tufted Pansy Violetta.—Dr. Stuart's tufted Pansy Violetta is different from either the ordinary Pansy or the older tufted kinds, many of which I have noticed have had the name of "tufted Pansy" applied to them since this name became popular. I think this is wrong and misleading, not to say unfair. I think possibly those who have spoken against the tufted Pansy proper may not have duly tested the Violetta class. I have had perhaps more experience with Dr. Stuart's Violetta than anyone else, excepting the doctor himself; its flowers are of a distinct type and the plant's habit quite as much so.—J. WOOD. [The name "tufted" was given to the group long before Violetta was known, and the "wrong" is on Mr. Wood's side for claiming for that variety a general name given to a large group before Violetta was known. That variety stands in no need of such claim, as we can say from being one of the earliest growers of it, thanks to Dr. Stuart. We hope the doctor will raise many more of the same class, and so make tufted Pansies more varied and delightful.—ED.]

Gardeners' Royal Benevolent Institution.—The 53rd meeting of this institution was held at Simpson's, Strand, on the 15th inst., Mr. Harry J. Veitch in the chair. The report stated that the society had made increased grants and annuities during the past year. The committee had to deplore the loss by death of many friends during the year, amongst them being the Duke of Devonshire, a vice-president, Mr. J. F. Meston, and Mr. W. Richards, also their worthy secretary, Mr. E. R. Cutler, who had for fifty years been untiring in his energies. During the year sixteen pensioners had died, three of them leaving widows. These had been placed on the pension list in succession to their husbands. One of them, however, was not destined to enjoy the pension long, having died before the year closed. The committee have during the past year expended in pensions and gratuities the largest amount on record, viz., £2739 16s. 8d. They have also determined to increase the number of pensioners now on the books by thirteen

The committee appeal to the supporters of the institution to strengthen their hands by making its needs and benefits more widely known. Mention was made of the death of James Wells at the age of 103. He had been a pensioner for thirty-one years, and during that time had received the sum of £521 from the funds. The treasurer, trustees, auditors and secretary were unanimously re-elected. Mr. James Hudson was elected on the committee in place of Mr. W. Richards, and Mr. Harry Williams in place of Mr. Roberts, resigned. The annual dinner at the close of the election was held in the evening, the Rev. W. Wilks in the chair. The chairman gave the toast of "The Royal Family," expressing how deeply they sympathised with the Royal Family in their great bereavement. Mr. N. Sherwood, in proposing the toast of "Kindred Societies," said he was pleased to see the rapid strides the Gardeners' Orphan Fund had made in four and a half years, thirty-nine children being on the funds at a cost of £1100, there being eleven more to be placed on next month, thus making 50. The Gardeners' Provident Society was also making headway and deserved more notice from gardeners. They now had 425 members, and the best points were this: it was like a bank, as what members subscribed was returned to them with good interest, so that those who invested their savings had a nest egg for a rainy day.

The Gardeners' Orphan Fund.—The enormous specimen of *Cattleya labiata* (the gift of Messrs. F. Sander and Co., St. Albans, for the benefit of the Gardeners' Orphan Fund) was sold by auction at Messrs. Protheroe and Morris's rooms on Friday last, Jan. 15, for the sum of 50 guineas. This specimen had about 250 pseudo-bulbs, with many sheaths ready to bloom, and measured probably over 3 feet. Messrs. Protheroe and Morris kindly consented not to charge commission on the sale of this plant.

OBITUARY.

W. H. FITCH.

THIS well-known botanical artist died at Kew on the 14th inst., after an illness of two or three years' duration. He came to Kew with Sir William Hooker on his appointment to the directorship of the Royal Garden, exactly fifty years ago, Mr. Fitch being at that time assistant to Sir William. He was born in Glasgow in 1817, and commenced his career as a draughtsman in a printer's office. Under the guidance of Sir William and enjoying the friendship of Francis Bauer, who then lived at Kew, Mr. Fitch soon developed an aptitude for the work of botanical illustration. His first work of importance was in the "Icones Plantarum," which began in 1837, although he had drawn plates for the *Botanical Magazine*, which were published as early as 1834. For a period of forty years, ending in 1878, he prepared all the plates published in the *Botanical Magazine*. Besides this, he made the drawings for nearly all of the important works published from Kew. Thus he illustrated Hooker's large folio works on "Himalayan Plants," "Himalayan Rhododendrons," and the six quarto volumes which were the result of Sir James Ross's Antarctic expedition. Other important works were the "Botany of the *Herald*," "Flora Vitiensis," Bate-man's "Odontoglossums," Elwes' "Monograph of Lilies," Saunders' "Refugium," Howard's "Cinchonas," Warner's "Select Orchidaceous Plants." All the beautiful coloured illustrations of Ferns published in Sir William Hooker's various works on this order were by Mr. Fitch. In the Transactions and Journal of the Linnean Society a great number of his drawings were published to illustrate such papers as the "Botany of the Speke and Grant Expedition," "Welwitsch's Plants," &c. It may be said with truth that for many years W. H. Fitch prepared all the best botanical pictures of plants published in England. He was wonderfully accurate even in the smallest details, the importance of which in botanical work he fully recognised. Perhaps the most magnificent

series of plant drawings he ever made were those prepared for the "Elephant Folio" devoted to the Victoria regia, published by Sir Joseph Hooker in 1851. In recognition of his work he was, a few years ago, granted a pension of £100 per annum. W.

Mons. Louis Thibaut.—We regret to announce the death, at the age of seventy-five, of Mons. Louis Thibaut, of the firm of Thibaut and Keteleer, well known on the Continent for their general collection, probably the most extensive in France, of stove, greenhouse and hardy plants. In matters connected with Orchids Mons. Thibaut may be termed the pioneer of French cultivators, for in 1841 Mons. Ch. Morel entrusted him with the care and culture of various Orchids which he was continually receiving from Mons. Pinel, resident at Minas Geraes (Brazil). The genial character of the deceased was appreciated by all who came into contact with him, and many of the gardeners on the Continent owe their knowledge and their present positions to the kindness as well as to the sound training received at the hands of M. Thibaut and his surviving partner, M. Keteleer. It is only three or four years since the business passed into the hands of Mons J. Sallier, who, on account of better means of communication, transferred it to Neuilly. Mons. Thibaut, however, reserved for himself a collection of select plants, principally Orchids, to which he attended personally for a period extending over half a century, and which terminated only at his death, which occurred at Sceaux (Seine) on Sunday, the 17th inst.

A caution.—I am informed that a person is going about the country canvassing for the sale of a certain book on gardening, stating that he is sent by our society, and holding out as an inducement that the purchasers will thereby become, *ipso facto*, Fellows of our society. It is simply needless to say that we have no knowledge whatever of the individual in question, and that his statements, as far as our society is concerned, are entirely unfounded.—W. WILKS, Secretary, Royal Horticultural Society.

Cricket in vinery.—Can any reader of THE GARDEN tell me the best remedy for getting rid of crickets in vinery? They are eating the buds off the young Vines I have planted. I have tried paraffin, Fir tree oil and traps.—J. W.

. We have found Chase's beetle paste very efficacious.—Ed.

Names of plants.—*C. Boys.*—1, *Pellaea adiantifolia*; 2, send when fertile; 3, *Cyrtomium falcatum*.—*G. Rintoul.*—1, *Lælia anceps Percivaliana*; 2, *Sophranitis cernua*; 3, *Cypripedium insigne Maulei*; 4, *Odontoglossum Sanderianum*; 5, *Zygopetalum Mackayi*; 6, *Odontoglossum bicktonense*—*C. Macfarlane.*—1, *Acacia taxifolia*; 2, *Habrothamnus elegans*, cannot name greenhouse Rhododendrons, but yours looks like *Princess Alexandra*; 4, *Acacia cochlearis*.—*J. Wilmot.*—*Epidendrum ciliare*; very good form.—*R. W. C.*—*Cneorum tricocon*.—*G. Foster.*—*Maxillaria picta*.—*T. B.*—1, *Vanda Amesiana*; 2, *Cypripedium Schlimi*, a very pale form, but not *C. S. album*.—*H. French.*—The numbers omitted are too bad to name; 1, *Asplenium alternans*; 3, *Aspidium cicutarium*; 6, *Cheilanthes alabamensis*; 10, *Adiantum cubense*.—*Begonia.*—1, *Begonia corallina*; 2, *B. octopetala*; 3, *Acacia Riceana*; 4, *Mussaenda frondosa*.—*G. T.*—A portion of the umbel of some species of *Hæmanthus*, but of what species cannot say from such a scrap.—*O. Prince.*—We cannot undertake to name florists' flowers.—*G. W.*—1, *Adiantum fulvum*; 2, *Gymnogramma Pearcei*; 3, *Onychium auratum*; 4, *Trichomanes pluma*.

Names of fruit.—*R. Day.*—Pear: Winter Nelis.—*E. C. J.*—1, Wellington; 5, French Crab; other specimens too bad to determine.

BOOKS RECEIVED.

"The East Anglian Handbook for 1892."
"The Annals of Scottish Natural History," a quarterly magazine, with which is incorporated the "Scottish Naturalist." D. Douglas, Castle Street, Edinburgh.

"The Journal of the Royal Agricultural Society of England." Third series. John Murray, Albemarle Street, London.

WOODS AND FORESTS.

TOWN PLANTING.

For the past ten years I have in three of our largest towns—London, Glasgow and Liverpool—been making observations and taking notes as to the trees and shrubs that are most suitable for withstanding smoke and the generally deleterious effects of a town atmosphere. In collecting this information, nothing has struck me more than the strange fact that certain trees and shrubs succeed best in particular towns, and that our larger cities are not in all cases the worst to deal with, several of our second and third-rate towns as to size offering peculiar barriers to the growth of trees and shrubs. Curious as it may seem, the smoke-proof London Plane (*Platanus orientalis acerifolia*) is by no means the best tree for either Liverpool or Warrington, particularly the former town, where the Sycamore has been found to be far more suitable; while in Sheffield the Canadian Poplar would seem to be the general favourite. In Bury, Lancashire, the Rhododendron does unusually well. How certain trees seem to favour certain towns is, however, nowhere more clearly illustrated than in Gatley and Bury—two small towns situated on opposite sides of Manchester—for in the former two or three kinds of Poplar grow vigorously, while at Bury they positively refuse to grow, and that, too, after repeated attempts to get them established. In the chemically impure atmosphere of Glasgow the Thorn and Beam Tree (*Pyrus*) surprise me by their healthy country-like appearance. The particular industry of the inhabitants and peculiarities of soil have no doubt much to do in determining the particular trees and shrubs that should be planted. Coal smoke is no doubt bad enough, but when we have to contend against an atmosphere that is largely impregnated with chemical fumes, the difficulties to be encountered are well-nigh insurmountable. The outcome of gas and charring works is hard to deal with. This may also be said of iron and steel works, potteries, &c. That there are certain districts—fo wit, the environs of Lambeth and other potteries—where tree or shrub culture is out of the question, cannot be denied; but it is really only in close proximity to such that the worst is to be dreaded, for as we get away from these centres certain vegetation succeeds fairly well, and no better example of this can be adduced than the healthy Planes on the Thames Embankment, and which, in certain places, are removed but a short distance indeed from that oasis of death—to plant life at any rate—the pottery district. Much might be said about the method of planting and after management of town trees, but this will be reserved for a special chapter later on. The following are amongst the best trees, so far as is at present known, for withstanding the deleterious effects of an impure atmosphere:—

THE ORIENTAL OR LONDON PLANE (*Platanus orientalis acerifolia*).—A well-marked variety of the Eastern Plane stands, perhaps, unrivalled as a tree for general town planting. In London, at least, no other tree has been found so peculiarly suitable for doing battle with the impurities of the atmosphere, and a survey only a few days ago of the principal groups and single specimens within the precincts of the great metropolis clearly demonstrated that with very few exceptions the trees of this particular kind are in a most healthy and flourishing condition. The fine old specimen at Cheapside, the equally robust tree in the court of Stationers' Hall, Ludgate Hill, where the blocks of buildings hardly allow of room for the perfect

development of this noble Plane, and the numerous healthy young trees along the Thames Embankment all clearly point out that the tree is peculiarly suitable for planting in the by no means pure atmosphere of the great metropolitan area. It cannot, however, be too well known that the so-called London Plane, and which has inherited that name from the very fact of its thriving so well in the metropolis, is not a distinct species, but only a well-marked variety of the common or Eastern Plane (*P. orientalis*), and from the resemblance of the leaves to those of the Acer or Maple has caused it to be named *P. orientalis acerifolia*. From the species it is at once distinguished by the less deeply divided leaves, and from the Western or American Plane (*P. occidentalis*) by the many fruit "balls" which are attached to each peduncle, the fertile catkins of *P. occidentalis* being usually produced singly. It is also worthy of note that the American or Western Plane is not a reliable subject for planting in this country, our changeable climate being evidently ill-adapted for bringing the tree to maturity. The reverse of this is the case with *P. orientalis*, for it seems well able to hold its own everywhere in these isles, and in addition to its smoke-resisting qualities it is one of the handsomest of our deciduous trees. The normal or typical species *P. orientalis* does occur occasionally in London, but a careful examination of a number of specimens, including those on the Thames Embankment, proves that the variety *acerifolia* is by far the most abundant, and also from its general appearance it seems evident that it is the more suitable of the two for doing battle with an impure atmosphere. Taking everything into consideration, it is questionable if any other tree is so well suited for town planting—London at least—as the common or London Plane.

A. D. WEBSTER.

(To be continued.)

Pinus contorta.—This, one of the most distinct and beautiful of the medium-sized Pines, is particularly suitable for planting in limited areas. The foliage is short, of a bright green colour, and arranged thickly on the branches. It belongs to a section of the genus, having its leaves in pairs, which includes nearly the whole of the European as well as some American and Japanese kinds. The specific name is derived from the peculiarly contorted branches, which twist in such a manner that the diameter of their spread is less than that of most other kinds. When from 15 feet to 20 feet high, this tree forms a dense pyramidal specimen of a very beautiful shade of green. This tree is a native of the western part of North America, and appears to be perfectly hardy in England. Even in a small state it bears cones freely, these being about the size of those of the Scotch Fir.

Effect of Ivy on trees.—The growth of Ivy upon the stems of trees should be vigorously checked. Beautiful as it is in all stages of its growth, it should never be allowed to climb trees which it is important to keep in health, such as memorial or specimen trees, or those grown for profit or protection. In a moist climate and on a genial soil its growth is so rapid, that it becomes no easy matter to keep it in check. The Beech alone almost seems not to suffer from it. The Beech's bark is so smooth, its growth so vigorous, and its shade so hurtful to all other plant life (except that of Truffles, which grow on or among its roots), that the Ivy does not seem to get a chance with it. But from all trees with a rough, soft, or thick bark it should be removed before it has time to grow to any size, or it will be difficult to do so without injuring the bark, a point to be observed especially in dealing with some of the Fir tribe. Almost everywhere else Ivy is welcome as the most beautiful climber in the world. It is a mistake to think it makes a house damp; on the contrary, as long as it is kept from penetrating crevices and running under the eaves or into window sashes, it makes a house dry; it acts as a waterproof covering and protects from frost and

weather. Then as to beauty, many an ugly house might be made, if not architecturally beautiful, at least home-like and picturesque; and many a flimsy cottage would be all the warmer and prettier for a greater coat of Ivy.—A.

Trees and shrubs for wet ground.—I know of nothing more profitable to grow, or that will succeed better in wet land than the Alder. When once the plants become established, it is astonishing how quickly after being cut down they start again and yield fine poles, that is, if protected from the attacks of game, such as hares and rabbits, which are fond of nibbling the young shoots as they start into growth. Next to Alders in point of profit and suitability for wet lands stands the Ash, the wood of which always meets with a quick and ready sale. Elm, too, does well where it can get plenty of moisture at the roots, and it is only when so treated that it keeps healthy for any length of time, or reaches a good size; when sound and large, Elm trees are valuable. By planting the Ash and the Elm at wide intervals, the Alder will be found to do well between them, and come in as a sort of undergrowth, an arrangement by which there would not be many years to wait before the ground would yield some return. Evergreen Oaks interspersed here and there, and some of the Coniferae, such as the Austrian Pine, *Pinus Laricio*, and *Abies Douglasii*, would also have a good effect, but if the land be very wet, it may be necessary to plant these on raised mounds.—D.

Planting for shelter.—Are not too many of even our best agricultural districts far too much denuded of woods and plantations both from a picturesque and a profitable point of view? I fancy that when corn-growing was a very profitable business, woods and hedgerows were grubbed up, and every tree that shaded a bit of corn land was destroyed, the result being that in many counties you could walk several miles through agricultural districts and not find wood enough to make a load of fagots. Now, the question is: Is not such a lack of wood a loss instead of a benefit? In the first place, hedgerows, trees, and plantations break the monotony of a flat and otherwise uninteresting district; they soften the wind, modify and raise the temperature of the district, warmth being a very important factor to the well-being of all kinds of stock; while, on the other hand, grain crops are injured by an unbroken frosty wind which sweeps over a district denuded of trees and plantations. The annual fall of the leaf, too, is a source of enrichment to the earth. These plantations might consist of evergreen, coniferous, deciduous or fruit-bearing trees, according to the wishes and requirements of the district or planter. This matter was brought forcibly to my mind lately, when I walked for about seven miles through a treeless, farming district, with a frosty north-east wind blowing in my face, and not a plantation or hedgerow to afford any shelter. On the last half-mile of my journey, and still meeting the wind, were some mixed plantations, and I felt very thankful to the planter for the shelter from the icy blast which they afforded.—R. M. Y.

"The Garden" Monthly Parts—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols., price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which format it is most suitable for reference previous to the issue of the quarterly volumes. Price 5d.; post free, 5d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the quarterly volumes. Price 5d.; post free, 5d.

"Hardy Flowers".—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Flower Seats (containing over 9000) have been ever carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; post free, 1s. 3d.

"This is an Art
Which does men's Nature; change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ORCHARD AND FRUIT GARDEN.

NOTES ON APPLES.

A RECENT issue of THE GARDEN contains several very interesting articles upon Apples, to which I should like to add a few remarks. With regard to "Colour in Apples," we must all admit that sunlight is the most important factor in developing colour, for if the most highly-coloured varieties of Apples are grown in the shade they lose their brilliancy; but when it comes to a question of more than ordinary deep or brilliant colouring, I am strongly of the opinion held by "Y. A. H." that soil has the greatest influence. Take for example the Warner's King Apples exhibited by Mr. Watkins at the Guildhall show. Did anyone ever see fruit of that variety flushed with crimson as they were? So highly coloured were they, that many of the best judges said they could not be correctly named, and but for the fact that I had seen the fruit upon the trees a short time previously, I should have probably inclined to the same opinion. I instance the Warner's King as being most remarkable, but all the fruit exhibited from Withington was of very high colour, and yet the climatic conditions cannot, one would think, be more favourable than those of Kent or Surrey. Again, take for example the very highly-coloured fruit shown to the fruit committee of the Royal Horticultural Society from time to time by Mr. Roupell. Here we have a very instructive case, for Mr. Roupell has frequently shown fruit of such kinds as Irish Peach, Mr. Gladstone and Cellini in two samples, grown in the same garden, the one much more highly coloured than the other, and he tells us that the extra colouring is the result of applications of lime and soot to the soil. The suggestion of Mr. Crump, that the stocks raised from the pips of highly-coloured varieties of cider fruit have an influence upon the scion, does not commend itself to me, because in the first place the seedlings probably would vary to an enormous degree, and if they were allowed to fruit, would possibly, many of them, be light coloured. Far more probable is it that in cultivating these trees as bushes Mr. Crump keeps the roots nearer to the surface than is the case with his larger trees growing near (upon the ordinary free stock), for we know that many kinds of Apples produce very much more highly-coloured fruit when worked upon the surface-rooting Paradise than when grown upon the Crab.

Speaking upon the subject of stocks and working leads us to the article on own-root trees. Are we to take this seriously? I suppose so, as we are told that a member of the trade has taken the growing of Apples on own roots seriously in hand. There is nothing new under the sun, and I hear that Apples have been grown from cuttings in the cider districts, but in what I would ask are they superior to trees which have been grafted? [*We are all absolutely in the dark as regards this most interesting question, and must stay in it until we see Ribston, Cox's, and all the finest of our Apples on their own roots side by side with grafted trees of the same age and under exactly the same conditions.*—Ed.] The only objection to grafting which we have laid before us (although others are hinted at) is the diseased state of the Ribston Pippin. I venture to en-

tirely disagree with the statement that this diseased state is the result of grafting, although we most of us believe that cuttings taken from a diseased tree will produce trees subject to canker; on the other hand, I maintain that Ribstons worked upon the Paradise are usually healthy [*We have had many Ribstons on the Paradise: cankered to the core.*—Ed.], and I think that cuttings taken from these trees and worked upon the Crab are constitutionally free from disease, although if planted in some soils they will undoubtedly canker; but supposing they do fail in some soils, we have still Cox's Orange and a few other decent kinds to fall back upon, so that I greatly doubt if even growing trees on own roots will prove a cure. [*Why not try, and so dispel doubt?*—Ed.]

From Apples on their own roots as a cure for canker, it is easy to get into that much vexed question of canker in Apple trees. I have often seen the opinion expressed that iron in the soil is conducive to this disease, and "Y. A. H." seems of the same opinion, yet I could show him fine Apple trees in the vale of Belvoir which are healthy and bear extraordinary crops, and which are growing in soil only about 3 feet to 4 feet thick over a bed of ironstone. The trees in question are probably fifty years old. Whatever may be the cause of canker, it is certain that many trees may be rescued from death and brought into free growth and fertility by the application of suitably compounded manures (so called artificial). Mr. E. Tonks has fully illustrated this fact. So far as my own observation is concerned, I have failed to see that canker is at any time caused by insects, although they frequently harbour in the wounds caused by canker and increase the mischief.

Chilwell, Notts.

A. H. PEARSON.

Thames Bank Peach.—This variety is seldom seen or heard of, but it possesses considerable merit; indeed, when grown in a suitable house it is of excellent quality. This variety is now seldom seen in catalogues, for what reason I know not. Perhaps its colour does not recommend it, and on some soils, especially light sandy ones, its flavour may not be all that is desired, but in heavy loam and on a good aspect it is well worth cultivation. Some twenty years ago I saw this variety grown well in a late Peach house at The Hendre, Monmouth, and I believe Mr. Coomber still grows it to perfection on the back wall of a late house, finding it most serviceable as a late variety. I see this variety is mentioned in THE GARDEN (page 46) with others. I prefer it to some of those named. Being a late variety, it requires some heat to finish it unless favoured with exceptional weather. I have no great regard for some of the large yellow-fleshed Peaches; they certainly prolong the fruit season, but some are sadly deficient in flavour. As size and appearance are everything, they are favourites with market growers. When grown in an exposed position, it rarely fails to give good flavoured fruits of a large size, and most valuable for late supplies. It certainly does well in a late heated house, the wood being kept thin.—G. WYTHES.

Pear Knight's Monarch.—In common with many others, I have always had a bad opinion of this Pear on account of its dropping prematurely, but, like "Y. A. H.," I have been agreeably surprised this season to find it of such delicious quality, that I have had to quite reverse my opinion respecting it. Its only failing is that the skin is perhaps a little too tough. We are now using splendid samples of this variety, and shall continue to do so for some time to come. They were grown on two good-sized bush trees fully exposed and on the Pear stock, which I consider is the proper one for it, the variety being one of the most precocious and usually requiring heavy thinning. Two seasons ago I lost a

considerable quantity, and to remedy this and to try and make use of the fallen fruit as soon as dropping commenced, I had some netting fixed under the trees; consequently the fallen fruit escaped with little or no injury. All remained in the net until those that still hung were fit to gather, and then I had them put separately into the fruit room. To my surprise those that fell into the net appeared but little inferior to those properly gathered, but had the autumn of last year been as hot and dry as that of 1890 the result would have been different, as they would quickly have shrivelled. Next year I will adopt the plan suggested by "Y. A. H.," and have the fallen fruit removed from the net and placed in some material to prevent shrivelling.—A. M. H.

COLOUR IN FRUIT.

THIS subject very frequently comes to the front, but we seem to get no more forward as to the causes that contribute to high colouring, nor are all authorities agreed as to whether perfect colouring is any criterion of the quality of the fruit generally. It is very certain, however, that highly or perfectly coloured fruit is most appreciated for private use and invariably realises the best prices in the markets, while for exhibition perfect colouring is absolutely indispensable. Of so much importance is high colouring, that I would not confine the discussion now going on in the pages of THE GARDEN to Apples, but would include various other fruits—for instance, Grapes, Peaches, Nectarines, Apricots, Pears, and such like. The Apples grown by Mr. Crump I have not yet had the pleasure of seeing, but had heard much in their praise long before they were either exhibited at Manchester or commented on in THE GARDEN. It is very generally known that Apple culture and the rearing of young trees have for some time past been carried out on a rather large scale at Madresfield Court, highly interesting experiments also being ably conducted by Mr. Crump. This would lead many to conclude that superior culture has had much to do with the colouring of the fruit, but I venture to think that unless the culture includes a complete and fairly early exposure of the fruit, failure to colour properly would have been the result. This view Mr. Crump evidently holds, and it is very doubtful if he will ever be able to attribute high colouring to any other cause. I have previously expressed the opinion that stocks have but little influence upon either the colour or quality of the fruit produced by the scions grafted on them, and still maintain that their only effect is either to increase or check vigour. Good root culture is of the greatest importance, as unless this is given to young trees especially, the chances are there will be no fruit to colour, and from the healthiest trees we may reasonably anticipate gathering the finest fruit. To colour the fruit properly, thorough exposure, not so much to sunshine, but rather to all the light and air going, is absolutely necessary, and of this I have abundant proofs every year. Sometimes the colouring takes place very early in the season, or before the fruit is fully grown; in other cases it takes place very late in the season, the most colour usually being laid on by the most exposed fruit. It is also noticeable that in very many instances the colour is observable on the most exposed side of the fruit, whatever point of the compass this may be facing. Mr. Blackmore, the famous novelist and pomologist, makes one of his characters to affirm that the colouring goes on most briskly when winds prevail, and it would be interesting to know if that is a view he actually holds as a fruit grower of experience. Whether or not the novelist will be confirmed by the pomologist, there is no mis-

taking the fact that winds are important factors in the matter. Our most highly coloured fruit of King of the Pippins, Cox's Orange Pippin, Margil, Adams' Pearmain, Court Pendu Plat, and a few other varieties are invariably obtained from large, old, basin-shaped trees on low stems, and not from healthier, younger trees. From the latter the finest fruit is gathered, but the branches being far less stiff and erect, the fruit is not nearly so much exposed to the light and air. Sunshine doubtless contributes to the thorough ripening of Apples, but during the comparatively sunless season quite as many, if not more, highly-coloured samples were seen than during the presumably most favourable seasons. If the stocks communicated either colour or flavour to the fruit, then I consider the Crab and Paradise the two very worst stocks that can be found. Surely double grafting on the good old Tom Putt (one of the most profitable cooking Apples in cultivation owing to its free-bearing habit and highly-coloured fruit) and the equally showy and productive Worcester Pearmain would have given better results—that is to say, if the stock does affect the colour; while if the quality of the last named could be improved by regrafting, why not saddle it on a less highly-coloured, richly-flavoured dessert Apple?

Some of the best Pears I ever saw were beautifully coloured by being exposed very early in the season. They were early thinned out and from the first kept perfectly exposed, not a leaf overhanging or overlapping them. Much the same results are attained every season, but, according to the information the owner of the garden gave me, highly-coloured fruits were never plentiful before the new gardener put his ideas into practice. If exposing the fruit fails to bring out a rich colouring on such varieties as Louise Bonne of Jersey, Comte de Lamy, Doyenné Boussoch, Doyenné du Comice, and Beurré Clairgeau, and also to partially colour many other varieties, this is more often than not due to either delaying to remove either leaves or shoots till it is too late, or else the position is too much sheltered. Some of the prettiest Louise Bonne of Jersey I ever saw were grown last season on a wall-tree facing north-east, and it could not have been the sunshine that brought this about, but plenty of light and air was responsible for the result.

Where are the most highly-coloured Peaches produced? Why, in the open air, where they get the full benefit of all the air going. If heat and sunshine or good root culture were the principal factors in the matter, surely the fruit grown under glass would have laid on the most colour; whereas the only superiority observable is in the size and quality of the fruit. Open-air trees, though frequently much neglected at the roots and grown on a variety of stocks, colour their fruit grandly, at any rate, if they are not smothered up by leaves or shoots, and this, I think, is proof positive that the air does most of the colouring. Well exposing house-grown fruit adds considerably to the colouring, but the best-coloured fruit I get are grown on trees that obtain plenty of air, the latter being admitted at one time primarily with a view to retard ripening, but now-a-days for the purpose of laying on colour.

Nectarines frequently colour all the better for being slightly shaded, while if Apricots are much exposed they lay on too much colour, the clearest skinned or most tempting fruit being those very lightly shaded, or rather sheltered by foliage. The richest coloured Figs are usually grown on open-air trees, the more coddled trees under glass producing the most richly flavoured

fruit, and which are also the most tempting in appearance. In the former case it is not the sunshine that affects the colouring, most open-air fruit being somewhat shaded, though plenty of heat or sunshine is needed to develop the saccharine matter.

Introducing Grapes grown under glass into this subject may at first sight be thought somewhat irrelevant, but it is nothing of the kind, the connection being all in favour of my idea, that plenty of air or wind largely affects the colouring of fruit generally, and also that light and air, rather than direct sunshine, are most needed to bring about the desired result. In order to colour Grapes, especially black ones, well, the bunches ought neither to be exposed to bright sunshine, nor kept in either a stagnant or much heated atmosphere. Let plenty of light, and also, whenever possible or not too cold, strong currents of air reach them. Give them plenty of time and abundance of air, and even Madresfield Court will colour right up to the shank. Even white Grapes are better for not being exposed to direct sunshine, the clearest amber being seen in the case of Muscat of Alexandria and Buckland Sweetwater when plenty of light is admitted between each Vine or rod. Although the former needs more heat to bring out its best qualities than most other varieties, abundance of air ought to be admitted during the ripening period, or otherwise the colour may be nearer green than yellow.—W. IGGULDEN.

I never go into ecstasies over colour in Apples. "A. D." in THE GARDEN (p. 47) says, "Many of these so-called beautifully coloured cider Apples, which hang on the trees so late in autumn, are far more toothsome than some of the Canadian fruits found so plentifully in shops." "A. D." would find the Covent Garden people give them a wide berth if sent up in quantity. In scarce seasons these fruits have been sent, and the grower got so small a return that it did not pay for packing and carriage, and they were converted into cider, which, sold at 6d. per gallon, paid better than the Covent Garden venture. Last autumn a friend of mine in the west of England had some highly-coloured Blenheim Orange Apples from old trees, and being in one of the stores one day he inquired the price of a cask of this variety of very inferior fruits with little colour. He afterwards sent his Apples up and got just one quarter the price the poor fruits were sold for. Colour in Apples is not all that is required. We want a means to dispose of them. I put down colour, as "Y. A. H." does, to the soil, as it generally happens that where there is high colour the soil is a strong yellow loam. This is the case in Herefordshire, Gloucester and Worcester. We also see it in Kent and other parts of the southern counties. It is seen in fruits on trees in crowded orchards that are not fully exposed to the light as much as those fully exposed. We find the fruit on trees some fifty to a hundred years old as good (many better) than on young trees. It will be found in many instances that the highly-coloured fruits are the worst keepers, being softer than the greener kinds. Many of the red or highly coloured Apples, for instance, Worcester Pearmain, Astrachan and Quarrenden, are bad keepers. I think of late years the question of colour in fruit is a point requiring more notice, as I have seen several large collections of Apples staged at exhibitions where out of 100 dishes a third has been grown under glass. I have seen those who wish to grow fruit carefully noting down the varieties, always selecting the latter, because of their colour. I have also heard the remark, "I have this and that variety, but it cannot be true," being totally ignorant that the fruit has been grown or finished under glass. I do not object to amateurs going in for this hobby (nor nurserymen), provided they state what is grown indoors and what is grown without special treatment, as when exhibited for the sake of securing orders for trees, this should be shown

on the cards, or else the fruit shown in a separate collection as grown or finished under glass. Very few can spare glass for cooking Apples; besides, it is not needed when good fruit can be grown in the open at a moderate outlay.—FRUIT GROWER.

—Recently when talking to a first-class fruiterer on this matter, he remarked that he could always sell highly-coloured Apples at a better price than those without colour. It is seldom you see a fruiterer select colourless fruit to go into his shop window. When recently going through Covent Garden I observed in one of the shops some of the most highly-coloured Ribston Pippins I have ever seen, and the sale price was very high. Opinions differ as to whether colour indicates flavour. I may say that according to my observations it does, and this is taken from an experience extending over thirty years, and that acquired in many parts of the country and in different soils. Highly-coloured fruit of any given kind is better flavoured than that without any colour. This I can bear out by samples of King of Pippins, Cox's Orange Pippin, Ribston, Sturmer, and other kinds now in the fruit room. Like Mr. Crump, at p. 45, I have yet to be convinced that badly coloured Grapes are as good in flavour as well-coloured ones of the same kind. Who will say that a pale yellow Golden Drop Plum is as good in flavour as a large, highly spotted coloured one? Soil in some instances may affect the colour, and probably locality may have something to do with this. Again, as "Y. A. H." remarks at p. 45, sunlight undoubtedly has. Light, no doubt, is the leading feature in giving colour. This being so, it does appear strange that people never thin nor prune their trees. Now this is just what is going on in most of the orchards in the district from which I write. A fruiterer in this locality obtains American Baldwins from London, brings them 130 miles, and sells them at a profit. All this takes place in a part of the country where I believe Apples may be grown profitably and superior to American produce.—DORSET.

AUTUMN PEARS.

THERE are far too many of these, and it would be well for those that are not acquainted with the different varieties of Pears, if the autumn-ripening sorts were considerably weeded out, as what is the use in having or growing so many that all ripen at the same time? If the inferior kinds are sent to the table and the consumers are judges of fruit, there is sure to be dissatisfaction after the good ones have been tasted. A person who eats Fondante d'Automne or Beurré Superfin is not likely to be content with others that come in at the same season, and when once Doyenné du Comice is ready, what can approach it in appearance and flavour? It is the Pear of all Pears, and if I could only grow one, Doyenné du Comice would be that one; and if I grew for market, I should plant very largely of that particular sort, as not only is it first-class in all respects as a table fruit, but it is one of the most reliable, as it is a hardy, good doer, bears freely, and succeeds well on the Quince, forming a handsome pyramid, or a fertile espalier or standard. I know of one large-headed tree from which bushels of beautiful clear-skinned fruit are annually gathered, but as the Pears on it are never thinned, they do not of course attain their full size. We get them very big from walls, but they lack that bronzy-red colour those gathered from open pyramids always have, as on pyramid trees the fruit mostly hangs clear of the leaves and is more fully exposed. Marie Louise used to be the best November Pear, but it is quite superseded now by the one just mentioned, which is better in every respect, as besides being superior in size and quality, it is much harder, for Marie Louise does not succeed well unless against a sunny wall or in a warm situation. I would, therefore, advise all about to plant to try Doyenné du Comice and to have pyramids or espaliers on the Quince, and to mulch freely during the summer. If a soaking of liquid manure can

be given now and then when the trees are in fruit, all the better, as that will help very materially in swelling it up. For succeeding Doyenné du Comice, Glou Morceau is the one, but it must have a warm position and ought to be on a good sunny wall. For September and October the first two noticed—Fondante d'Automne and Beurré Superfin—are by far the best, and this the tomits evidently know, as they pick them long before the fruit is fit to gather and are a great nuisance here. S. D.

Raspberries.—In THE GARDEN, Jan. 23 (p. 70), "D. T. F.," in a note on Raspberries, considers Baumforth's Seedling the finest variety in cultivation. I cannot quite agree with him, as I consider he omitted two of the finest Raspberries, viz., Hornet and Superlative. Whilst Baumforth's Seedling is a valuable variety with me, it is sooner over than the varieties named, and I would ask him to give Superlative a trial. It is one of the largest-fruited Raspberries I know, and though not so early as some, it makes up for any deficiency by its long-fruited and free-bearing qualities. This Raspberry resists wet better than others. The fruit is large and conical, with a long stout footstalk and a sweet and full flavour. It requires more room than Fastolf, being a strong grower. The fruit is firm, slightly acid and valuable for preserving. I do not recommend a Raspberry for preserving simply on account of its size; indeed often the large fruits are the worst, being deficient in colour and not having enough acidity in them to give a nice flavour. For preserving I do not think any Raspberry equals Semper Fidelis. It is more acid than the others, of a brighter colour, and, what is often overlooked, comes in when the earlier fruits are over. After I grew this variety for that purpose no other was required. Next to Semper Fidelis I like Superlative, as it is excellent in every way. Hornet is also valuable and a great favourite in many gardens. It is a large, free-growing red and of excellent flavour, and was two years ago one of the best out of many given a trial in the Royal Horticultural Society's gardens at Chiswick. I should like to see a good yellow Raspberry introduced as good as Superlative; it would be a welcome addition to our rather meagre list of white or yellow fruits. White Magnum Bonum is a recent addition, being larger than the old Antwerp; it also has a pleasant flavour. There is room for white Raspberries with greater size and the good rich flavour of the old kinds. I was pleased to see the reference made to autumn-fruited kinds. These greatly prolong the season, and are invaluable for cooking during the autumn. I have of late years discarded some of the kinds named by "D. T. F." and grown Superlative and Hornet instead, cultivating Semper Fidelis for preserving and cooking.—W. S. M.

Late Pears.—There are plenty of good Pears that ripen during October and November, but after that the number of sorts worth growing is very limited, the best and most reliable being Glou Morceau for coming in during December; but to have it really good the tree must be planted on a wall where it can enjoy much of the sun, a south-east or south-west being a suitable aspect; or if grown as a bush or pyramid, espalier or cordon, a warm situation is necessary, and a well-drained, deep loamy soil. Under these conditions the fruit comes large and clear in the skin, and the flesh soft, buttery, and rich; but if in unsuitable land and not well under solar influence, the Pears become spotted or scabby and cracked in the rind. I find that Glou Morceau does equally well on the Quince or Pear, the stock apparently having much less influence than the soil—at least such is the case here, ours being a light loam with a gravelly bottom, and fruit from trees in it is of fine quality. To succeed the Glou Morceau there is none equal to Josephine de Malines, which, though not perhaps equal in richness and flavour to Bergamote d'Esperen, is more reliable, as it is less tender and not subject to spot in the skin, a malady the Bergamote d'Esperen is very liable to unless grown under the most favourable treatment, and in the southern or warmest parts of the king-

dom or on sunny walls. Josephine de Malines is very free with us as a pyramid on the Quince stock, on which it bears abundantly, the fruit being always clear and of that russetty lemon hue so characteristic of it when the Pears are well finished. The flavour of the fruit of Josephine de Malines is very rich and perfumed, the flesh being soft and full of sweet juice. Its season of ripening is a long one, and that adds considerably to its value, as most of the best Pears are in and over in two or three weeks, but Josephine de Malines often lasts in use from two to three months. Taking it all in all, it is, therefore, the most serviceable, and is deserving of extensive planting either for market or private supply. Those who can afford wall room and a sunny aspect should grow Bergamote d'Esperen if they want variety, as that kind comes in very late. Easter Beurré is a fine Pear, but that, too, requires a sunny wall, and so does Beurré Rance, and unless they can be so favoured, it is useless planting them except in the southern counties, as they always come gritty. As late Pears pay so much better than others, the wonder is that they are not more grown.—S. D., Ipswich.

BELLE DE FRANCONVILLE CHERRY.

THIS Cherry is undoubtedly destined to be of considerable importance to fruit growers, not only on account of the fine appearance and the good quality of the fruit, but especially because it ripens very much later in the season than any other kind. On Sept. 12 ripe fruits were gathered from the tree; consequently this variety is nearly a month later in ripening than any of the latest kinds hitherto known—a matter of the greatest consequence to those who are engaged in fruit growing for market, as it is well known that the most profitable sales are those of the very early and the very late crops. For this reason the Belle de Franconville Cherry must be considered a lucky windfall—we say "windfall," as it was discovered by accident. The following account of it was sent to us last September by the fortunate possessor of the variety, Mons. Arthur Ménard, nurseryman, of Franconville-la-Garenne (Seine-et-Oise):—

This Cherry was a self-sown seedling which was discovered in a wood and which attracted attention by its vigorous habit of growth, its fine foliage, and the yellow colour of its bark. The original plant, which I possess, is trained against a wall, and I have named it, after the locality in which it was found, Belle de Franconville. Its fruit begins to ripen about the end of August and remains on the tree up to the middle of September. The quality of the fruit somewhat resembles that of the Montmorency Cherries.

A more particular description of the fruit represents it as being an inch or more in diameter, with a slender stalk about 2 inches long and a skin which glistens as if varnished, the general appearance of the fruit being rather like that of the Belle de Magnifique Cherry. The flesh, which adheres or half adheres to the stone, is of a very light yellow colour and almost transparent. The juice of the fruit is very abundant, acidulous, sugary, with a very fine, agreeable flavour, but not very strong.

This Belle de Franconville Cherry is a valuable acquisition from a commercial point of view; in the first place, because its fine, well-flavoured fruits ripen so late that they come in long after every other kind of Cherry has entirely gone out of season; and secondly, because, although the fruit is very juicy, the strength of its skin enables it to bear carriage well. The variety will be supplied to purchasers by Mons. Arthur Ménard, nurseryman, Franconville-la-Garenne (Seine-et-Oise).—*Revue Horticole*.

Fruit tree arches.—It is to be hoped that the very authoritative pronouncements of Mr. G. F. Wilson, that the "cost of such arches is not great, and that a good long walk may be arched for £10," may give a fillip to this charming branch of fruit growing. The finishing touch needed to complete the pleasure and profit of many

a fruit garden—the missing link to knit art to utility—may be found in the richly clothed arches and heavily laden arches of the future. Fruit trees are ever beautiful in all places and in all seasons; but one must sit or walk under and look up to and through a well-clothed arch or bower of fruit trees in blossom or laden with fruit. It seems that up till now cultivators and owners of fruit trees have almost wholly deprived themselves of the supreme pleasure of walking or sitting under their own Apple, Pear, or Plum trees. The general or partial arching over of garden walks in fruit or kitchen gardens, and even in flower gardens and pleasure grounds, would not only furnish a most delightful shade, but enormously add to our all too limited area for fruit culture. Different fruits might be planted in blocks of half a dozen or a dozen, or they might be arranged in the most picturesque manner for effect, and intermixed occasionally with an arch of Roses, Jessamine, &c. Such arches could never lack interest at any season of the year. What may, however, be called bower gardening was at one time far more popular than it is to-day. Like other good things in gardening, it was allowed to run to seed through neglect. The beauty of not a few of the olden bowers was allowed to run also on to their crowns, where no eyes could see them. To succeed in the arch or bower culture of fruit, skilful pruning and rather thin training will be needful, so as to bring the flowers and fruit more within view of those who walk or sit under them.—D. T. F.

ROSE GARDEN.

ROSES IN POTS.

THERE are many ways of growing the Rose, and not the least important—whether for cut flowers or for decorating the conservatory—is growing them in pots. One very important item is to commence with healthy, well-established plants; this cannot be too strongly insisted upon. Plants purchased at the present time and not already pruned should have immediate attention in this respect. Previous to pruning it is advisable to let the soil become rather dry. Cut away all weakly and insufficiently ripened growth. Let the well-matured growths of the ordinary growers, such as Catherine Mermet and Rubens, be cut back to within three or four eyes of the base of the shoot, or if the eyes are very close together, say within 4 inches to 6 inches, according to the habit and strength of the plant. In pruning, one should always give attention to the main objects, viz., to secure good flowers and to allow a free circulation of air through the centre of the plants. Do not apply much heat at first, but allow the plants to break gradually, increasing the temperature as they advance in growth. Stouter, shorter and much better habited plants are secured by this method, besides getting a greater quantity of flowers with more substance in them. A span-roofed house facing east and west is better than any lean-to or than a house facing due south. The latter receives the full force of the sun during midday, with very little in the early morning and evening; but when the structure is built from north to south, the plants receive the full benefit of the morning sun, and are at the same time partially shaded from strong sun during midday. As soon as the plants have fairly started they must be kept growing without any appreciable check, or they will become weak in constitution and liable to insect pests. As the plants grow, the water supply should be increased, giving them weak liquid manure twice a week; this may consist of guano, at the rate of 1 oz. to 2 oz. to a gallon, according to the strength and size of the plant, or it may be the

drainings from a stable or cow-stall. I prefer the latter to any artificial manures, as the ammonia arising from them assists to keep the foliage in a vigorous growing condition. As Roses while in full growth require a large amount of water, it is necessary that the pots be well and efficiently drained. It is best to place a few larger crocks over the holes, and then cover these with a handful of broken oyster-shells or smaller potsherds; over these place a few pieces of turfy soil that has had the bulk of the loam rubbed from it. The frequent waterings are very apt to wash the soil down among the crocks and stop the drainage unless great care be taken to do this part of the work in a thorough manner.

Excessive fluctuations in the temperature must be carefully avoided; in fact, this is one of the chief arts in the successful cultivation of Roses under glass. Towards the end of May, when the plants have given the bulk of their flowers and Roses can be had from plants on warm south walls, it is well to commence ripening the plants ready for still earlier forcing during the next season. There is no better way of doing this than by removing the stale flowers and gradually withholding water. I do not advise checking the water supply while any quantity of young growth exists on the plant; this would be folly. When the plants are partially ripened more air may be given, and after a time they may be removed to the open air. A warm and sheltered position should be chosen and the pots be partially plunged in ashes, sand, or cocoa-nut fibre refuse. This will prevent the roots from becoming too dry and perishing; and if at any time the wood should show signs of distress by flagging or become shrivelled, it is well to give the plants a copious syringing overhead. After the plants have received three weeks to a month of complete rest, those requiring it should be repotted and again plunged. It is not necessary to use turfy yellow loam, as so often advised, although this is an excellent thing when procurable; I have found Roses do equally well in a good mixture of ordinary garden loam, well decayed manure, and a little leaf-mould and coarse sand. Before plunging the pots it is well to place a little soot at the bottom to prevent the ingress of worms, and the potting compost should be carefully overhauled and all small worms picked out. It is astonishing how very quickly worms grow when the pots are introduced to heat. To be successful with forced Roses, everything depends upon the plants being properly prepared during the previous season. The earlier the plants are ripened and the more effectually this is done, the earlier and more successfully will the plants force. If the latter part of the summer and autumn is fine, the plants may remain outside until the end of September; but should excessive rains set in, they are much better stood in some cool and light house. Prune those plants intended for very early flowering about this time, stand in a cool house and keep them close until they break into growth. The mistake so often made is in introducing them to artificial heat at once; kept close and with the assistance of the little remaining sun heat, they will be better without any artificial heat until the middle of November. After this the temperature should never fall below 55°, nor exceed 70°.

RIDGEWOOD.

Spring planting of Roses.—To those who have not yet planted their Roses, a few hints may be of service. It is generally conceded that Roses may be planted over a wide period, viz., October to March. My experience, however, points to the end of September and October and the first part of

March or the latter end of February as being the best times for transplanting Roses. The reason of this is because their roots make a little growth during the autumn and so get partly established, and because they are quite ready to grow on at once when transplanted in the spring. During December and January the roots of newly-transplanted Roses are generally quite dormant; the consequence is that a great many of the more fibrous roots perish and rot. This is not the case when planted at the end of February or beginning of March, as at this date the sap begins to move and new roots are formed very quickly. Another advantage in spring planting is that the plants are in no danger of being killed by the rigours of winter. The two last winters have been very trying to Roses, especially to those transplanted late in November. It is much best to lighten the tops of spring-planted Roses as soon as they are in the ground, or else the drying winds that generally prevail during March and April will take almost all of the moisture out of the wood and cause it to shrivel or draw upon the roots for a further supply before they are ready. A sandy loamy compost is the best to place around the roots of Roses. Never place manure into direct contact with the roots. This is very often done, the consequence being that the roots are unable to start into healthy growth. When Roses are laid in by the heels in a light sandy compost, it is astonishing how very quickly they commence to form new roots. This is very conclusive evidence that a sandy soil is by far the best to place around their roots when transplanting. Manure well incorporated with the soil and some placed over the more sandy compost is the correct treatment. By doing so, the roots are enabled to make a start and will feed upon the richer compost when they have gained strength and are better able to absorb the nutriment.—R.

Rose La France.—I am glad to see the agitation continued about the classification of La France Rose. For years I have been in favour of its being classed with Teas or Hybrid Teas, should it be thought worth while retaining this class. The whole style of character, odour, and shape of La France declare it to be three-fourths Tea. The fact of the new white La France (what a treasure this will prove to rosarians!) being merely a sport from the original, and yet from its purity looking even more a Tea than its parent, pleads powerfully for the classification of this exquisite Rose with its peers. An additional argument for the same course may be found in the fact that this chaste addition to our Rose beds and borders—Augustine Guinoisseau—is being distributed as a Hybrid Tea or China. Could anything make classification more absurd than such distinctions without a shadow of distinction or difference?—D. T. F.

VANDERBILT'S NURSERY.

AN article under the above title appears in the December number of *The Lyceum*, a magazine published in Asheville, North Carolina. It was prepared at the request of the editor of *The Lyceum* by Mr. Frederick Law Olmsted:—

(1) It is intended that the greater part of the estate with which the nursery is connected shall be occupied by a systematically managed forest, constituted, mainly at least, of such trees and bushes indigenous to the region as are likely to be of commercial value. This forest will be in a large part formed by the improvement, through thinning and otherwise, of the present young second growth, but considerable spaces, now bare of trees, or the trees on which are unpromising, will be planted. The extent of the forest is to be fully 4000 acres.

(2) Roads will be carried through the forest, in the laying out of which the motive of convenient transportation from its different parts will be modified by regard for picturesque interest, and the immediate borders of a part of these roads are to be planted with the object of gradually forming more interesting foregrounds than might otherwise be presented to view from them.

(3) It is proposed to make a plantation, three or four miles in length, along the borders of a certain series of the forest roads which will contain a few specimens, suitably classified and arranged for study, of each of the native trees of the region, and of all other trees that can be obtained from any part of the world with a reasonable hope that they will flourish under the conditions of climate and soil of the locality. This will be the arboretum, in effect an experiment station and museum of living trees. It may be hoped to be of considerable national value, as the trees acquire their mature character, perhaps fifty years hence.

(4) It is intended to gradually form in some of the glens of the estate passages of local scenery resembling those naturally occurring in many similar situations in the mountain regions of North Carolina, of which the more notable constituents are lustrous smooth-leaved Evergreens, such as the Rhododendrons and Kalmias, Ilexes, and the Leucothoe. In the glens there are occasional partly-flooded or water-soaked areas, in or on the edges of which grow Cane, Bulrushes, Sagittarias, and other aquatic forms of vegetation, mostly herbaceous. With masses of such Evergreens as have been indicated above, it is designed to associate a comparatively small number of foreign bushes of a generally similar, glossy, evergreen character, by the introduction of which, if it can be successfully accomplished, greater variety and grace of form, and vivacity of tint, and, at points, more complex intricacy of effect may be obtained than if the planting were to be confined strictly to native plants. The attempt will also be made to naturalise a few foreign plants, as, for instance, certain Bamboos, Nelumbiums, and Nymphaeas, each having qualities of its own, differing from, but to be pleasingly associated with, those of the native aquatic and water-side plants.

In the nursery there are now under propagation, or already in cultivation, young trees and bushes for each of the four above-stated purposes. Of such of these as are designed to be used either directly, or as stocks for propagation, for the arboretum, there are two or more examples each of 4200 species and varieties. Of the different species of Rhododendron, Kalmia, Leucothoe, Andromeda, Ilex, Laurus, Osmanthus, Aucuba, Abelia and other smooth-leaved Evergreens collected or otherwise obtained with a view to the fourth class of plantations above defined, there are now in the nursery or planted on the banks of Ram branch 20,000 plants, not including those intended as ground covering, such as Ivies, Evergreen, Loniceras and running Roses, Hypericum, Periwinkle, &c., of which the present stock is about 100,000. Among the Rhododendrons there are two examples each of 400 hybrid varieties, mostly the result of crossing the Catawba Rhododendron, growing naturally on the high mountain tops of North Carolina, with others obtained largely from the alpine regions of Europe and from the Ural and Himalayan Mountain of Asia. All of the plantations described are intended as they come to maturity to have a natural aspect, and to stand in harmonious and modestly subordinate relations with the general landscape of this region of country. There will be a small space of "kept grounds," near the dwelling of the proprietor, which, for the most part, will be laid out formally with a view to domestic convenience and correspondence with the buildings, consequently with a clearly defined demarcation from the natural landscape. There will be but little space given on the estate to what are commonly called "ornamentals," and none to the exhibition of mere curiosities, eccentricities or rarities of vegetation. There is, consequently, little in the nursery of special interest from a gardening point of view. Its stock of trees and bushes of merchantable size now numbers about 100,000; of seedlings and cuttings propagated on the grounds during the last year about 500,000. Some of the stock having been brought long distances (part from Southern Europe, part from Japan) and delayed on the passage, is not at present looking very thrifty, but after the next winter's rest it is expected to fully recover.—*Garden and Forest.*

CHRYSANTHEMUMS.

GRAFTED CHRYSANTHEMUMS.

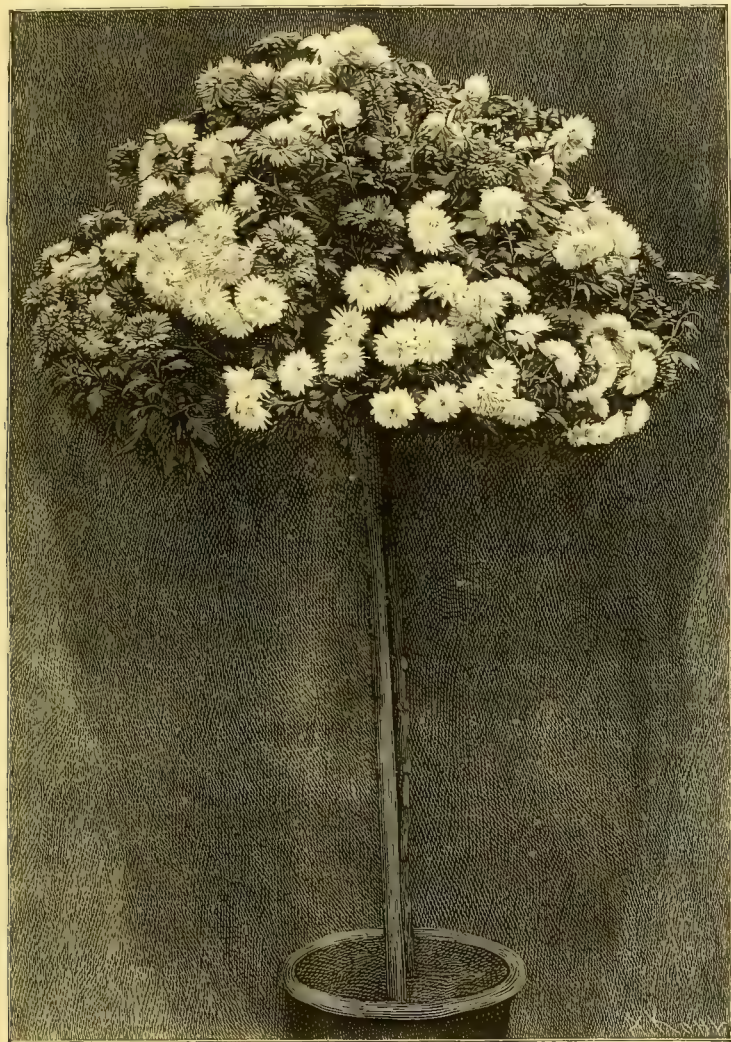
THE grafting of Chrysanthemums has, according to various authorities, been largely practised by the Japanese, and to a limited extent in this country, for many years, and by this means a great number of varieties can be represented on the same plant. Though opinions may differ as to the beauty of such specimens, the fact that they are very striking and attractive

treatment. Too marked a contrast in size or shape of the flower is scarcely desirable, and for this reason it is perhaps better to limit the varieties on a single plant to one group or section.

The operation of grafting is by no means difficult, the very common style known as wedge grafting being very well suited for the purpose. Any time from February on throughout the spring months will answer, that is when the bark of the shoots is fresh and green and in a condition that wounds quickly

often adopted, except to improve the growth of any particular variety which is known to be weak in its constitution when cultivated from cuttings. In such cases as this grafting is useful for improving the growth of the more delicate-growing kinds, or where fantastic forms in the matter of flowers on one plant are required. This latter plan takes more of the form of novelty than aught else. In this case standard grown plants are generally employed where a large head of bloom is required for any particular purpose. The mode of grafting is as follows: The stock is grown with one single stem, as in the case of an ordinary standard, say from 2 feet 6 inches to 4 feet high—Elaine making one of the best of stocks. When the required height is attained, the plant will, in a natural manner, throw out a number of extra growths, say from the 1st to the middle of May, perhaps earlier, according to the conditions under which the stock was raised. If the plant does not show signs of making a natural break by the 1st of May the point of the shoot should be nipped out to induce other growths to push from the main stem. A distinct kind can be worked upon each shoot if necessary. The chief point in selecting the varieties to be grafted is to pay regard to those which blossom about the same time, and to confine the head of one plant to the same section. For instance, incurved and Japanese should not be mixed up together on one plant. From four to eight is a fair number of shoots to encourage on one head; these will be sufficient to produce variety enough for anyone. If more is adopted, there will not be so much space left for each variety to develop a number of shoots, and sufficient ought to be provided to give effect to the variety, no matter of what colour the flowers are. When the shoots are 6 inches long they are ready for grafting; indeed at 4 inches they will suffice if the growth is late. After the plants have been grafted, choose a shady part of the greenhouse for them for a few days until the graft has taken, and when this is growing freely, remove the ligature. It is wise to attach a small stake to the plant at once to render the graft safe from accident of any kind. For a few days the grafts will be better if kept moist by being frequently syringed. Mrs. Alpheus Hardy might be improved in this way, as its constitution naturally is a weak one.—E. M.

— In grafting the standard Chrysanthemum represented in the cut, I chose a plant of the Japanese variety (Maiden's Blush) of the previous year's growth. It had been grown in an 8-inch pot and had a nice stout stem about 3 feet high. This had branched out into three shoots. After the plant had done flowering I shortened these back to within 8 inches of the straight stem. I let the plant rest until the month of March, when I took it into a newly-started vinery, placing the pot on the floor with the head passing through a stage raised about 3 feet high. I adopted wedge-grafting, and spread some damp Sphagnum Moss on the stage round the head, over which I put a bell-glass. After the grafts had taken and started growing, the plant was placed out of doors in the month of May. I then gave it a shift into a 10-inch pot, and during the rest of the season it was treated in the same way as the other Chrysanthemums. During the summer I simply fastened a hoop round the head, to which I tied down the shoots as they grew. Before housing in October I took off the hoop and tied the points of the shoots down one to the other into the form desired. All the different varieties flowered at the same time. After flowering, the plant was kept cool. The shoots were pruned back and allowed to come away slowly. In May it was turned out of the pot, the drainage renewed, a little of the surface soil taken away and a top-dressing given. In November I exhibited it in Edinburgh. In 1891 I gave it the same treatment and again exhibited it at Edinburgh in November last. The head was fully a yard across and carried several hundred blooms. The stock was struck four years ago, and, with the exception of the first season, it remained in the same soil and the same pot, and with simply a top-dressing it flowers well each succeeding season, so that I now treat it as I would a Fuchsia, with the exception



A grafted Chrysanthemum. Engraved for THE GARDEN from a photograph sent by J. Machar, Corona Gardens, Broughty Ferry, N.B.

to many cannot be questioned, and being by no means of common occurrence, they are, when exhibited, objects of especial interest. There was a good, though by no means large, example at the Aquarium show in November, and it certainly attracted a considerable amount of attention. But four varieties were, however, represented on the specimen shown, they being Jeanne Délaux, Sunflower, Avalanche and Val d'Andorre. It will readily be understood that in the forming of large compound plants of Chrysanthemums by grafting, the effectiveness of the specimens will entirely depend upon the varieties chosen for the purpose, not only in the selection of colours that harmonise with each other, but also in employing sorts that flower at just about the same time and need the same

heal. The junction between stock and scion is always a weak spot, so care must be taken to stake the growing shoots directly a union is effected. Apart from the production of a number of varieties on the one plant, grafting is occasionally employed as a means of improving the growth of some of the weaker kinds, but that will become less necessary as they are replaced by the newer forms, most of the best of which are characterised by a good sturdy habit of growth. For this kind of grafting Elaine is often employed as a stock, being of good constitution and not too vigorous, while it is generally to be found well represented in every collection, so that plenty of plants suitable for stocks is generally at hand.—T.

— The grafting of Chrysanthemums is not

that I do not keep it so dry at the roots in winter. The following varieties were grafted on the standard referred to: *Sœur Dorothee Souille*, *Pink Christine*, *Sœur Melanie*, *Golden Christine*, *Roi des Précoces*, *M. A. Dufour*, and *Chevalier Dommage*.—JOHN MACHAR, *Corona, Broughtly Ferry, N.B.*

CHRYSANTHEMUMS FOR CUTTING.

THERE is a very great difference in the lasting properties of the various *Chrysanthemums* when cut and placed in water. Some varieties only keep fresh for a few hours, while others will last as many days without flagging or showing signs of distress. All the various sections seem subject to this difference, and the matter is worth noting from a private grower's point of view, as to him those kinds which last longest are most valuable. It might naturally be thought that the most bulky flowers would be the first to go, but this is not the case, for the list of about three dozen varieties mentioned below, all of which I have found to last remarkably well, contains kinds which bear very bulky flowers as well as others quite as noteworthy from their lightness. It may be as well to say that I do not recommend this list as being wholly composed of those varieties which may be treated most artistically in arrangement; neither does it contain any of the very new kinds, but only those well tried as cut flowers during more than one season.

JAPANESE.—*Elaine*, *Sources d'Or*, *William Robinson*, *Bouquet Fait*, *Roseum superbum*, *Mr. H. Cannell*, *Mme. de Sevin*, *M. William Holmes*, *Avalanche*, *Duchess of Albany*, *Grandiflorum*, *Marguerite Marrouch*, *Golden Thread*, *Ethel*.

INCURVED.—*Jeanne d'Arc*, *Mabel Ward*, *Mr. Bunn*, *Hero of Stoke Newington*, *Princess Teck*, *Barbara*.

REFLEXED.—*Guernsey Nugget*, *Elsie*, *Cullingfordi*, *Progne*, and all the *Christine* family, including *Mrs. Forsyth*.

POMPONS AND HYBRID POMPONS.—*Boule de Neige*, *Aigle d'Or*, *Tokio*, *Julie Lagravère*, *St. Michael*.

POMPON ANEMONE.—*Marie Stuart*.

SINGLE.—*Jane* or *Snowflake*.

J. C. TALLACK.

THE WEEK'S WORK.

ORCHIDS.

As I write, a considerable change has taken place in the temperature; from a piercing east wind with frost night and day, the wind changed to the west with the temperature much higher. The plants now require less artificial heat and a freer circulation of air can be admitted. A most useful plant at this season is *Vanda Amesiana*; I have been admiring a group of plants of this species with about fifty spikes of flowers, large and small. The flowers are delightfully fragrant, and the spikes are lovely when arranged in vases backed with the feathery plumes of *Asparagus plumosus*, which last long in water; whereas the fronds of the *Maidenhair Fern* shrivel up quickly. These plants succeed best in an intermediate house temperature, being from a hill country 4000 feet to 5000 feet above sea-level, where the ground is covered with hoar-frost; it is possible that the cool house may answer to grow them in, but so far the cool end of the *Cattleya* house suits them admirably. It is a free-rooting plant, and in cultivation sends up spikes 3 feet in length, but these do not flower so freely as those half as long; they produce a score or less of lovely rose and white flowers; they will pass into the resting period after flowering. A good companion to this fine species is *V. Kimballiana*, from the same district and the same elevation, but flowering in the summer. Messrs. Low, of Clapton, who introduced both these *Vandas*, inform me that a plant of this species placed out of doors in a somewhat sheltered position was uninjured, although the temperature fell to 8° of frost. So far it succeeds admirably in the *Cattleya* house, and there is no need to test its powers of enduring cold; it is summer-flowering, and is most effective when six to nine plants are arranged in a teak basket; it

also succeeds admirably in pots. Any plants requiring repotting or rebasketing should be seen to at once. The plants make a mass of roots, as does the other species, *V. Amesiana*. The potting material is good *Sphagnum Moss* and plenty of drainage. *V. coerula* has been imported in greater abundance and in larger masses than usual during the last year or two, and this species is also usually grown under the same conditions, but many cultivators are aware that such plants have a tendency to degenerate after the fifth or sixth year of their culture. I stated recently that such plants had been rejuvenated, as it were, by being placed in a position near the glass end of the warmest house. *Oncidium ampliatum majus*, one of the most useful of the genus for producing handsome spikes of golden-yellow flowers, is now throwing up spikes freely; they are exceedingly attractive to slugs, which will destroy them just as they are pushing out from the base of the bulbs, and as the spikes in their earliest stage of growth are hidden by the leaves, they are sometimes eaten over as soon as they start to grow, and the inexperienced cultivator may not even know that his plants attempted to flower. This is a plant that can be kept in the best health, and will flower freely every year if the few simple details of its culture are carried out. The plants are grown in flower-pots with the usual peat and *Sphagnum* compound. When in growth, which is from midsummer to the end of the season, they like plenty of heat, which should be maintained until the first flowers develop in May. They should be kept comparatively dry at the roots and the plants may be placed in the *Cattleya* house. *O. Cavendishi* will develop its flowers better in the warmest house at this season. Another great favourite with me is the handsome *O. Lanceanum*; it grows very freely under similar treatment to that given to *O. ampliatum*, except that the plants succeed best if placed in teak baskets and suspended from the roof glass of the warmest house. They also start into growth at this season of the year, and seem to make plenty of roots outside the peat and *Sphagnum* compound. The plants, of course, must be kept clean, and they ought to be rested during the winter in a temperature of 55° to 60°. When the plants are attacked with the disease which Orchid growers term "spot," it shows too plainly that the temperature in winter has been too high and the atmosphere too moist. When I see any disease appearing on the plants I come to the conclusion that the treatment they have received is not right, and take immediate steps to alter it.

Many other Orchids will now be starting into growth. Two *Cattleyas* are starting to grow and both require rather different treatment to get them to produce flowering growths than the general run of the *C. labiata* group. We winter *C. Dowiana* in the *Cattleya* house suspended in baskets near the roof glass and hung at the lightest part of the house; in this position they have had just enough water during the winter to keep the leaves and bulbs plump. Now that the new growths are starting, I intend to place the plants in the warmest house in the suspended baskets. *C. gigas* and its varieties require very much the same treatment. It is rather difficult to manage the large specimens in this way, as this is one of the most vigorous growing of *Cattleyas*, forming large growths and great specimens. Small and medium-sized plants will flower freely in baskets and affixed to blocks of teak wood, but when the same plants are put into flower-pots and placed on the side stages they do not make flowering growths so freely. One of the most popular and useful of Orchids, *Cyclopogon cristata* and its varieties, is now coming into flower; it is quite an intermediate house plant, and requires a little very weak liquid manure water to help the flowers to develop. Cow manure soaked in water is the best for the purpose. I soak a quantity in a butt of rain water, stir the mixture well up, and let it settle for twenty-four hours. The pure white variety is the best. The variety *Lemoniana* with a pale yellow centre to the labellum is more esteemed by some than the ordinary form. I grew these plants during last season on the shady side of the *Cattleya* house,

and some fibrous loam was added to the potting material, the result being that the plants have grown much better, bulbs larger and the leaves clean and healthy. As is well known, these plants soon grow into immense specimens, and since I used loam in the potting compound they certainly do not require so much water; give water thoroughly, and not again until the plants really need it. J. DOUGLAS.

FRUIT HOUSES.

RAISING VINES.—Nothing is more easily propagated than the *Grape Vine*, and there is much to be said in favour of raising all that are required for any purpose on the place where they are to be grown. For instance, it is possible and by no means difficult to raise and grow Vines to a fruiting size, either in pots or planted out, in one season, and young Vines are of good service for inarching on to older ones when in full growth, this being a ready means for completely changing the character of the crops. To be plain, if early Grapes do not pay, these could soon be changed into late varieties by grafting or inarching, and if any particular variety does not succeed to the satisfaction of the owner, or those in charge of it, it is advisable in most cases to let this be a stock for a variety that may be preferred to it. Newly introduced varieties, and there are two well worthy of a trial this season, viz., *Lady Hutt* (white) and *Appley Towers* (black), both late in ripening and said to be good keepers, are never very strong when received, but if they are cut back and the top cut into single joints, most of these will strike and most probably become strong enough for inarching this summer. The rooted part should break strongly, and the cane resulting be inarched on to a suitable stock.

METHODS OF RAISING VINES.—Cuttings or ripe wood would strike readily enough in a fairly brisk heat, but single eyes are usually preferred. Each of the latter should have not less than half an inch of wood left on each side of the bud, this being cut in a slanting direction on the under side. Insert these singly just below the surface in 3-inch pots, with a gritty loamy compost, or in small squares of turf, setting these on or plunging them in a moderately brisk hotbed, a top heat of about 65° answering well. Being kept just moist, it will not be long before both root and top action commences and they must be kept growing in brisk heat and a light position, so as to have them either fit for planting out, inarching, or fruiting in pots not later than the first week in May. Before they reach that stage one shift will have to be given, the plants being placed in 6-inch pots before they become badly root-bound. Eyes appear to strike most surely and quickly in pans of soil, but this necessitates the greatest care in potting them off singly, damaging the roots, especially if the removal is long delayed, greatly checking top growth.

CUT-BACK VINES.—Although, as before stated, good fruiting Vines can be had from eyes in a single season, stronger and better canes are more frequently grown from "cut-backs." Supposing there are a number of small canes in 5-inch or slightly larger pots available, the varieties being suitable for pot culture, these should be cut hard back, the wounds dressed with styptic or painter's knotting and be then started in heat. Directly they commence moving, shake them clear of the old soil and repot into 6-inch pots, using a fairly rich compost and potting firmly. It is not advisable to plunge growing Vines at any time, this promoting a too soft long-jointed growth, but they ought always to have the benefit of a light position in a well-heated house, sharing the same treatment in this respect as Melons and Cucumbers. They must be shifted into their fruiting pots before they are root-bound and grand canes will be the result. It is worthy of note that fruiting canes obtained from cut-backs are not only the earliest to mature, but they invariably break the most quickly when forced.

PLANTING VINES.—Early in February is a good time to plant Vines intended to be either permanent or only supernumeraries. If they are to be

located inside the house and in a good light position, and there is no necessity to plant close up to a front wall nor always behind hot-water pipes, the small cut-backs previously alluded to will answer well, these being shaken clear of the soil in which they are now in and the roots well spread out into the soil of the border. When the canes have to be brought through from an outside border, moderately strong planting canes are preferable, as the young shoots must have the full benefit of light and warmth. While they are yet in a cool place and before they are planted, cut them back to a length that will just reach a light position and dress the wounds with knotting. If the latter precaution is neglected, they will bleed profusely directly the sap moves and there would be no stopping this. These also should be shaken clear of the old soil, the roots being carefully disentangled (soaking the balls in a bucket of water facilitates this operation) and be planted similarly to the cut-backs. Supernumeraries, or those intended for fruiting for one or two seasons only, ought not to be crowded in among the permanent Vines, the better place for these being 4 feet or more from the front walls. Avoid high temperatures at the outset, from 45° to 50° by night and an increase of 10° in the daytime being ample. PRACTICAL.

THE KITCHEN GARDEN.

EARLY PEAS.—Directly the month of February is in cultivators are anxious to get in their earliest crops of Peas, but the time will depend upon the condition of the soil. It is much better to defer sowing until the ground is in a fit state to receive them. The dwarfier kinds, such as William Hurst, Chelsea Gem, or American Wonder, are good varieties for sowing on sloping sunny borders, where from their comparatively dwarf stature they are not likely to smother up other subjects. The ground being got into a well-pulverised condition, should also receive a dressing of burned refuse and also a sprinkling of steamed bone flour, which is of great benefit where Peas are apt to make a weakly growth and not fill well. By being sown in the open ground at once, the haulm will be stronger than if raised and forwarded in pots or boxes to be transplanted. Such being the case, 30 inches apart will be a fair distance to dispose the rows. The taller-growing early round sorts, of which I will take William I. and Ringleader as types, or even any other earlies of taller growth, are best disposed at a greater distance, so as to allow a few rows of Potatoes or any other dwarf crop between, this arrangement allowing direct light and sun to have free access, and with benefit also to the adjacent subjects. Draw wide-bottomed flat drills, as these will allow of the seeds being equally distributed and not lie huddled together when the drills are merely drawn by the corner of the hoe.

RAISING PEAS UNDER GLASS.—In many gardens the earliest Peas are raised under glass, and a very good system it is, as by this mode the young Peas will be coming on whatever the weather, but I would never let a good chance go by of sowing in the open as well as under glass. Whether these glass-raised Peas will be of service will depend upon the course of treatment pursued, for by placing the pots in heat and hurrying the young growing Peas until they become drawn and weakly, failure will be the inevitable result. The usual mode is to sow on strips of turf and in pots. The latter method will be found the most convenient. Too small pots are an evil, this causing them to become early root-bound, and planting may be delayed on account of inclement weather, in which case they would be ruined. Five-inch pots are the best, the seeds being sprinkled in about half an inch apart, and covered with an inch of soil. The pots may either be placed in a cold Peach house or cold frame, when directly the young growths appear above the soil air must be given on all favourable occasions when there is not actual frost, the lights being also drawn off the frame on fine days, in which case the young Peas will grow sturdily.

Where turfs are used, these are cut into narrow strips 4 inches or so in width, the seeds sprinkled on the top, and surfaced over with soil. Place the strips of turf on a hard bottom on a cold frame, for if the surface should be at all loose the roots would work through, and on being removed would receive a considerable check on account of the roots being damaged. Being on a hard surface, the turfs could be lifted off cleanly.

LONGPOD BEANS.—This is generally the first crop sown in the open air, but, as in the case of Peas, the state of the ground will gauge the time the first sowing should be made, and unless November sowings were resorted to, the earlier the better consistent with safety. The Improved Longpod section is the type usually selected, but Beck's Dwarf Green Gem has many admirers, and, indeed, I find this preferred before the larger section for early use. Where these early Beans are in request, it is best to grow a part of each. It is not at all necessary to devote valuable south border space to this crop, for Broad Beans will succeed quite as well in the open, selecting for the purpose an open sunny spot. The Longpods should not be less than 3 feet apart in the rows, the seeds being arranged in double rows 4 inches apart. Beck's Green Gem should be arranged in rows 30 inches apart, or at any rate not less than 2 feet. Where November sowing has been resorted to, it is early yet to interfere with the rows if there should be any blanks, but they transplant readily if lifted carefully with a trowel, and it is much better to utilise a row for filling up any blanks than to leave gaps. In case of an unfavourable sowing time, and if an early crop is desirable, the seeds may be forwarded in pots, being either sown singly in 3-inch pots or two in a 5-inch or 4½-inch pot. These will not stand the least coddling, so place them in a cold frame and ventilate freely upon the least sign of growth.

LETTUCE.—Seed of both the White Cos and early Cabbage forms should now be sown, so that a supply of young plants may be forthcoming, this being very desirable indeed if the autumn plantings are not wintering well. The seeds should be sown thinly in a shallow box of light and rich soil, and if placed in a gentle heat, must be removed to cooler quarters directly the seedlings appear, the best place being a shelf near the glass in a cool house, where, by attending carefully to the watering, the young plants will grow sturdily until ready for pricking out into frames, and afterwards planting out on a warm border. A. YOUNG.

PLANT HOUSES.

PLANTS FROM CUTTINGS.—**BOUVARDIAS.**—No time should now be lost in selecting a few of the most promising plants of each kind for propagation. Since flowering, these plants should have had a little rest, with considerably less water given them. Ours have been thus treated in a warm pit—at least, where the temperature was not often lower than 55°. The plants selected should be at once pruned as in the case of Fuchsias, shaken out of the soil, and replaced in pots a size or two smaller, using a light loamy soil with leaf-mould and sand. These plants should then be placed in a moist growing atmosphere of about 60° or 65° at night with a fair rise by day. A vinery in work would suit them well. Growth will soon commence, caution meanwhile being given to avoid its being drawn up weakly. This will be the case in either too much heat or where far removed from the glass. But little water will be required until the plants are quite active. When the stock of any kind is all too short, the stronger portions of the roots should be saved when the plants are shaken out; these if firm and solid will strike freely in sandy soil with heat and moisture.

SOLANUMS.—These should also be seen to for any desired increase in the stock; a few struck every year will allow of the scrubby plants being dispensed with as soon as they are of no further use this

spring in a berried state. One or two plants should be chosen for cuttings which show the best character of growth with the largest berries; first remove the berries and prune the plants, then place in a moderate warmth to induce a young break. Repotting is not in this case necessary, at least, I prefer to avoid it, as later on I would rather shake out entirely when planting in the open air towards the end of May. I always prefer cuttings to seedlings; the growth is not so robust, whilst the profusion of berries is all in favour of cuttings. With no stock to work upon the best way is to sow seed and select the best types whilst in berry the first season.

FUCHSIAS, &C.—Plants of these useful decorative subjects should also be chosen for the same purpose. One of each kind if of good size will suffice for a fairly good stock of young plants. Room cannot always be found for a large number without that common, but pernicious evil of overcrowding. I would treat these as in the case of Bouvardias, but give them rather less heat; a Peach house in work will suit them very well. Pruning of these plants should be done at once; stronger cuttings will thereby be had, for it makes all the difference whether the cuttings are good or weakly in getting a good start with the future plant. Tree Carnations, if not struck in the autumn, should now receive attention, as no further delay can be afforded. To secure good plants in due course, these should be struck in a gentle heat, as in the case of Fuchsias, using a sandy and loamy soil, placing all the cuttings around the sides of the pots, so as to ensure more soil being retained with each one when potting off as well as to facilitate root action. If the grass be rather long, it will be better to shorten it rather than distress the cuttings; short stocky growth is preferable to that which is weakly.

STREPTOCARPUS.—Those who have a good stock of the beautiful new hybrid varieties that have been raised from seed sown last spring will now do well to turn attention to the plants. Ours have been wintered in a warm pit, just sufficient water having been given them to keep at least one leaf fresh upon each plant. I do not consider that it is wise to dry these plants off as in the case of Gloxinias; they cannot withstand such a course, not having that amount of stored-up nutrition to keep them in a healthy condition. Our young stock, for want of a more favourable position during the past season, did not get beyond 3-inch pots as a whole. These plants have now been shaken out partially and repotted in the same size, and are now upon a shelf in the Peach house that has been started about six or seven weeks. Here in a genial moisture they will, I think, make good progress, most of the plants looking very promising. Seed has just been sown both freshly purchased and also of our own saving from a superior variety raised last year. These new hybrid forms of Streptocarpus are going to be very useful; they have a good future in store for them as decorative plants when well grown; the freedom of their flowering is remarkable as well as the continuity throughout a long season.

SUCCESSIONAL BULBS.—These should be got in so as to keep up the supply. It is not advisable to keep back too many until the last, when they often come in with too much of a rush. The most promising of the Hyacinths should be chosen; those which show the most vigour will be the best; others will gain more strength. The yellow varieties should be allowed to advance steadily, for they will not bear forcing with any reliability. Of the Tulips, almost any sort will, if potted early, now force in a satisfactory manner, but it is best still to rely upon those which are known to force well, as the Tournesols, Keizer Kroon, Vermillion Brilliant, and Le Matelas. There is not now much to choose between the Polyanthus Narcissi. Like the Hyacinths, those that show the most strength will be found the best. Bazelman major will be sure to be one of these. The Campernelle Jonquils do the best service when, like the Daffodils, they are not brought on in too much heat and moisture. Clumps of Lily of the Valley will now begin to supply the place of single crowns, being much the

est when required to stand whilst in bloom in a conservatory rather than to be pulled for use in a cut state. For this latter purpose the single crowns will still be found the better of the two.

JAMES HUDSON.

KITCHEN GARDEN.

NOVELTIES IN VEGETABLES.

I SHOULD have thought that "S. D." would have observed that the tenor of my article on "Novelties in Vegetables" was not to particularise any special kinds, but to notice the advancement in their improvement. Some people put such faith in the older kinds as to think them not capable of any improvement, and to look upon all novelties as snares to catch the unwary. After all, many of the advanced types are merely selections from the older kinds, and after a time by this rigid selection they are far ahead of the type when sent out originally. It must be admitted that the stocks of all kinds of vegetables are kept truer to name than formerly by our enterprising seed growers, the selection and also trials of some being most rigid. No doubt I shall be told that many kinds of vegetables are no better in quality than they were perhaps thirty or forty years ago, but it must be remembered that there is hardly a kind that has come down to us from that time pure. In the future it will no doubt be different, as seed growers now strive to keep each as true as possible. This being the case, it does not matter as long as the selections are rigidly adhered to whose improved form it is. For instance, the stock of Ne Plus Ultra Pea, or even Intermediate Carrots, of one may be better than that of another on account of the selection being more rigid. My observations on Cabbages were general. The stocks are most carefully selected, but it must be understood that the character of the winter and also mildness of the spring have much to do with the earliness of a Cabbage. Given a favourable time, the specially early varieties, of which I will mention Mein's No. 1 and Ellam's Dwarf, will come into use before the older varieties, and will also withstand the winter and not bolt, as they used to. Mein's No. 1 can be relied upon for early cutting, and I daresay some other selections are as good.

"S. D." instances Dilliston's as his ideal early Pea, and asks whether I can name one earlier and better, or as good. I did not claim for the later newer varieties that they were any earlier, and seasons, soil, and situation have to be taken into consideration. "S. D." evidently thinks there is no improvement by his observations, and I suppose he still clings to Dilliston's as his first Pea. But if not, it is no evidence that this is the best Pea, for as time goes on we are apt to forget, or to look back on old associations too tenderly. I should like to try Dilliston's, if it can be procured true, along with the now recognised first earlies. I have looked through several lists and cannot even see it mentioned, so if this is really such a good Pea, why is it not now offered? Earlier Peas than we now have I suppose we shall never have, unless the seasons alter, but quality is certainly advancing. William Hurst, American Wonder and Chelsea Gem are the types of early Peas to grow for garden use, and as to their not being adapted for early sowing in the open air is contrary to facts. The soil of our garden being cold, these are sown on sloping sunny borders, with plenty of burned refuse mixed with the soil, and as soon as February is in and the

ground is in a fit condition for sowing, there need not be any fear of the seed decaying or even growing irregularly. I rely on the above with William I. for our earliest, and this on a not at all favourable soil, but the situation is good. I also try one or more of the novelties. "S. D." also takes exception to my observations on Celeries. I repeat that Sandringham Dwarf White has had its day. I have had it from different sources, and generally it has been disappointing. The last time I grew it was along with Veitch's Superb White, and as this was only on trial, I did not grow much of it, but on being ready this was sent in first, and a fortnight or three weeks later was followed by Sandringham Dwarf White, when there was soon a complaint about the Celery not being so good, and which I had also proved to my own satisfaction beforehand. This, then, I think, is the Celery that eclipses Sandringham. Certainly it is a little stronger in growth, but it is much more reliable, the quality being certainly superior. Major Clarke's Solid Red is the variety I consider equally good either as a comparatively early or late variety, but it must be understood that I do not place it before Veitch's Superb White as an early, but as succeeding this kind. Whether Celery may be kept in a comparatively good condition until late in the season resolves itself into details of culture. I am of the opinion that Celery for keeping is prepared too early from the outset. Planting in too deep trenches, with the corresponding evils of early sowing, high feeding, and also too early earthing up, are the causes which lead up to early decay in Celery.

A. Y. A.

EARLY RADISHES.

RADISHES are included among the vegetables or rather salading that people with a weakly digestion are advised not to eat, and not a few are needlessly deterred from enjoying them, owing to the bad reputation under which they labour. Undoubtedly old and either hard and hot or woolly roots are unfit to eat, but if quickly grown tender young Radishes are eaten in moderate quantities, they digest readily enough with most persons and are fully appreciated by all who can get them. Unfortunately, they do not long remain in a crisp, tender and sweet state, and the only way to maintain a constant supply in the best possible condition is to sow seed in comparatively small quantities and often. Enough Radishes can be had from a three-light frame prepared principally for Carrots—the Radishes being sown midway between the latter to meet the requirements of any two large establishments while they are fit to eat, yet more often than not such are sown at one time in places where one light would have been ample. As a rule, it is advisable to sow one light at a time, say at fortnightly intervals, and between all such forced or forwarded crops as Carrots, Potatoes, Peas, and Cauliflowers, though if frames can be solely devoted to Radish culture, that is the best way out of the difficulty. Gentle hotbeds faced over with about 5 inches of fine loamy soil, this being raised well up to the glass, are needed for the earliest supplies, and the plan of sowing the seed thinly broadcast, covering with a little fine soil, answers the best. Sowing thickly and neglecting to thin out the plants frequently cause Radishes to fail to bulb quickly and well, and the seed ought to be sown in the first instance not less than 2 inches apart each way. Plenty of light and air, if not too cold, should reach the plants, undue coddling leading to the growth of leaves rather than roots. Should the weather and the state of ground be favourable, seed might well be sown about the middle of February on warm borders broadcast and covered with sifted soil, as advised in the case of frame crops, and if protection is afforded (either with shallow frames with glazed lights, boards on edge, crossbars and mats, fenders and mats, or even straw litter),

good Radishes will be had in succession to the sowings made in warm frames at the end of February. More seed being sown about every fortnight on good, well-worked, and somewhat firm ground, say up to the end of May, a good succession of tender young roots will be had as long as our climate will usually permit, Radishes being uneatable when grown during hot and dry weather. Birds are rather too fond of Radish seed, but they seldom interfere with it if the precaution is taken of just damping and then rolling it in powdered red lead, netting over being the other alternative. The Turnip flea is also a great enemy to Radishes, and to check the ravages of this and slugs, frequently dusting over the young plants with soot and lime has to be resorted to.

There is now quite a long list of early Radishes, some of the varieties being remarkably pretty. The red and white extra early forcing Turnip-rooted are of rapid growth, and are particularly good for frame culture. Both the scarlet and crimson French Breakfast are pretty and good in quality, the white tips adding greatly to their attractive appearance. Both varieties are admirably adapted for either frame culture or for sowing in the open. The red Olive-shaped and the red Olive-shaped white tipped are good forcers and do well in the open, but the yellow Turnip-rooted too soon becomes hot and hard. Wood's Early Frame is still one of the best for either forcing or the open ground, and is the only long-rooted variety adapted for frame culture. It is of rapid growth, tender and sweet. The ordinary Turnip-rooted varieties are suitable for the later sowings.

I. M. H.

PEAS.

ANOTHER year of extensive Pea growing, during which many novelties were given a trial, has in my case resulted in the retention of the established favourites which I have previously written of as being difficult to surpass in quality and productiveness combined. For early crops a good selection of William I. is solely relied upon. It is often asserted that there are some varieties much earlier than this, but as far as my observations and experience go the difference on that point is very little. In other points it is head and shoulders above its rivals. For main crop I grow Criterion (an excellent Pea), Duke of Albany, Marvel, Gladiator, and Sharpe's Queen—the three last 3-feet Peas. For later crops I have to be content with comparatively dwarf varieties, as in our wind-swept position, the autumnal hurricanes lay low and destroy taller growers, so cannot include Ne Plus Ultra in my list as being now grown here. Those that I grow and largely are Autocrat, Evolution and Omega. The first-named is a splendid late September Pea, but too tender and too easily injured by winds, &c., to be relied upon later. Evolution, which unfortunately appears likely never to get fixed in character, rogues making their appearance in it as abundantly each year as was the case on its introduction, is nevertheless a good Pea; and as to Omega, could one but find among the hosts of novelties poured on us year after year a strong-growing 4-feet Omega possessing all the good qualities of the present one as latest, it would indeed be a gain, and upon the achievement of which we would soon cease our lamentations over ill-spent money on high-sounding prodigies. As will be seen, the above nine varieties are grown and recommended for a large, constant, and prolonged private consumption and supply on account of their high merits in superior flavour and productiveness, and altogether, apart from exhibiting, but if required and with special treatment, some of the sorts will come out prominently on the show table. Our light hungry soil causes us to cultivate ours invariably in deep well-tilled trenches—the result, abundance of Peas. As it might be inferred from the foregoing remarks that I condemn all last and the preceding year's novelties, it may be necessary to explain that the most promising of one year are cultivated and severely tested the next, but last summer being so unfavourable, I have decided not to pass the final verdict on those whose time was up until after another season's trial. This almost wholesale dis-

carding annually is an unpleasant task, but an inevitable one to those who are anxious to grow the best and only the best as suited to their requirements, and an occasional gain imparts fresh life and vitality in one to proceed. It has been my misfortune to obtain but a very small percentage of prizes in comparison to the plentiful, but useless blanks.

North Wales.

J. R.

POTATOES OF GOOD QUALITY.

It is well known that the soil in which Potatoes are grown has a good deal of influence on the quality, but, notwithstanding this, I can name four sorts that will in the majority of cases prove valuable. These are Myatt's Ashleaf, Covent Garden Perfection, Puritan, and Magnum Bonum. In this part of the west of England Rocks are largely grown both by cottagers and farmers. Consumers do not mind having a deep-eyed Potato when the quality is good, and I have not the least doubt but that Rocks will remain a favourite late-keeping Potato for many years to come. Quality is everything in a Potato, while appearance counts for nothing. It is rather singular that the Rocks should retain such a hold of public favour while so many much handsomer sorts have been introduced only to quietly drop out of cultivation. It, however, shows that the consumer soon learns to discriminate between Potatoes of good and bad quality. Covent Garden Perfection has recently been referred to in *THE GARDEN* in very favourable terms, but not a word too much has been said in its favour. I have grown it ever since the first year it was introduced, and have seen it growing in many different kinds of soil, but it has always retained its character of being an excellent cropper and the table quality all that could be desired. It is a second early, being ready for lifting generally about the middle of August, while the tubers will keep sound and retain their flavour until the end of the following March. Puritan is perhaps better in light land than heavy. It, however, adapts itself to a variety of soils better than some other sorts. I do not remember having at any time seen any allusion made to the loss in weight that Potatoes are subject to when they are stored in heaps for several months. I have, however, good reasons for knowing that it is a fact that they do so, and to a greater extent than I was prepared for, and the larger the tubers are the more they appear to lose in weight. Two years ago I weighed several sacks of Champion and Magnum Bonum as they were taken to the store, and weighed them when taken out four months later. The loss of weight during that time was not less than 10 lbs. on every hundredweight.

J. C. CLARKE.

Potatoes in Derbyshire.—Having read with great interest the remarks of "A. Y. A." and others in *THE GARDEN* regarding Potatoes, I will mention a few that have given satisfaction here. I live in one of the Derbyshire villages where the climate is very trying in the winter and early spring to all kinds of vegetation. Most of the land here is on the limestone, very cold in early spring and unfavourable for early growth. The old Ashleaf (Myatt's Prolific) is in this district the best early Potato. Mona's Pride has been very largely grown here, but it is very liable to the disease. The one that has given me the greatest satisfaction of late years is Snowdrop, a second early kidney. It is a handsome Potato, good cropper, of first-rate table quality, and not liable to disease, even in a season like the past. This Potato requires a dry situation and a rich light soil to attain perfection. When first I grew it I was quite disappointed with it, and decided that if it did not do better the following year, to dispense with it altogether. Satisfaction (Sutton's) will, I think, be largely grown in the future. It is a splendid cropper and of good table quality, but it was slightly diseased during the past season. There is one Potato that with me has proved far superior to nearly all others—The Dean, a purple round Potato with a rough skin. It is a heavy cropper, resists the disease, and of

superior quality. Two years ago I had it under some trees on a bit of poor land, and the way it turned out showed that with good cultivation it was destined to take a high place. Imperator is too coarse, the quality not good enough to ever become a favourite with me. Prizetaker and Reading Russet, more particularly the latter, have of late years with me suffered very much from the disease. Edgcote Purple, Vicar of Laleham, Beauty of Hebron, and several others I have dispensed with. Schoolmaster is good, but rather small.—J. W. Bolsover.

STOVE AND GREENHOUSE.

CARRION FLOWERS.

(STAPELIAS.)

THE Stapelias are not seen in general collections of warm greenhouse plants quite so often as they deserve, for perhaps no genus of suc-

culent plants yields flowers at once so peculiar, so varied in form, and so diversified in colour. If they have a drawback, it is their odour, but by growing them on an overhead shelf with a ventilator above them, their weird habit and strange star-fish-like flowers may be enjoyed without any inconvenience. The genus was named by Linnaeus after Boderus à Stapel, a physician of Amsterdam, who was specially interested in botanical studies. About seventy species are known, figured, or described, and they are all focussed on the African continent, and principally at the Cape of Good Hope. There are several allied genera, but these are still more rarely met with in cultivation. One of the most remarkable is the great Hoodia Gordoni from Little Namaqualand, as figured in *Botanical Magazine*, t. 6228. It has great, erect, Cereus-like stems, ribbed and covered

with stout spines, its flowers being 3 inches to 4 inches in diameter, of a soft primrose colour, with a rosy centre. Of all the Stapelias proper, however, perhaps *S. gigantea* is the most wonderful, having flowers 10 inches to 14 inches in diameter. This has flowered rather recently at Pendell Court, and is said to be the finest species in the whole genus. Other remarkable kinds are *S. grandiflora*, *S. Planti*, *S. pulvinata*, *S. Asterias*, *S. pedunculata*, *S. sororia*, *S. vetula*, *S. variegata*, *S. picta*, *S. campanulata*, and *S. lentiginosa*, all illustrated in the earlier numbers of the *Botanical Magazine* at a time when these and other interesting succulents were more in vogue than they are now. Few plants are more easily grown. A

dry and airy shelf in a greenhouse from which frost is excluded suits most of them if they are kept dry during the winter months. They grow best in small pots or in shallow pans in a compost of sandy loam and lime rubbish. The pots must be well drained, as the Stapelias are liable to damp off during dull weather unless they are pretty dry at the root. It is not easy to kill established plants of Stapelias at any time by too much drought, but too much moisture is injurious during winter or foggy weather, more especially if they are grown in a cool greenhouse temperature, say a minimum of 35° to 40° Fahrenheit. Now-a-days but few nurserymen make a speciality of these flowers.

F. W. BURBIDGE.



Stapelia deflexa in bloom.

culent plants yields flowers at once so peculiar, so varied in form, and so diversified in colour. If they have a drawback, it is their odour, but by growing them on an overhead shelf with a ventilator above them, their weird habit and strange star-fish-like flowers may be enjoyed without any inconvenience. The genus was named by Linnaeus after Boderus à Stapel, a physician of Amsterdam, who was specially interested in botanical studies. About seventy species are known, figured, or described, and they are all focussed on the African continent, and principally at the Cape of Good Hope. There are several allied genera, but these are still more rarely met with in cultivation. One of the most remarkable is the great Hoodia Gordoni from Little Namaqualand, as figured in *Botanical Magazine*, t. 6228. It has great, erect, Cereus-like stems, ribbed and covered

wind often got to it and wafted its large leaves about, and from its appearance when frozen I made sure it was killed. It is growing in a large tub, and when the thaw set in ten days elapsed before the frost had left the soil. It did not suffer in the least. It is described as a stove species, but from my experience it does not require so much heat as is generally supposed. *Ficus elastica*, *Pteris serrulata*, and *Genistas* in the same structure were all killed. —H. WHITTLE, Thornton Manor, Cheshire.

Hibbertia dentata.—This native of Australia stands forth almost alone among greenhouse climbers that flower at this season of the year, and as the blossoms are very showy, while the plant also possesses other desirable features, it is one of those subjects that might with advantage be more often grown. It is a plant of easy culture and free in growth, but without even a suspicion of coarseness, and is seen to the best advantage when trained to a rafter in the greenhouse or employed for covering a pillar in the same structure. It is not strong enough for large houses, and besides that the ornamental foliage and the rich golden-

Is *Latania borbonica* hardy?—I have a large plant in my charge which was frozen for five weeks at one spell last winter. The

coloured blossoms repay closer inspection than is always possible among climbers in a large conservatory. The oblong-shaped leaves are when fully developed about 4 inches or 5 inches in length and a couple or thereabouts broad, their colour being deep green, while the young leaves, leaf-stalks, and twining stems are all of a striking bronzy red hue, and that serves as an admirable setting to the bright yellow blossoms. The flowers, which are very numerous, are produced from the axils of the leaves, and composed each of five petals, the entire bloom being about $1\frac{1}{2}$ inches in diameter. This pretty climber was well shown by means of a coloured plate in *THE GARDEN*, July 28, 1888. It was introduced into this country in 1816. Cuttings of the young growing shoots taken during the spring or summer months strike root readily if dibbled into pots of sandy soil and kept close till they are rooted. For this purpose the weak or medium shoots are better than the very strong ones.—H. P.

Aystasia bella.—This, I see, is the latest name for that pretty flowering shrub *Mackaya bella*, which was introduced from South Africa in 1869, and illustrated in *THE GARDEN* ten years later. Should the new name occur in catalogues, it will be as well to bear in mind that the two are really one and the same thing. The same remarks will apply to *Combretum purpureum*, which under its new title of *Poivreia coccinea* would by many not be recognised. When names like these are once thoroughly established, it is a great pity (at least from a horticultural point of view) to change them.—H. P.

THE COOL GREENHOUSE IN MIDWINTER.

THE selection of plants suitable for furnishing a show in the cool greenhouse during the months of December and January is not an easy task. In structures where a minimum of 50° to 55° is preserved there is not the slightest difficulty in securing plenty of bloom, winter-flowering *Pelargoniums* and *Begonias*, *Bouvardias*, *Eupatoriums*, and *Sparmannia africana* being a few of the things that will furnish an abundant supply; but where the temperature for some sixteen hours out of twenty-four ranges between 40° and 45°, a different class of plants is necessary, and there are hundreds of houses scattered here and there about the country where such plants are required. In making a selection of a few things well suited to such houses, I will confine my notes to those plants that really will flower and stand well under such conditions. To take the smaller stage first, perhaps one of the very best things for this in midwinter are Roman *Hyalanthus*. Two separate pottings are essential to secure a succession, and they may be grown in pots or in small seed-pans. In the latter case seven or eight bulbs are not too many, and the result will be some grand heads of flower, that can be transferred if required to bowls or large vases for indoor decoration. Another most useful bulb for the same season, and one likely to rapidly increase in favour, is the Chinese Sacred Lily. It can be grown if necessary in bowls partially filled with water, but large seed-pans are equally suitable, and under these conditions bulb and offsets will yield a goodly supply of bloom, nine and ten spikes from one pan being not an uncommon number. A few pots of Violets are very acceptable; strong plants from April runners, potted up in early autumn and kept for a few weeks in a light airy pit, with just enough warmth to prevent damping, will give a succession of bloom for several weeks, perhaps not in any great profusion, but then even a few home-grown Violets are welcome at and about Christmas-time. *Marie Louise* is the most useful and easily grown variety. The hardiness and free-flowering character of Chinese *Primulas* render them very suitable for the cool house, and a nice batch of these may be included in the list. A flower that may be justly styled everybody's plant is *Primula obconica*, and there is a growing improvement in seedlings year after year both in size of truss and the varied markings of individual pips. Those who have a small stock of this valuable plant may increase it by division in spring, and these split-up plants make fine stuff by the end of the year. There was a

rumour that we were to have a new race of *Primulas* this year as the result of the labours of the hybridist, of which *P. obconica* was to be one of the parents, but it has not as yet made its appearance, although it may possibly be behind the scenes. Mention of *Primulas* leads me to offer a caution against the use of dry cow manure as a part of the final potting mixture, unless great care is taken to discover that there are none of the tiny wireworms in embryo in the manure when it is rubbed up, or the insect will make its appearance about the time the plants are well established, and testify to its destructive powers by eating a way clean through the collar. Another useful plant at this season is *Libonia penrhosiensis*. Cuttings struck in February, shifted as soon as rooted, and potted finally into $\frac{1}{2}$ -inch pots, using rather a stiff compost, will commence flowering in the autumn and last well through the winter. They make a very nice mixture with white and light-coloured *Primulas* with *Isolepis gracilis* and a hardy greenhouse Fern, as *Onychium japonicum*, to furnish the foliage. Among plants of larger growth it would be difficult to find anything more serviceable than a few of the free flowering Heaths, as *Erica gracilis*, *hyemalis* and *melanthera*. These as well as many hard-wooded plants, were neglected for some years in favour of soft-wooded stuff and Orchids, but they are now increasing in favour and the demand is likely to continue. What a plentiful and long-continued supply of flowers one gets from these Heaths, and they give very little trouble—far less trouble, in fact, than large batches of *Cinerarias* or herbaceous *Calceolarias*. To encourage plenty of young growth every year, to see that it is in no way injured, and to water with discrimination are the principal items towards the successful flowering of these Heaths.

A valuable winter-flowering plant for structures under notice is *Laurustinus lucida*, its large heads of nearly pure white flowers being serviceable when other choice flowers are scarce. A plant rapidly increasing in favour is *Deutsche Perle Azalea*, and if a few are grown along somewhat sharply early in the season and the flower-buds well matured, there will be little difficulty in having them in bloom at Christmas. The flowers are very useful for button-holes and for all kinds of flower work associated with personal decoration at this particular season. I was sorry to hear the other day that the heavy fogs we had immediately before Christmas had been fatal to an immense number of forced *Azaleas*. One large grower told me he had two large houses, the plants of *Fletcher's White* in which were rendered quite useless for market; in fact, the partially destroyed blooms have all been nipped out and the plants started into growth. *Camellias* may sometimes be relied on to furnish plenty of flower in mid-winter, but not always; a season like the summer of 1891 is fatal to early flowering. Following a hot dry summer we have plenty of bloom early in December, but this season it will be quite the end of January before a flower expands. I am writing of plants which are not assisted in any way by fire-heat, except to the extent of keeping out frost from the structure in which they are planted. The varieties of *Pernettya mucronata* do not seem as yet so widely known as they deserve to be; a small collection in different colours forms a very attractive feature through the winter, and the berries remain intact and bright on the plants until spring is well advanced. *Lilacina*, *alba*, *purpurea*, and *rosea macrocarpa* seem good sorts in their respective colours. A couple of dozen *Solanums* may also be grown, as these supply a colour as yet lacking in *Pernettyas*. It is well to have two batches of *Solanums*, the one of small plants (either from seed or cuttings) the other of old stuff. It is a pity *Solanums* object so strongly to the atmospheric conditions to which they are exposed in the house; otherwise they would make capital vase plants. A small batch of late-flowering *Chrysanthemums* must not be forgotten. I say a small batch, for if these plants are grown extensively for the special *Chrysanthemum* season, there may be little room to make provision for any quantity later in the year. Space, however, can doubtless be found for

two or three dozen to mix with other things. *Ethel*, *Mrs. H. J. Jones*, *Meg Merrilies*, *Ralph Brocklebank*, and *Cherub* are a few of the good late ones.

The new race of *Carnation Marguerite* is likely to be found very useful for winter flowering in cool houses, and if a pinch of seed were sown twice in the early season, say the end of January and the beginning of April, plants might be had in bloom nearly through the winter. I notice that a correspondent in a recent number chronicles an unfortunate, and to me, happily, a unique, experience with this new *Carnation*. I had no single flowers in my batch of fifty plants, and the quality was really very good. Being anxious to know if this was exceptional, I sought information from several who gave the new introduction a trial, and the following are a few replies: "Two hundred plants, 5 per cent. single; very good flowers." "One hundred and twenty plants, only three singles; colours rich and very varied." "Seven dozen plants, no singles; flowers remarkably good, some worth naming," and so on. After this, I must infer that "S. D." was singularly unfortunate. Foliage for the cool greenhouse may be had in the green and variegated *Aspidistras*, *Ficus elastica*, *Aralia Sieboldi*, *Grevillea*, *Eulalia variegata*, and the hardy greenhouse Fern previously named (*Onychium japonicum*). E. BURRELL.

Claremont.

EPACRISES IN BLOOM.

AT this season of the year the bulk of flowering plants in the greenhouse consists of *Primulas*, *Cinerarias*, and forced bulbs of various kinds, while the different varieties of *Epacris* now at their best are quite distinct from any other occupants of the same structure, and so beautiful as to give rise to the reflection that taken altogether they are really a neglected class of plants. Still, I am assured that during the last two or three years an increased demand for them has sprung up, and as far as one can now judge it is likely to be maintained. Very few nurserymen make a speciality of such plants now-a-days, although Messrs. Low's name has been identified with the culture of various hard-wooded subjects for many years, and among them the different *Epacris* figure largely. The bulk of the plants are disposed of during the autumn months in the shape of neat little specimens in pots 5 inches in diameter, and all they then need is the protection of a greenhouse, where they will flower beautifully. If the plants are not obtained till the autumn the buds will be already formed, and by keeping some rather closer than others a succession of bloom will be ensured. At the same time a good circulation of air is essential for the different kinds of *Epacris* in all stages of growth. As they are rather difficult to strike from cuttings, and good plants can be obtained at a comparatively cheap rate, the better way for anyone requiring a few is to get a dozen or two of well-assorted specimens that will flower the first season, for the propagation of these require special appliances and extra attention, which cannot always be spared them where the numbers required are very limited. In large establishments where *Epacris*, Heaths, and other hard-wooded subjects are propagated by the thousand, a structure is set apart for the purpose, so that all the surroundings may be suitable to their requirements. Where it is intended to strike a few, a frame or a shady part of the greenhouse may be set aside for the purpose. The cuttings (for which the strongest shoots should not be chosen) must be dibbled into well-drained pots, filled with very sandy peat, and covered with a bell-glass till rooted. Of course, care must be taken in shading, watering, and so on; in fact, through all the stages of *Epacris* culture the management of the water-can is an important feature, for while an excess of moisture will probably prove fatal, drought is equally bad, for the delicate hair-like fibres quickly perish. When in flower, the blooms will keep fresh in a cool greenhouse for a considerable time; while, if grown for cutting, the long shoots, wreathed for the greater part of their length with blossoms, are very effective in vases or for similar uses. After

the flowering season is over the plants should be cut back hard, and this is where the beginner often makes a mistake, as many of the plants look so nice and fresh, that they are perhaps partially shortened back, the result being that they will run up tall and get bare at the base. When cut back they should be kept rather closer for a little time till the young shoots start again, and directly this takes place the plants must be repotted, using for the purpose open sandy peat, pressed very firm, and giving the plants if needed a size larger pot than that in which they were previously growing. After that it will be necessary to keep them rather closer and syringed occasionally till the roots recover from the check, which will not be long, and when this takes place they can be kept in either the greenhouse or a frame, and towards the end of the summer may with advantage be stood out of doors for a few weeks in order to thoroughly ripen their young growth. Those that bloom naturally in autumn and early winter will, of course, start earlier into growth, and be in a condition to place outside before the spring-flowering kinds. We have not had many new varieties of *Epacris* for some years, except a few sent out by Messrs. Veitch, five of which were represented in a coloured plate in *THE GARDEN*, July 26, 1884. In these the flowers are larger and the tube shorter than in most of the other garden forms. A few of the best varieties are alba odorata, white, with a narrow tube and very sweet-scented; *hyacinthiflora*, rose, carmine, and white; *Devoniana*, crimson; *Sunset*, reddish pink; *delicata*, blush; *Lady Panmure*, white; *salmonea*, light salmon; *Vesta*, pink and white; *Premier*, rosy pink; *Fireball*, deep red; *Eclipse*, scarlet and white; *miniata splendens*, rosy red, tipped white; *Model*, pink; *Lady Alice Peel*, salmon and white; and *Diadem*, deep pink. Such varieties as *miniata splendens* and *Eclipse* do not bloom till the spring, and are in habit totally different from most of the others, which are erect, or nearly so. These two are, on the other hand, of a spreading style of growth, and where allowed to grow naturally their long and brightly coloured blossoms are seen to great advantage. H. P.

Lapagerias, distinct forms of.—Judging by an announcement of one of our leading nurserymen, we may be prepared to see some distinct forms of *Lapageria*, as the names of five are given, viz., *L. alba*, *L. rubra*, *L. gigantea*, *L. maculata*, and *L. profusa*. To the last a notice is appended to the effect that it was awarded a first-class certificate at the Manchester Royal Botanic and Horticultural Society's autumn exhibition of 1887, while a gold medal was at the same time bestowed upon *L. maculata*. As the old *L. rosea* does not find a place among the five names above given, the inclusion of it would bring the total up to six. *Lapagerias* certainly vary a good deal from seed even when the produce of the same pod, and as the different forms announced above are probably but seminal varieties, they are decidedly not entitled to specific rank.—H. P.

Costus igneus.—This used to form a very conspicuous feature in the Water Lily house at Pendell Court, and now that that most interesting collection of plants is disposed of, I only know of one place where it is to be met with, and that is in the stoves at Kew, where its richly-coloured blossoms may be often seen. It is the showiest member of a genus consisting of about twenty-five species, of which, however, but a small number are in cultivation in this country. This *Costus* is a free-growing subject that delights in a moist boggy soil, where, if planted out, the vigorous roots will push away with great freedom. The stems produced are so numerous that the plant will soon form quite a mass or clump, and in this way the cool green foliage serves as an admirable setting to the brilliant orange-coloured flowers. Each shoot is terminated by a flattened cone-like arrangement from which the flowers are produced, sometimes two or three being opened together, and as each bloom is quite $1\frac{1}{2}$ inches in diameter, they make a

goodly show. In a stove temperature and with plenty of moisture this *Costus* continues to grow more or less nearly throughout the year, and as each shoot blooms when it has attained maturity a good mass will be very seldom without flowers. This plant was introduced by M. Linden from Bahia in 1882, but it never became generally cultivated. Increase is effected by division or by cuttings of the weaker shoots, which soon root. The individual blooms are thin in texture and do not last long; therefore, they are of no use in a cut state.—H. P.

THE HIPPEASTRUM.

MANY amateurs and others who cultivate these plants fail to obtain good results, and loudly complain of the difficulty in getting their plants to flower with anything like regularity. The reason of this is doubtless owing to the treatment the plants receive under cultivation. We ought never to lose sight of the important fact that all plants require a season of growth and a decided season of rest. This applies much more to such bulbous-rooted plants as the *Hippeastrum* than it does to many others. It is now the season for growth to commence, and the best cultivators repot their bulbs at this time. We grow nearly 1000 bulbs, and there is no difficulty whatever in flowering at least 95 per cent. of them when they have passed through all the stages of their growing and resting period successfully the previous year. We are now repotting the bulbs, but before doing so the entire collection was looked over and the dried, loose outer skins cleared from the bulbs, and a careful examination made for a species of mealy bug which preys upon them. I also dust the crowns of the bulbs with tobacco powder as a further precaution. The inside wood and glass-work of the house should also be well cleaned by warm water and a scrubbing brush; it does not answer to use soft soap for this, as it takes the paint off the glass when used strong. The house and plants should be clean before beginning to repot them. Many persons thoroughly understand the various details of garden work, and manage to produce well-cultivated specimens of almost everything under their care, not heeding that their surroundings have been dirty and the plants untidily arranged. This is not fair to the plants and the gardener is not doing himself justice. It does not take more labour to keep greenhouses and hothouses clean and tidy than it does to have them in confusion.

The potting material I always have prepared about six weeks or more before the time to repot the bulbs. As it is compounded of various organic substances, it is necessary to its proper incorporation that it should lie in a heap for that length of time. I have always used about a fourth part of peat in the compost, as much leaf-mould and decayed stable manure, with some coarse white sand to keep the whole in an open porous condition. An error is often committed in repotting these plants by overpotting them. This is a mistake which cannot be remedied again until after the season of growth and of rest. One flowering bulb only should be planted in each pot, and the largest size I ever use is 8 inches in diameter, inside measurement. These are for exceptionally large bulbs, and the very largest we have ever had have girthed 18 inches, which would be nearly 6 inches diameter. Any bulbs of a vigorous growing variety which measured from 12 inches to 18 inches in circumference might be planted in this size, but only if they were well furnished with roots; the badly-rooted bulbs would go into sizes much smaller. Bulbs from 9 inches to 12 inches might be planted in 6-inch and 7-inch pots according as they were healthy or otherwise and well furnished with roots. Smaller bulbs would be left to the discretion of the cultivator, but I may add that we have four flowers from a single bulb in a 4-inch pot to seventeen flowers on a bulb in the large ones. Good free drainage is very necessary, and over the drainage some clean loam fibre to prevent the particles of soil from mixing with it. The method of procedure is this: Place some of the compound in the pot in the form of a cone, the top of the

cone to be within an inch or two of the rim. The bulb should be turned out and the old soil removed; examine the base of the bulb, remove the loose skin and any decayed or decaying matter; a little clean sand is placed on the top of the cone, the base of the bulb is placed on its apex with the roots hanging downwards over the sides of the cone; press the bulb in moderately firm and add the soil over the roots, working it in amongst them with the fingers and pressing the soil in firmly, but not using a rammer. The bulb should stand out of the soil half its depth or rather more. They do best when repotted if plunged in spent tan from a tan-yard, and I like the bottom-heat to be about 85°. There is a tendency in the bulbs to rot off if they are watered soon after being repotted, or if the atmosphere of the house is over-moist. I give them no water for about three weeks or so, and then only such of them as have fairly started into growth. The temperature of the house should be about 70° at night, and when it is seen that the plants have begun to form new roots freely they may be watered when dry and the atmosphere of the house may be moderately moist. Sometimes the flower-scapes appear before the leaves, in other instances scapes and leaves come together, and occasionally the leaves are considerably developed before the scapes appear. If the plants do well, they soon become too crowded if left in the tan bed with the rims of the pots touching each other. We remove many of them when the flowers open to the greenhouse or conservatory, where they last a long time in good condition, but as soon as the flowers fade they are taken back into a warm house again to make their growth. The removal of the plants to a greenhouse or conservatory may be expected to check their growth, which it does to a certain extent, but they do not remain above two weeks, and in that time not much injury is done. When the flowering period is over, I set to work and remove all the plants from the tan bed and mix the tan well up; sometimes it is full of small worms, and when this is the case a little quicklime is mixed with it, and it speedily destroys them. They are again replunged a little deeper in the tan, just so deep that the rims of the pots are well covered; in this state they require water about once in a week, and soon the roots push over the rims of the pots, running freely about in the tan bed. This material seems well adapted for this class of plants; they grow freely until August, when they gradually pass into the resting period, and from the end of September they receive no water again until after they are repotted three or four weeks. Seedlings of last season are now being repotted; they are good strong plants, and three or four of them are planted in a 6-inch pot. J. DOUGLAS.

Asparagus decumbens.—The plant described by "H. P." in *THE GARDEN* (p. 40) appears to agree with one which I have grown under the name of *A. procumbens*, and quite distinct from the *A. decumbens* lately offered by Messrs. Backhouse and Sons, of York. When Mr. Marshall referred to this *Asparagus* I thought it was the same as *procumbens*; however, on seeing specimens, I found they were distinct. I do not know if Messrs. Backhouse's plant is the same as that which was introduced from the Cape of Good Hope in 1792, but that is described as a greenhouse evergreen perennial, while "H. P." speaks of it as a deciduous species. Both of these have the thick fleshy roots. In *procumbens* the growths are very slender and die down to the ground annually, the roots remaining dormant three or four months. I received plants of *decumbens* about last August; they then had well-matured growths, and have thrown up fresh shoots since. In the strongest plant the growths are fully 4 feet long, the stems are slender, but wiry, the side branches from 4 inches to 6 inches long, the leaves drooping or decumbent. I think it will prove a useful plant either for cutting from or as a pot plant. It should be grown in a cool greenhouse, and succeeds well in a light peaty compost. I can send you specimens of both of the above, a friend having sent me a plant of *procumbens* for comparison.—F. H.

FERNS.

TRICHOMANES.

I RECENTLY visited a garden where some few years ago these plants were well and largely grown, but, to my surprise, the owner had gone abroad, and another man, devoted to the culture of the Chrysanthemum, had taken his place. I was disappointed at not seeing the Ferns, but was told they had been disposed of to a gentleman some few miles distant, and I went to see them in their new abode, but nearly all were dead. There is, however, a great desire on the part of the owner to get more and to grow them well, and I promised to say something about these plants in the pages of THE GARDEN. I would advise my friend to do away with the numerous little glass boxes and bell-glasses in which up to the present time his plants have been growing, and would recommend him to fit up the centre stage in the house with rockwork composed of sandstone, filling the pockets and crevices with sandy peat and loam. Before planting, the rockwork should be covered in with a large Wardian case, which should be kept in a continual state of moisture, so as to prevent any shrivelling of the fronds. I propose to enumerate with brief descriptions some of the best and most showy kinds of this beautiful family of Ferns, all of which really deserve more attention at the hands of Fern growers than they have hitherto had. I have only to call attention to the very fine Cooper-Foster collection at Kew, and to the very fine lot of these plants at the Messrs. Backhouse, of York. Most of these plants, although from hot countries, grow at considerable elevations and in wet, shady places where the sun's rays never penetrate, and they consequently do not require more heat than the temperate fernery. Some few, however, I have found thrive in stove temperature best. The following are a few of the best kinds which are in cultivation:—

T. ALATUM.—This is a large and beautiful variety. I am inclined to think two kinds are to be found in cultivation under this name. The one, however, which I consider the true plant is very variable in size, and I have seen the fronds considerably over a foot in length. It is found in several of the West Indian Islands, &c.

T. AURICULATUM.—This used to be grown well in the fernery at Manley Hall (Sam Mendel's). It is from Java and various other places in the East. The fronds, from 9 inches to 12 inches long, are produced from a creeping rhizome, the pinnae broadly ovate, but deeply cut down when in a fertile state.

T. ANKERSTI.—This is an elegant climbing species, but emitting no adventitious roots from its stem. The fronds are somewhat distant, and rich deep green in colour. It does not require so much water as many of the Trichomanes. Native of Trinidad.

T. ANGUSTATUM. A pretty erect kind, growing from 3 inches to 6 inches high; the rhizome is slender. The pinnae are very delicate, and the colour light cheerful green.

T. ANCEPS is a very fine species, producing fronds in its native country 2 feet in length and 9 inches in breadth. The largest frond that I have seen of this species in this country was about a foot long by about 6 inches across the lower pinnae. I have also some large specimens gathered by Blunt in Brazil. The ultimate segments are usually very finely divided, but the larger fronds are not usually divided, and a specimen I have from Dominica shows this broad form very distinctly. Another, again, from Trinidad has the lower part of the frond of the usual finely divided character, but the upper half is broad like that from Domi-

nica. It requires strong stove heat and a very humid atmosphere. It is known also by the names of *T. Leprieuri* and *T. elegans*, the latter being said to be the older name.

T. BAUERIANUM.—A very delicate and beautiful species. I have some beautiful specimens gathered in Norfolk Island, in the South Pacific, in 1849; these are nearly 18 inches in length and between 5 inches and 6 inches broad. They are finely divided, the colour being rich bright green.

T. BRACHYPUS.—A beautiful Fern, the fronds of which are three times divided, light green and very pellucid; the plant has a scant habit. It comes from the West Indies. I received specimens from Mr. H. Restor when in Trinidad.

T. CORIACEUM is a very handsome form, making fronds very similar to a variety named *Bancrofti*, but they differ in being more divided and in the fronds being much more crisp; the colour is pale green. This plant as well as the last-named requires warmth.

T. CRISPUM has fronds 6 inches and in some cases 12 inches in length. They are slightly hairy and form fine tufts.

T. COLENSOL.—This is a small growing plant, having slender fronds of a bright dark green and between 4 inches and 5 inches in length. It is a native of the humid forests in the interior of the Northern Island of New Zealand.

T. CRINITUM.—A charming plant, having somewhat the aspect of *T. crispum*; it is, however, more tomentose. This plant shows that although it enjoys a very moist atmosphere it does not like it overhead, so that water should not be sprinkled over the fronds. It likes warmth, and comes from Jamaica and other West Indian Islands.

T. EXSECTUM.—This is a lovely species, rhizome creeping, fronds pendent, 6 inches to 1 foot in length. As the name implies, the fronds are much cut.

T. ELONGATUM.—This is a native of New Zealand, and although included under the species *T. rigidum* of some authors, it is nevertheless for all garden purposes very distinct. It is a tufted plant, having dark green fronds, which are some 6 inches or 1 foot in length.

T. FILICULA.—This is a charming plant from the Mauritius, having somewhat the appearance of *T. pyxidiferum*; the rhizome, however, is stouter and the fronds are larger. It is an admirable plant for a Wardian case.

T. HUMILE is a delicate and charming plant with finely-cut twice-divided fronds, the segments being also finely cut. It comes from New Zealand.

T. KAULFUSSI has large fronds each from 9 inches to a foot long and some 4 inches wide. Fronds of this size I have frequently received from Jamaica, from Dominica, and from Trinidad, but I have been told it frequently attains 18 inches in height; the fronds are very woolly, the edges of the pinnae being dentate. It does best under stove treatment.

T. KRAUSI is found in most of the West Indian Islands. When with the Messrs. Rollisson and Sons, of Tooting, I frequently received this plant from Trinidad. The fronds are about 4 inches long and proceed from a very woolly creeping rhizome.

WM. HUGH GOWER.

REPOTTING FERNS.

I AM of the opinion that Ferns, as a rule, are repotted far oftener than there is any necessity for. Regularly as the season comes round the repotting of Ferns in many gardens is considered of such importance that it is attended to annually. Except for some of the species which may require extra pot room for growing on into specimens, I am of the opinion that much of the constant annual repotting may well be dispensed with, this not only saving labour and material, but also benefiting the plants. It cannot but have been noticed, especially in the case of Maiden-hair varieties, how when on being repotted the growth has not started away so freely as one would have been led to expect by the appearance of the crowns beforehand. Often have these appeared bristling with incipient

fronds, but how few have advanced out of this stage. This, I am of opinion, may be attributed to the everlasting pernicious habit of continually repotting. I have some few hundreds of Maiden-hair Ferns, which have not been repotted for the past three or four years, in pots ranging from 5 inches up to 7 inches and 8 inches in diameter. They are now a mass of large, well-developed fronds, and they have been the same each succeeding year. I am sure these Ferns would not have succeeded so well had they been repotted annually. Another advantage is they grow better in this state in a cold house or even an ordinary conservatory. The principal point is to keep them well supplied with water, as the pots being crammed with roots an almost unlimited supply is needed, also feeding well. During the summer-time our plants are watered twice daily, and at this season once a day. Whilst in full growth periodical dressings of some fertiliser are given, the fronds retaining their healthy green hue throughout the season. In the cultivation of Ferns under this system of not frequently repotting, care must be taken that the pots are efficiently drained in the first instance.

The potting on of young stock is another matter, as there must be sufficient rooting space afforded to enable them to grow to a useful size. Often where the practice of annual repotting is adopted all that is done is to turn them out of the pot, partially reduce the old ball of soil, and repot again into the same sized pot. Mutilating the roots alone is sufficient to check the development of the fronds, although by potting on young stock the balls are not mutilated to such an extent; consequently they succeed better than the older plants. Certainly there comes a time when they must be repotted, for if the soil be at all sour or exhausted they will not succeed. Letting the plants become over-dry is the evil, for with the roots thoroughly dry the plant very quickly collapses. *Adiantum farleyense* is one of the Ferns that will not succeed if allowed to become pot-bound to an undue extent. I repot ours annually, but never disturb the roots.

A. W.

Ferns for an outside window case.—I have an outside window case which I am anxious to fill with evergreen hardy Ferns, and should be glad if you will kindly give the names of varieties that would be suitable.—M.

*** *Asplenium* *Adiantum-nigrum*, *A. fontanum*, and *A. marinum*, *Ceterach officinarum*, *Lastrea Filix-mas crispa*, *Polypodium cambricum* and *P. cristatum*, *Polystichum angulare parvissimum*, *Scolopendrium Wardi* and *Lomaria alpina*.—Ed.

GARDEN FLORA.

PLATE 842.

NIGHT-FLOWERING CACTI.

(WITH A COLOURED PLATE OF *CEREUS LEMAIREI*.)

AMONG the many extraordinary forms of vegetation included in the Cactus family, the climbing night-flowering species of *Cereus* are in some respects perhaps the most remarkable. In a genus of over 200 species there are about a dozen which differ widely from all the others in habit, in the development of their flowers, and in the enormous size of the individual blooms. The difference between these and *C. giganteus* on the one hand, and *C. caespitosus* on the other, is so extreme, that even botanists might be excused if they denied their generic relationship. *C. giganteus* has a columnar stem 60 feet high and 2 feet in diameter, branching near the top. It grows

* Drawn for THE GARDEN in the Royal Gardens, Kew, by H. C. Jones, September 17, 1891. Lithographed and printed by Guillaume Severeys.

THE GARDEN
JAN 30 1892



in the desert plains of Mexico, where it is described as looking like "petrified giants stretching out their arms in speechless pain, whilst others stand like lonely sentinels keeping their dreary watch on the edge of precipices."

C. cespitosus has a tuft of little conical stems, only a few inches high, each crowned with a cluster of large, starry deep rose flowers. These and the night-flowering species (represented by that here figured) may be taken as the three extreme types of the genus, unless we go still further with some botanists, and include *Phyllocactus* along with *Cereus*.

It is not easy to interest horticulturists generally in cactaceous plants; consequently very few know of the many really beautiful garden plants comprised in the order. Take these night-blooming kinds as one instance. There are, as I have already said, about a dozen of them, every one so easy to cultivate that they cannot well be killed, growing freely along rafters, against pillars, or even back walls, asking for nothing beyond tropical warmth, sunshine, a little soil in any corner, and a little moisture in the growing season. With these conditions plants can be, indeed have been, grown, which in autumn have produced hundreds of flowers, each from 6 inches to 1 foot or even more in diameter, and delicately beautiful in form and colour beyond comparison with all other flowers. They have one drawback, namely, that of expanding only in the evening and closing again before noon the next day, never to re-open. Yet I have seen these beautiful flowers, when cut and taken into a dining or drawing-room for the evening, electrify those who saw them. It used to be the custom for those who grew the night-flowering Cactus to invite a company of friends to see the blooms expanded on the plants. The whole vegetable kingdom contains nothing more interesting, and at the same time more beautiful, than the flowers of *C. grandiflorus*, *C. Macdonaldiae*, or *C. nycticalus* when fully expanded and emitting their delicious fragrance.

That flower, supreme in loveliness and pure
As the pale Cynthia's beams, through which
unveiled

It blooms, as if unwilling to endure
The gaze by which such beauties are assailed.

C. LEMAIRI.—This has been cultivated at Kew since 1854, when it was received from Mr. Wendland, of Herrenhausen, under the name of *C. rostratus*. It blooms annually in the Cactus house, where its stems are trained against a rafter. I have seen five flowers expanded at once upon this plant. They open at about 6 o'clock in the evening and do not close until nearly noon of the day following. The stems are bluntly triangular, an

* Owing to a clerical error, the name on the plate is printed *Lemoinei*.



Cereus grandiflorus.



Cereus nycticalus.

inch in diameter, with raised points along the angles and a few scattered spines. The flowers are sometimes a foot in diameter, the sepals spreading and forming a ray round the delicate snow-white petals, which form a deep cup, containing the large cluster of delicate yellow stamens, with the star-shaped pale green stigma projecting beyond them and resting against the side of the cup. There is a good distinguishing character in this species in the large, fleshy, green, crimson-edged scales which clothe the tube of the flower, other species having tufts of hairs where these scales are.

C. GRANDIFLORUS.—The introduction of this magnificent Cactus dates back to the year 1700, when it was in cultivation at Hampton Court. It is still one of the best of its kind, growing so freely that a small cutting will in two years form a blooming specimen, and produce several fine flowers in July or August. I have seen twelve flowers all open together upon an old plant trained against the back wall of a lean-to stove. The flowers open an hour or so before dusk, and close again soon after daybreak next morning. I have tried to prevent the closing of the flowers by cutting them before the daylight came and putting them in a dark place, but they closed before noon on the same day. In this species the stems are nearly cylindrical with slight ridges clothed with star-shaped clusters of short spines. The flowers are developed from the younger part of the stem; the tube is 4 inches long, and covered with short scales and brown hairs; the calyx is composed of numerous narrow spreading sepals, bright yellow inside, brown outside; the petals form a broad cup and are pure white; the stamens pale yellow. The odour is vanilla-like and most penetrating. A hybrid between this and *C. speciosissimus* was raised by a Mr. H. Kenny, gardener to Viscount Maynard, of Dunmow, in Essex. It flowered in 1837, and ten years afterwards was figured in Paxton's *Magazine of Botany*, where it is described as having the trailing habit of *C. grandiflorus*, with the stems

and spines intermediate between the two parents, whilst the flowers are 11 inches in diameter and coloured rich red. They are as freely produced as in *C. speciosissimus*, and they have the excellent habit of remaining expanded for about three days. I am not aware that this hybrid is in existence now.

C. MACDONALDIE.—This was named by Sir W. Hooker forty years ago in compliment to Mrs. Macdonald, of Honduras, who sent plants of it to Kew, where it flowered, and was figured in the *Botanical Magazine*. It is still a feature in the Cactus house at Kew, where it blossoms every summer. It has slender, pliant stems, not ridged nor spiny, but bearing at intervals projecting hook-like tubercles. The flowers are over a foot in diameter, with yellow sepals and creamy white petals. "Certainly of the many floral spectacles that have gratified lovers of horticulture at the Royal Gardens, Kew, of late years, few have been more striking than this to those who were privileged to see the blossoms in bud and fully expanded." Sir W. Hooker wrote thus of this Cactus forty years ago, but it is just as applicable to-day.

C. NYCTICALUS is a somewhat stout-stemmed species, sometimes as thick as a man's wrist, four or six-angled, with tufts of short spines along the angles and numerous adventitious roots. The flowers are as large as those of *C. grandiflorus*, the tube covered with white hairs, the spreading sepals coloured bright orange and the petals pure white. They are produced in July and August, opening at about seven in the evening and remaining expanded about twelve hours. The species was introduced from Mexico in 1834.

C. NAPOLEONIS is very similar to *C. grandiflorus*, but inferior to it in having less brightly coloured sepals and scarcely any fragrance. The stems, too, are triangular.

C. FULGIDUS.—This first flowered at Kew in 1870. It has stoutish angular stems, the angles notched and spiny; the flowers are 6 inches in diameter, coloured deep red when in bud, orange-scarlet when fully expanded. Unfortunately, this does not flower freely. Its history is unknown, but it is supposed to be of hybrid origin.

C. TRIANGULARIS is a coarse growing climber, its long triangular stems branching freely and extending in all directions until the plant becomes a confused mass. In tropical countries this species is a favourite garden plant, being often trained up tree trunks or against verandahs, positions which afford it the abundant sunlight required to make it flower well. There is a large plant of it at Kew, which blooms in autumn, the flowers being fully 1 foot across, with green, brown-tipped sepals, pure white petals, arranged in the form of a huge cup, and bright yellow stamens. This species was cultivated at Hampton Court more than 200 years ago.

C. COCCINEUS is another red-flowered species with slender triangular stems, bearing small tufts of spines along the angles. The size of the flowers is barely 6 inches in diameter. Another species very similar to the last is *C. Schranki*, but the flowers are uniform deep crimson.

C. ROSTRATUS is like *C. Lemairi*, but it has tufts of spinous hairs on the flower-tube and stems obliquely tetraginous.

There is promising material in these night-blooming scandent species of *Cereus* for the hybridist to work upon. The production of a cross between one of them and *C. speciosissimus* by Mr. Kenny nearly fifty years ago proves that they will cross with day-flowering kinds. Has anyone tried them with *Phyllocactus*? We possess already in *C. Mallisoni* a beautiful trailing or scandent *Cactus* with large bright red flowers which remain expanded several days, and are profusely developed, and this is the result of crossing *C. speciosissimus* with *C. flagelliformis*. Then in *Cereus* or *Phyllocactus* *J. T. Peacock* we have a magnificent greenhouse plant with flowers often 9 inches across and of the richest crimson and purple colour. This was obtained by crossing *C. speciosissimus* with a *Phyllocactus*. There are here and there evidences of a revived interest in some of the genera of *Cacti*; it is to be hoped that the beautiful night-flowering species of *Cereus* will be among the favoured kinds.

W. W.

Abies Douglasi.—I am glad to see this again favourably reported on and brought under notice (page 20) as I have advocated its merits for a long time past, and it is, I think, unquestionably the most valuable of all the *Coniferae*, if regarded for its utility, besides which it is highly ornamental if its purpose that way has to be considered by planters. The only things that tell against it are that it must have shelter, and that it will not do well in exposed situations, as the young growths get injured, unless the keen winds are kept off by other trees, but if planted in woods where there are sufficient open space and light above, its progress is very rapid, as it will then outstrip the Larch. With us it makes shoots from 3 ft. to 5 ft. long in a season, and the colour of the foliage is very rich and pleasing. The soil here is light and loose, with a sandy bottom, in which in most parts of the plantations there is plenty of moisture. With such a tree to afford fine timber of home growth it seems a pity to plant such things as Spruce, which are hardly worth the labour and expense of

felling and cutting up, as the wood is so short and poor in the grain. The wood of *A. Douglasi*, on the other hand, is very tough and hard and full of resin.—S. D.

FLOWER GARDEN.

PLANTING HARDY PERENNIAL FLOWERS.

This is a wide subject in every sense of the word, and when it is either sought to glean or communicate information, the special features of any given piece of work should be steadily kept in view. As I have one or two thoughts to express on what we consider generally two different classes of plants, requiring certainly two different modes of culture, I have worded the above heading so as to include both, namely, herbaceous or border plants and alpine plants or rockery planting. It seems to me that in either of these branches one has first to decide what he wishes to grow. We should make up our minds whether the object of planting is to be floral effect, the mere culture of the plants (as for mere scientific purposes or plant propagation), or whether the object is that of growing a collection of single specimens in higgledy-piggledy fashion, irrespective of stature, colour, and effect.

When to plant is always an important question, not to say a difficult one. At the same time, it may be fair to add that only the most experienced in the culture of hardy plants can approximately judge as to when to plant different subjects, taking into account the vast variety, the wild homes of the species, their flowering periods, and the nature of the soil of their new home. Yet these same experts often find that the more they know the more difficulties they see, and that, in short, they are as liable to make a mistake as ever. Of many things, it may be said that without exception they are better planted in the spring. Other things are better planted in the spring under some irregular conditions than in the autumn. Many things are better planted in the autumn, and even more in late summer, whilst yet others must be planted in the autumn to obtain success. We see how the subject widens. Climatic, or more strictly local, conditions as regards soil and aspect have much to do with the time of planting, especially in cases where the subjects are at all particular in these respects, or the quantity and variety of species being dealt with are large. For instance, whereas one might hesitate about setting some herbaceous kinds in stiff land in late autumn, it might be infinitely preferable to set the same kinds at such a period were the land of a dry and sandy character. I can imagine that the more careful planter would divide his subjects, not only with an eye to timely planting, but for the sake of observing due care towards those known to have their likes and dislikes. So that at least one extra rule might be observed in their case when planting took place; as, say a spadeful of peat round the roots of a certain Lily; a lighter or a heavier loam, as the case might be, around the others; and again, the helpful, dryish, sandy, fine soil for such as are well known to like it.

Most people, I venture to say, grow their flowering plants for garden effect, or effect *in situ*. Take a very practical instance: You shall give one gardener £10, and give another £25 to spend in plants, and the one to whom you give the larger sum may be known to be more experienced in his knowledge of hardy flowers than the other man, but the less informed man, should he have the better tact, and keep more steadily in view the object aimed at, might succeed in getting a vastly superior effect, and

that with a much inferior set of plants than the better skilled and better financed planter might have employed. It could happen in this way: his larger funds might have been spent in considerable variety, choicer sorts of flowers, including even many gems; but from the manner in which these would require to be planted, their effect would be a mixed and indistinct one. There would be a want of feature from any one sort, or even a combination of all—at any rate of the one that was intended—and instead, all this high-class material might give an effect not much better than common plants overrun with weeds when seen at a short distance. But the more single-eyed man, of more limited means, might have put down his ten-plant groups here, his twenty-plant groups there, of such characteristic plants as Tritomas, Hollyhocks, fine Michaelmas Daisies, Phloxes, Lilies, Montbretias, fiery Lobelias, glowing Sunflowers, dazzling Peonies and Poppies, with here and there restful sheets of pure white.

With regard to the cultivation of the at once more humble and more aristocratic class of plants called alpine, we have heard a good deal in the past summer and autumn, and especially have we had the advantage of the views of experienced growers. But in nearly every case, when I have finished reading their opinions, I have irresistibly come to the conclusion that if their views had been strictly directed on a certain line, they might have been more useful, and all I mean is involved in this question: What do you mean to grow? It is well known that for bold effect you neither need expensive rockeries nor expensive plants. It is equally well known that amongst the commonest and oldest varieties of humble flowers, we have at once the majority of the most brilliantly coloured and most easily grown sorts. It is quite clear, therefore, that unless you wish to go to something beyond the bold, bright, and ornamental as rock garden features, there is not much difficulty implied, unless there should be a local one, such as is often met with in gardens near large towns, where both the land and atmosphere are more or less poisoned. Of course if you seek to grow the plants of fifty climes, that may each have their peculiar set of requirements; or if you wish to grow within, say, 100 superficial yards plants from the desert and the bog, the mountain and the meadow, and from the torrid and the frigid zones, you then set yourself a task which you may reasonably expect not only to be a difficult one, but practically unattainable without considerable risk. I know that we have experts who have all but mastered such a task, and I hope we shall ever have young gardeners and amateurs imbued with an ambition in a similar direction. I do not care so much what the motives may be, much less do I pretend to know, but of one thing I am very certain, that whenever you meet with a man or a woman (and how many ladies have we that are now sole managers and all but complete masters of this class of gardening) possessed of a rockery bedecked with such floral treasures to be seen happy and healthy, I know that long and careful study and individual care have been bestowed on such collections. The point I wish to make clear by the consideration of these facts is, that novices should not aim at such results as usually only come about in the hands of experts. And yet this seems to be the order of the day. I would therefore suggest to those who wish to construct rockeries and grow alpine flowers these simple questions: What do you want your rockery for; for effect, or for the more interesting and edifying purpose of watching and tend-

ing flowers that are favourites from other considerations than their mere effects as colour objects? Or I would again suggest the question, "What do you want to grow?" and after having made the above remarks, I think I need not further suggest that the novice, for a start, should not aim higher than a certain standard.

I have intended the drift of these remarks only as a series of hints that our aims should in some reasonable measure be directed by our practical knowledge in view of local conditions, or for what might be fairly termed a special branch of gardening. It is my good fortune to be acquainted with many ladies and gentlemen who have splendid collections of alpine flowers, and who have succeeded with the culture of all known species (with few exceptions) that have been procurable and which are not absolutely too tender for our climate. And it is the knowledge gleaned from these friends and their gardens, as well as from my own garden and everyday experience in gardening operations, that I ground the above views. It is not only much easier to speak on a subject like this in general terms, but it is practically useless, not to say misleading, for one person to give rules for others who may have a very different garden or with just an opposite kind of soil, a wide difference of rainfall, and a totally different climate. This implies, therefore, that where two gardeners are surrounded by two such opposite sets of conditions, and are yet trying to grow what might be termed a collection of plants each a duplicate of the other, there must be a great amount of artificialism introduced somewhere, and there can be no doubt about those means being largely constituted of brains and loving care. I think, therefore, that the wonder is not that our greatest experts have often to complain that they cannot keep this or that plant going, but that they have such a comparative few to complain about. Whilst there must ever be a charm about growing a vast variety of beautiful and valuable flowers on miniature Alps, it is open to question whether we do not often aim at too much variety in the one garden. By all means let those who wish, experiment. But I do think that before we teach certain styles and modes of gardening and plant culture, such methods should have been practised well beyond the experimental point, and the question, "What do you wish to grow?" with its answer, might be an indication not only as to the advisability of the intending planter taking a certain course, but as to the nature and most direct character of the advice that might be given by the experienced adviser. There are some alpine plants that have never yet been grown successfully in this country, and I do not know why it should be so.

J. Wood.

Woodville, Kirkstall.

Annual and other Grasses for the water-side.—There are a few of these to which attention might be drawn for the margins of ponds and lakes, particularly where it is seen that something is necessary to take off the stiff appearance of straight lines or gradual curves that repeat themselves. *Bromus brizæformis*, a tall Briza-like Grass growing to a height of 2 feet, would be a good one for sowing upon the margins of water. *Eragrostis elegans*, one of the best kinds for the autumn, useful also for cutting, is another. *Lagurus ovatus* (the Hair's-tail or Turk's-head Grass) is a very pretty variety, and at the same time quite distinct from anything else. *Pennisetum longistylum*, another sort growing to about 2 feet, gives further variety. *Uniola latifolia*, although not an annual, is raised from seed, and should be included, as it grows up to 3 feet in height. For planting in the water itself, *Glyceria aquatica* should be grown; it increases rapidly and

looks very well, being quite hardy. *Poa palustris* is suitable for damp or boggy places and grows to a good height.—G. H.

NOTES ON HARDY PLANTS.

Iris chinensis=fimbriata.—I have heard of late that this survived the last winter out of doors near our south-western shores, but it is well known to be much too tender for less favoured parts of England. We are in the habit of placing the hardy Irises on the level of Orchids for flower beauty. If we are permitted to do so, then by the same rule we should look upon this as the queen of Irises. It is more generally grown in a cool greenhouse in these parts than out of doors; in fact, the open air is only fit for it in the warmer seasons, but when grown indoors it flowers in January, February and March, according to the temperature, &c., of the greenhouse, and to have its beautiful flowers in the winter months is a good reason why one should so grow it, quite apart from the necessity, owing to tenderness. The flowers are indescribable in their lovely tints and delicate perfume. They are borne on strong scapes, somewhat top-heavy from their burden of numerous buds, hidden in big sheaths. These buds burst forth in pleasing succession, so that a scape may be carrying flowers for a period of a month. More than one correspondent has asked in these columns how to grow and flower it. I had never imagined any difficulty until those questions occurred, and yet perhaps the plant is the better for a little exceptional treatment. I use for it rather large, but shallow pots, and even those are half filled with crocks, so that the space for compost is very small indeed, and even then it is lumpy, composed of nodules of charcoal, small lumps of peat and of fibrous loam mixed with rough grit. Stand the pots near the glass when in the house, which should be from September to May. In the summer stand the pots in full sunshine to harden or ripen the rhizomes.

Primula longifolia.—As a ready description of this, it may be termed a giant form of *Primula farinosa*. Perhaps its foliage may be disproportionately longer and stouter. It is well worth culture, seeds well and increases, thriving under similar conditions as *farinosa*, or even in company with the common Primrose.

Pæonia albiflora.—In a sense English gardens may be said to patronise fairly well the *Pæonia*. And yet our gardens cannot claim to be up to date in *Pæonia* culture, and it is all the more lamentable when we fall behind with so noble a flower and one so essentially our own. The first point at which we lose ground is where we fail to introduce the finer varieties of this dazzling and gorgeous species which flower a month to two months later than our old favourite spring-blooming sorts of *P. herbacea*. Owing to the rich and delicate coloured sorts, of which there are several hundreds, being more or less perfumed, they become highly eligible for cutting for filling large bowls or vases for indoor use. I have seen them so employed with grand effect, and when arranged with judgment in separate bowls—white kinds of their varied tints, cherry reds of shades, delicate rose in its softest hues, and rich amaranth—they are capable (and better so without any other mixture) of dressing a table in superb style. I have, however, noticed two serious faults, in my view, in the cutting or arrangement of these flowers both for table and exhibition. When cut with short stems and without foliage, those big flowers of rich colour have simply the effect of meaningless masses of colour. The other fault I wish to point out has more to do, in the first place, with the selection of sorts. Who has not noticed in floral displays of the midsummer *Pæonies* that the sameness of form, and yet not so much the sameness of form as of size, imparts monotony of effect to the groups, however richly composed as to colour? In my humble view, we should gain a good point by growing some of the smaller-flowered kinds, and at the same time it may be worth while to select such with an eye to their form. Some of the sorts,

especially the whites with yellowish tints, have in a remarkable degree the form of Rose-buds, or, say, Roses half open. Some of these blended with the fuller-sized flowers, and pushing out from the heavier masses and intermingling with a little foliage, could not, I think, but improve the effect of an indoor floral decoration. I dwell all the more on this point, because I feel so confident that when once this midsummer-flowering group of *Pæonies* has been tested as cut bloom, it will greatly commend itself, and I feel equally sure that those who might so employ these flowers will feel glad to have some of the smaller sizes to lighten the effect of the bigger and deeper-coloured sorts. In planting *Pæonias* the crowns should not be set too deeply, and in dealing with this particular species the brittle tubers should not be broken, for the double reason that if they are, the broken parts (unlike those of *Pæonia herbacea*) will not grow unless they already possess a crown, and because if the main plant is deprived to a serious extent of its stronger tubers it may not flower well, and possibly not at all, until it duly replaces its loss of tuber strength. This *Pæony* may be planted at any time during January or February when the land is not frozen or too wet.

Origanum Dictamnus.—I fear this very beautiful plant must be classed among tender perennials. The severe winter of 1890-91 killed my strong plant, which had, however, withstood several previous winters. This is one of the losses I feel most severely. To pass one summer without the quaint and rich beauty of this Dittany, and to miss its aromatic fragrance for one season is a great loss.

Ranunculus amplexicaulis.—If the roots of this plant are examined at the present time they might be found to be suffering from a sort of canker, at a cursory glance resembling that which affects Parsnips. I have found this occur in roots whose foliage in the past season was streaked with blackish lines, and whose colour was of an unhealthy yellow. I suspect it to be a fungus. What I want to point out, however, is, that if the roots are well washed, and whilst wet well coated with dry silver sand to dry them up quickly, and then planted in pure loam, preferably with a mixture of burnt clay, the chances are that they will begin the spring growth and flourish better than heretofore. The thing to avoid with the thick succulent roots of this species is contact with anything like manure or decaying matter.

J. Wood.

Woodville, Kirkstall.

DAFFODIL DISEASE.

ANY light which can be thrown upon this subject will, I feel sure, be welcomed by all growers and lovers of Daffodils, and Mr. Wolley Dod is certainly deserving the thanks of Daffodil growers generally by endeavouring to get at the cause of the disease, and also in his endeavours experimentally to effect a cure. Many will look with interest to see the result of these experiments, though of course two seasons must necessarily elapse before any definite idea of the actual value of such experiments can be authoritatively declared. Planting a freshly imported stock of healthy bulbs, these would in inferior soil even do well the first year as a result of the matured growth of the previous summer, but to ripen and start afresh into growth in a new locality and fresh soil will be putting them to the test. Speaking in a broad sense, this basal rot appears to me to be somewhat local in its attacks, that is in its severe form, from which Mr. Wolley Dod appears to suffer to a very considerable extent, and, judging by what I have heard of Mr. Dod's soil, it is generally heavy and wet. Mr. Dod also, I believe, favours deep planting, and I should not be surprised if this does not accelerate the fatal attacks upon the bulbs, coupled with a heavy and wet soil. Nor should we overlook the matter of subsoils, since I know some gardens where heavy soils obtain, and where

the subsoil is a blue lias clay, that many kinds of Daffodils will not grow at all, and those that grow, among which the poetical section stands prominent, fail to flower with their usual freedom. On such soils as these the drainage frequently is sluggish or generally imperfect, the continuously wet and heavy soil becomes solidified in a measure about the bulbs, stagnation, or partial stagnation, ensues, root growth and development are crippled during infancy, and what follows I imagine is the natural result of impaired growth. This diminution of strength in the case of very heavy or wet soils commences from the first year of planting, I believe, even supposing healthy stocks have been planted, but it is not so apparent, because the bulb sends forth its leaves and flower, a thing perchance that healthy bulbs may do, even supposing the roots were torn off, because of the stored up strength contained in the bulb. But for the future of such an one I would not say much. Upon one point, however, I am fully convinced, and that is perfect drainage. This I feel sure is one of the greatest essentials to the well-being of Daffodils, unless it be an individual species or variety here and there. It is on account of this perfect drainage that large cultivators of the bulbs suffer but little comparatively from basal rot. Some sixteen years ago I had charge of a large private garden, where among a host of hardy plants a good collection of the best Daffodils were to be found. The usual soil in this part of the garden was one of the very worst forms of clay, and the whole of the beds and borders devoted to plants and bulbs were of necessity specially prepared for their reception. One large bed had many Daffodils, but to accommodate these it became necessary to excavate the whole of the original soil and replace it with light loam of ordinary character, rather turfy, leaf soil, of which useful material plenty existed in the woodland, sharp road grit, and a little manure, a 6-inch drainage of rough brick-bats and such like having been placed at the bottom and covered with rough material to keep it open. There is much that is important in this latter item, and particularly so to all those who have to deal with soils that are heavy or wet and but imperfectly drained. In the prepared and drained bed to which I have just referred, Daffodils were a great success ever after, and though so long ago I still retain vivid recollections of the fine size and colouring of such as *maximus*, which was left undisturbed year after year. Equally good were *Emperor*, *Empress*, *Horsfieldi*, and many more. In the same bed was a wonderful assortment of choice bulbs, while *Iris cristata* was suited to a nicety. But in those instances where the excavating of and returning soil of more suitable character would be regarded as too expensive an item to face, I would suggest raising the beds merely, or, what would be similar, digging out a trench on either side of the bed—assuming the latter took the form of a nursery bed to thus assist in carrying away the moisture, which, while highly detrimental in excess or where it settles and stagnates, is not wholly to be blamed for what we term basal rot.

Some kinds, and particularly *Ard-Righ*, can scarcely be suited in any garden, and surely if it be soil or drainage or elevation or even locality, these could all be imitated in England somewhere; but it does not seem happy, and appears to prefer a warmer home, or does it want the invigorating breezes from the sea, or is it as Mr. Engleheart has put it, "something inherent in their constitution"—a natural weakness that is only kept propped up by cer-

tain climatic conditions? The forms of *spurius* are well known to be weakly in constitution, and, like individuals, are easy victims to disease. But if we look at this basal rot in some Daffodils closely, it does not appear to attack the same varieties in an equal degree in different gardens, which points to some local influence, as soil, subsoil, drainage, &c., and it is significant in Mr. Dod's case that he succeeds with the *Tenby Daffodil* and *pallidus præcox*, which are by no means among those most easily accommodated, particularly the latter, which dies out wholesale, while scores of other varieties surrounding it are in the best possible health and vigour. In my own experience of these two kinds in this locality the soil and treatment that make the *Tenby* variety a success utterly fail to meet the requirements of the *Pyrenean Daffodil*, while in Mr. Dod's garden both thrive. Clearly, then, Mr. Dod has a suitable soil for *pallidus præcox*, while if I may be allowed to put it that way, the *Tenby* kind is accommodated in an easier way and in a greater variety of soils; not so, that it can be grown, however, in any garden, inasmuch as the Dutch and Guernsey growers signally fail in the culture of this particular kind. It is not basal failure in the case of the Dutch so much as scab, from which the bulbs recover (if not too badly affected) in this locality after a season or two. Excessive, or more strictly injudicious, manuring has a deal to answer for also, and renders the bulbs an easier prey to these fatal diseases. Manure should upon no account be placed nearer to the base of the bulbs than 6 inches, and much injury is done by its being placed in closer proximity and even in contact with the bulbs. Bulbs thus situated may as well be occupants of the manure heap altogether. But manure carefully employed is right enough in certain soils, in proof of which I once planted among other kinds some *spurius* that had become diseased while dormant through being placed in a badly ventilated cellar, and to test the manure question, among other things I planted the whole lot with manure; some were lifted annually, others biennially. Those lifted annually I manured annually to compare with the other set, which was composed at the start of the same varieties in equal quantity. To my surprise, those annually lifted and annually manured lost the disease and produced good healthy offsets, though the finer offsets were found on those lifted and manured but every second year, thus showing that even a weakly kind like *spurius* may be manured if this be done discreetly. I believe, however, that the chemical constitution of the soil has to do with success or failure in certain kinds, something either present or absent which they require or to which they are opposed. I am led to state this as my belief because, when viewed minutely from all points, a reconciliation can hardly be otherwise effected, and, so far as we can ascertain by a mere glance, no material difference exists in the soil. My own case of *Tenby* and *pallidus præcox* is an instance in point. Mr. Engleheart lays some stress on deep planting and the expansion or upheaval of the soil in frosty weather, and thinks the latter to be a probable source of injury to the base of the bulbs. I cannot quite agree with this theory, and do not think any harm is likely to ensue from this cause. I have planted many hundreds of thousands on the shallow system, *i.e.*, not more than 4 inches or 5 inches deep, but I have never seen any ill effects arising therefrom. On the other hand, round, plump, hard, and well-matured bulbs invariably follow as a result of this practice. Moreover, if by this expansion of the soil there was any "dragging on the an-

chors" at all, would not the young and tender leaves (bound, as they are, in an icy grip) be the first to yield? I think so, for in "roguing" during the flowering season the foliage snaps asunder from the neck at the slightest strain, and I cannot but think that if anything was at all in danger on this account, the foliage at the neck of the bulb would be the first to suffer.

I have not, however, noticed any ill effects in this direction, and having planted largely on the shallow system can only imagine the strain caused by frost in uplifting the soil to be but slight; indeed, if it were otherwise, the result would be very serious for the large grower who usually plants his bulbs shallow. By some, shallow-planted bulbs are said to be rendered the more excitable through their nearness to the surface, but I agree with Mr. Engleheart that deep planted bulbs have their growth quite as close to the surface in winter as the shallow planted ones. I have sometimes wondered, though as yet I have never fully tested it, whether deeply planted bulbs do not expend greater vigour in reaching the surface, and whether this apparent tax—as I will here call it—upon their energies would not more quickly exhaust the bulb than would be the case with shallow planted ones. For instance, I have dug up *Tenby Daffodils* which have been imbedded 18 inches in the soil, measured from the surface to the neck of bulb, and with a flower-stem fully 18 inches above ground as stout as one's little finger at base. All these instances were marked by extreme vigour of bulb, leaves, and flowers; but still there are say fully 12 inches of growth below ground, for which there is no necessity, and will not this, if continued sooner or later, exhaust the bulb? We do not, of course, plant at 18 inches deep, but I believe the best food as well as the most is secured to the bulbs through shallow planting. Climate I fully believe to be productive of good or bad results as the case may be, and this is why the south of Ireland is so much better than other localities for *Ard-Righ*. In this locality it does best lifted every second year, the finest flowers coming in the second season, and then they are fairly good. Hot summers, too, are absolutely essential to perfect ripening of the bulbs, but during recent years some kinds have been kept growing continuously and the foliage remained green a much longer time than is beneficial. Such a season probably is more hurtful to permanently planted bulbs than to a nurseryman's stock, because in the former case continued wet and lack of sun have kept up an excitable state far exceeding the usual limits, and who can foresee the extent of the evil thus caused, new roots, for example, while the old foliage is still green; while in a nurseryman's stock, where lifted for commercial purposes, a rest is ensured, even enforced. Planting among trees or shrubs should receive every attention from the amateur who has kinds that cannot be grown with the usual treatment, and Daffodils are by no means alone in this respect, as many Lilies are equally well suited to associate with roots of other plants. Daffodils in the vicinity of tree roots feel the benefits in this way; the tree roots becoming active as the Daffodils are on the wane, the soil around is rendered dry, an early ripening ensued, followed by a full and complete season of rest—a highly important item to continued health—and though increase would be slower under these conditions, the fact may still enable many to cultivate a few of the choicest kinds, and from which they have hitherto kept aloof. In such positions they would produce a natural and pleasing effect.

Much, however, may be done with a brick frame for choice kinds, having abundant drainage, and raised above the ordinary level, using loam of a light character, and adding fine charcoal of the size of Hazel Nuts, and sharp sand in plenty. A large number could be accommodated in a small space by using bottomless pans, or divisions may be made for each with roofing slates sunk nearly their full depth. Such a frame having the usual lights for covering would be very useful, because the proper resting season could be enforced, and heavy and continuous rains out of season could be kept at bay, and I believe most fully that many Daffodils now difficult to manage could be successfully grown by ensuring an early and perfect ripening of the bulbs and a full and complete rest afterwards.

E. JENKINS.

Hampton Hill, Middlesex.

TUFTED PANSIES.

YOUR article on page 27 begins with an altogether erroneous assumption. I did not send round for notes from people whom I knew objected to the name "tufted Pansies." I did not know they objected until after I received their notes, and then I was quite astonished at the unanimity of opinion expressed. My question, which was asked of fully a dozen well-known growers, was simply which name they thought ought to be retained. (Mr. J. Grieve, of Messrs. Dicksons and Co., of Edinburgh, was asked among the others, but he did not see fit to reply.) [He happens to be the very man whose opinion was best worth having, and thought silence the best answer.—ED.] In the columns of one of the horticultural journals I was called upon to express an opinion on the point, but I did not consider my opinion of sufficient importance to advance, and hence the course I adopted. I cannot help its not agreeing with your ideas. Viola may not be—is not, in fact, in every sense a strictly correct and satisfactory name, but it is infinitely better than tufted Pansies for the plants under consideration, as they presently exist.

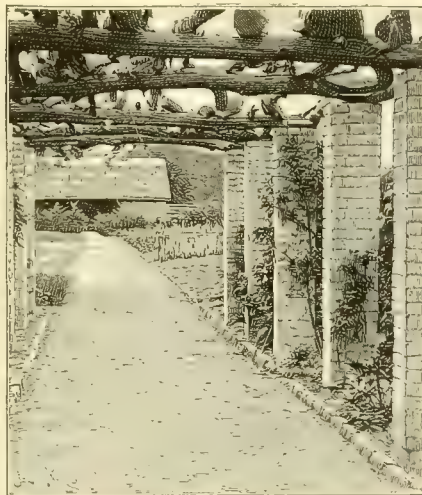
If I were to select ground on which to do battle for this assertion, I would without hesitation adopt the position taken up by Mr. George McLeod in his note.

Mr. McLeod says, "If Violas were all tufted in habit, we might retain the term tufted Pansies, but in named varieties not one in twelve is tufted." Now Mr. McLeod states what I have found to be exactly the case, and I will briefly argue the point a little further and prove how true is his contention. Whatever meaning Mr. McLeod may put on the word tufted, I know that you admit such varieties as Duchess of Fife, Ardwell Gem, Blue Cloud, Duchess of Sutherland, and Countess of Hopton to be tufted. So do I. [Thank you. We thought you did not admit the aptness of the term in any case. But as you admit this, all that is to be done is to classify the varieties rightly, and this we shall be pleased if you will do.—ED.] I also know that you have classed Marchioness of Tweeddale, Archie Grant, Columbine, Countess of Kintore, Dawn of Day, and many others of that type as tufted Pansies. Now every grower knows that none of the last mentioned are in any way tufted either in root or branch, but are exactly similar in habit to show or fancy Pansies, and not one whit more hardy or perennial in habit. Where, then, is the sense or accuracy of the term "tufted" when applied to such? [Then why not call these varieties Pansies, if, as you say, they are exactly similar? We have made no classification of these flowers, but surely Mr.

Cuthbertson can see that if certain kinds are not tufted, he can place them in their own class, and that the question of whether a Pansy is tufted or not has nothing to do with the fitness of the name for the group that is tufted.—ED.]

I humbly submit that it is surely better to use the old name with its slightly technical defect than adopt a new one, which, as things exist at present, is unquestionably misleading and practically wrong.—WM. CUTHBERTSON.

— My own impression is that these popular garden flowers are of a much more varied parentage than is generally supposed to be the case. To begin with, the garden or show Pansy is certainly not our native Viola tricolor pure and simple. It may be *V. tricolor* × *V. altaica* (*Botanical Magazine*, t. 1776), as Mr. Turner supposed, but it is more probably a hybrid of *V. tricolor* × *V. lutea*, at least in part, even if not wholly so. Then *V. cornuta* and *V. lutea* are both supposed to have been crossed with the Pansy, and *vice versa*, in order to produce the present race of tufted Pansies. I wish someone would begin *de novo* with *V. tricolor* and *V. altaica*, *V. lutea* and *V. cornuta*, and so solve the problem.



Formation of pergola with brick pillars.

Lady Mary Bennett, a daughter of Earl Tankerville, is said to have raised the florist's Pansy about 1810, but single and double Pansies are alluded to by Gerard (1597) and Parkinson (1629), and they are figured in the great "*Hortus Eystettensis*" of Besler, published in 1613.

That it was a well-known and popular English flower two or three centuries ago is attested by all the poets, including Michael Drayton, Shakespeare, and Spenser, but they were not quite our florists' Pansies of to-day. *V. lutea* is mentioned by Gerard as having been found in Lancashire in his time.—F. W. B.

— I have differed from some of the Scotch growers of these plants in thinking that the newer appellation was rather a happy one. The ordinary character of the "bedding Viola," as Mr. Stuart has it, "is to produce a dense tuft or cluster of flowers, differing in that respect from ordinary show or fancy Pansies," which are of coarse, looser habit of growth, and do not produce bloom in such profusion or for so long a time. The chief charms, apart from quality, size or colour, in the flowers of the tufted forms are their dense, free-flowering habit and fitness at once for the production of masses of colour in beds, to form carpets, or to create tufts of bloom on rockwork, for which so many of the varieties are admirably fitted. Pansy is a designation which has more of sentimental association about it than has any purely botanical designation, and far off may be the day when we shall find all old appellations for flowers ruthlessly blotted out of common use.

Stocks, Wallflowers, Pansies, Violets, Carnations, Pinks, Sweet Williams are all common names of popular flowers to which we are deeply attached.

There is much more of charm about the term Pansy than there is about that of Heartsease. Whilst florists of the old type still find distinctions between show and fancy Pansies, with these distinctions ordinary growers who want Pansies for garden decoration only have nothing to do. Probably the far larger number of such persons will prefer the fancy to any of the belted varieties for that purpose, whilst they can obtain excellent self-coloured varieties for spring or early summer bedding in the shape of what are called bedding Pansies, to distinguish at once their adaptability for bedding or the production of masses of bloom at particular seasons of the year. Few of these, however, whilst usually larger-flowered, have such bloom-enduring properties or are so very free-flowering as are the tufted Pansies, which, having the blood of *Viola cornuta*, have been so intercrossed with Pansies of many varieties, that it is really very difficult indeed for any one to clearly define where the Pansy ends and the *Viola* begins. There is nothing left in foliage or flower to remind us of *Viola cornuta*, but merely the tufted habit of growth which still marks all the best of its progeny. But for the considerable infusion of the Pansy blood into the *cornuta* type, we should never have had the wealth of varieties we now have. I strongly hold to the opinion that raisers of tufted Pansies should have not only been thankful for the appellation because simple, as well as admirably descriptive, but should also have recognised that such a descriptive term was calculated to make them popular.—A. D.

PERGOLAS, OR CREEPER-COVERED WALKS.

As a rule, pergolas are rude trellis-work structures of wood, sometimes supported by brickwork, but more often the supports are of rough tree stems. Adaptations of the pergola, as seen in Italy and other parts of the sunny south, would add to the delights of many an English garden. A creeper-clad trellis spanning a frequented walk is a most desirable feature in a garden, as it gives a contrast to the open breezy parts, and not only this, it serves as a suitable place for growing the multitude of beautiful hardy climbers we have now at our command, and which can only be seen when rambling over trees, trellises, or along the tops of walls. Some little consideration is required in deciding upon the most appropriate place for a covered way. It should lead to somewhere and over a frequented walk, and should not be erected where any line of view would be interrupted or too prominently in view, and if it can be placed so that a stranger would come upon it unawares, so much the better. The breadth, height, and length are points for individual taste and circumstances to dispose of, but if flowering creepers are desired to cover it, a pergola must not be formed under or near the shade of big trees, especially such as Elm, whose hungry roots would travel a long way to feed upon the good soil that the creepers must be planted in.

The form of the structure must also be governed by circumstances and individual taste. A simple structure is the best; the supports should be Oak tree stems, about 9 inches in diameter with the bark on, let into the ground about 2 feet; if on a bed of con-

crete, the better. The posts must be connected and firmly secured to each other by long pieces of similar size and running along the sides, while the top may be formed of small pieces fixed transversely across the top. This will make a more massive and firm structure, and the simpler it is kept, the better it will look. On no account let the rustic wood carpenter begin to adorn it with his fantastic branches, which he is usually so fond of doing. If a more polished structure is desired, the supports may be round, square or hexagonal, and the roof made of diagonal trellis-work of Oak or Teak with the meshes about 9 inches across, and instead of being flat it may be gently curved. Such a structure would be appropriate close to the house where it could be looked down upon. On a close trellis the creepers do not festoon themselves beneath it or flower so freely as in the open cross-piece trellis.

Some, no doubt, may like a variety of creepers on a trellis, but it is best covered with one or two; such, for instance, as *Laburnum* and *Wistaria*, which flower together and look beautiful in June, and never give a dense shade. Climbing Roses would cover another, Honeysuckles another, Jackman's Clematis and *C. montana* a third, and so on. In warm parts one could have the pergola covered with the lovely white *Solanum jasminoides* mixed with *Passiflora cœrulea* or *Tecoma grandiflora*. The various Honeysuckles, especially the scarlet *Lonicera sempervirens* and *L. brachypoda*, would go with the Sweet Jasmine (*J. officinale*), and up the pillars may be trained the yellow winter-flowering *J. nudiflorum*, *Forsythia suspensa*, *Cydonia japonica*, *Escallonia macrantha*, Myrtle, *Garrya elliptica*, *Chimonanthus fragrans*, *Berberis stenophylla* and others, though not strictly climbers, would drape the supports of a pergola. There is such a number of climbers to choose from, that the difficulty is to make the best selection. Care should be taken not to choose any doubtfully hardy plant, for it is annoying to find that after a severe winter a blank space has to be re-covered.

SOILS.*

THERE is no subject of more vital interest to the tiller of the ground than the character of the soil which he is called upon to cultivate. I have thought it better to eschew, as far as possible, the many interesting problems and circumstances connected with this subject, when viewed from a scientific standpoint, and to confine myself to a consideration of those questions with which the practical farmer finds himself daily confronted. For although I should probably be the last person in the world to underrate the value and advantages of theoretical science, I hold, and shall always hold, that agriculture is a science of practice, experience, and observation, rather than of chemical formulæ and physiological research; a science of the country rather than of the college; of the field and farmyard rather than of the lecture-room and laboratory. The gist of my advice this evening will not be to select a certain 6-inch cake of the soil from your field, send it to an analyst, and ask his opinion as to the kind of plants you should grow

upon your farms. To attempt to gauge the capabilities of a farm by this method is just as reasonable as to take one soldier out of an army, and to have an opinion of that army's efficiency or otherwise upon the manner in which he would perform his drill. A curious instance of the fallacy of attempting to guide the practical operations of a farm from the laboratory came under my notice some time ago. The superintendent of a very large estate in India, devoted to the cultivation of tea and other economic products, was requested by his London Board of Directors to send home for analysis samples of tea soils from various parts of the estate. On every Indian estate there are rings of earth known as *callé maté* (black earth), which are believed to be the sites of ancient village earthenware factories, and upon which no amount of cultivation or manuring will induce a single plant to grow. The superintendent sent home, without comment, a sample of this soil, carefully labelled with name and number, and judge of his surprise when a letter arrived from London, requesting that he would exert himself to the utmost to extend the cultivation of the Tea plant in the earth marked "*callé maté*, No. 17," as an elaborate analysis and careful comparison of its chemical constituents with those of the Tea plant had proved it to be admirably suited to the growth thereof. The superintendent thanked the Board for the analysis, and had the honour to inform them that the proportion of *callé maté* upon the estate was too limited for extensive cultivation. I must not be understood as altogether denying the value of chemical analysis as a means of assisting in the determination of the capabilities of soils; but I insist that its conclusions, when applied to a larger area than that of the sample actually analysed, are partial in conclusion and likely to be modified, and indeed often entirely changed, by surrounding circumstances, such as drainage, position, permeability, porosity, power of capillary attraction, evaporation of water, absorption of water, absorption of heat, and other physical conditions—a practical knowledge of which should constitute part of the stock-in-trade of every man having anything to do with the soil, whether he be farmer or gardener. Every farmer and other persons engaged in the cultivation of the soil should be able to refer any particular soil to its class, and to approximately determine its component parts and its physical character, and from these its relative fertility, and thus by some settled means the "rule of thumb" method which so many cultivators employ. I had occasion once to make inquiry of a large number of cultivators as to the character of the soil in their respective districts, and the answers I received very forcibly impressed upon me the necessity of having some standard of comparison to which soils could be referred.

Soils have been divided in various ways according to their texture, and to the variety and quantity of the substances of which they are composed. The following is perhaps one of the best of these classifications:—

1. Argillaceous soils, having over 50 per cent. of clay, and little or no calcareous matter.
2. Loamy soils, having from 20 to 50 per cent. of clay, with some lime.
3. Sandy soils, having not more than 10 per cent. of clay.
4. Marly soils, having from 5 to 20 per cent. of calcareous matter.
5. Calcareous soils, having more than 20 per cent. of carbonate of lime.
6. Humus soils, containing a large proportion of vegetable mould.

The selector or farmer can, by the exercise of a little ingenuity and the aid of the most simple apparatus, decide for himself the class to which his soil belongs. One of the most successful cultivators of agricultural land I ever knew used no other apparatus than a glass tube graduated to inches and tenths by means of a paper scale pasted on its outside, and a small flask of muriatic acid. He placed in this tube a quantity of the soil to be examined, mixed it with water, then violently shook the whole up, and allowed it to settle. In a minute or two the coarse sand settles to the

bottom, then the finer sand, then the coarser particles of clay, then the lighter and more impalpable particles, and finally the lighter humus or vegetable mould. Distinct rings of these various substances are formed, and their relative proportions can be measured by means of the graduated scale pasted on the tube. I need scarcely remark that a long, wide-mouthed bottle will serve the purpose equally well. A small quantity of diluted muriatic acid poured on a small quantity of the soil serves to show if calcareous matter be present, and the amount of effervescence set up serves to indicate in what quantity it is contained in the soil. In examining a soil with a view to determining its permanent value for agricultural purposes, certain physical facts in relation to it should first be ascertained. The first of these is

DRAINAGE.

To the Queensland farmer the natural drainage of the land which he may select is an important matter, and likely to become more so in the future. The signs of the times point to the adoption of irrigation on a fairly large scale at no very distant date. The tendency of irrigation on lands not drained by nature or by art is to raise the level of the subsoil water, and so bring it more within the range of the influence of the sun. In countries where the latter is powerful, a rapid evaporation is set up, which produces two effects. In the first place, the evaporation considerably reduces the earth temperature over the area where it takes place; and in the second place, increasing quantities of saline matters are brought to the surface and deposited there in the same way that salt is obtained in "evaporating pans," only of course in a less degree. This is the cause of what is known in India as "*Reh*," the name given to a white efflorescence which has appeared on the surface of immense areas of canal-irrigated country, rendering it as sterile as the surface of the Sahara.

THE SUBSOIL.

Upon the character of this depends to a great extent the completeness of the drainage. It should be neither so sandy as to part too readily with its moisture, nor yet so retentive as to interfere with free drainage. The requirements of a subsoil in this respect vary greatly with the rainfall of the district in which the farm is situated, and this is one circumstance which the intelligent cultivator will not fail to take into account. Coming to the surface there is no variety of soil more suited to the requirements of the general agriculturist than that known as loam. When the gardener desires a soil in which his plants will thrive, he directs his efforts to obtain a loam which he often produces by mixing together other soils and substances in the required proportions, just as Dame Nature, with the forces at her command, first wore down the rocks into the more or less comminuted substances of which all soils are composed, and then, by means of torrent, stream, river, and sea, blended them together into what we know as soils. The gardener, too, only takes a lesson from the great book of Nature in placing at the hollow of his receptacle for the soil which he has thus prepared coarser substances to serve as a free conduit for the water which, if retained around his plant, would mar all his efforts.

LOAM

is composed generally and chiefly of siliceous sand, clay, and carbonate of lime. Other substances, too, are present in smaller quantities, such as iron, in the form of peroxide of magnesia, and various other substances; seldom, however, in such proportions as to affect its nature in any material degree. Decayed vegetable matter, too, is present in most loams, and although no less a person than the great chemist, Baron von Liebig, has declared that humus exercises a comparatively small influence upon the life and growth of plants, every cultivator knows perfectly well how materially its presence enhances the fertility of his soil. A great advantage of the presence of humus in soils independently of its directly fertilising qualities, arises from the fact that in the chemical changes which it continually undergoes gases are being evolved which

* Extract of paper by Mr. P. McMahon, Curator of the Botanic Gardens, Queensland, published in the Bulletin (No. 24) of the Botanical Department, Jamaica.

act mechanically in loosening the soil and bringing it under the influence of the air and sun. Of course there are various varieties of loams, varying from a hungry loam, largely composed of sand and deficient in organic matter through all degrees of fertility, to a stiff clay loam containing a proportionally small quantity of sand, most difficult to work, and requiring expensive cultivation and often drainage. For purposes of irrigation, a light loam containing a fair proportion of organic matter and resting on a gravel subsoil, cannot be surpassed. It is on this variety of land that I have seen the very best results achieved from irrigation in India. The natives of that country—those, at least, of them who are engaged in tillage—have learned from centuries of experience that in a warm climate the soil must retain its porosity to produce good results, and they will not apply water to the surface of a variety of soils which will solidify after the water has drained off, or if they do, it will be only over such an area as can be quickly gone over with the hoe after the water has been drawn off. Where unsuitable soils have been irrigated in India with disastrous results, the fault lies not with the cultivators so much as with those who thought that the art of irrigation consisted in the erection of engineering works for the distribution of water, without any reflection as to the nature of the soil to which the water was to be applied. The proportion in which the different earths are present in loams varies considerably, often without any corresponding variation in their fertility. A good loam, and one which we may take as a standard, consists of three parts clay, two parts sand, and one part chalk. A mixture of humus will add to its fertility, or this can be supplied by manure. Such a soil, given a good sand subsoil, can be freely cultivated at all seasons; the constituent of which it is deprived by plants can be restored by the aid of manures, natural and artificial. It will have its fertility increased by irrigation, always bearing in mind that irrigation, thorough cultivation, and systematic manuring must go hand in hand, or the results will be deterioration and ultimate sterility. The aim of the cultivator who would seek to improve the character of his soil should be to bring it as nearly as possible to the condition of loam, by adding to it those substances which it lacks. Thus, if it is a stiff clay, caking on the surface after rain and retaining moisture, the natural remedy is the admixture of a sufficient quantity of sand and chalk to get it as nearly as possible to the condition above described. Soil in this condition may be improved to a very great extent by burning a portion of the clay. This process of burning destroys the affinity for water, and it becomes converted into a substance like burnt brick, which acts mechanically the part of sand, if mixed with the remaining soil, in keeping it porous, and in fact in forming it into a loam. Any admixture of a gravel containing quantities of calcareous or living matter is more useful in this respect, since it has not only the mechanical effect here referred to, but has also a chemical action upon the organic matter in the soil, reducing it to soluble forms, readily assimilable by the delicate rootlets of plants. Should the soil be good, containing too great a proportion of sand, allowing the water to run through too rapidly, then the remedy is to endeavour to bring it to a state of loam by the addition of marl. This is a word used in a general sense to indicate a very valuable factor in the improvement of certain varieties of soils. I have met in several parts of the world very different substances locally called by this generic title. Marl was formed by the collection together of vast quantities of shells, either in fresh water lakes or in torrents, and these were mixed with quantities of clay or sand. As either of these substances predominates it is called clay marl, sand marl or shell marl, and when it has been subjected to such pressure as to solidify it, it is known as slate marl—in which form it must be burned to be of use to the agriculturist. In many parts of England clay marl is largely used on light soils with the most beneficial results, while shell marl, and very frequently chalk, are largely applied to heavy soils for the double purpose of rendering

them mechanically lighter, and for the more speedy solution of the organic matter contained in them. Besides the chief constituents to which I have here referred, it will be at once seen that since all soils were formed in the first instance by the erosion of rocks under atmospheric and aqueous influences, they must contain certain proportions of the minerals which originally formed part of those rocks, and it only needs a moment's reflection to assure us that in the chemical changes which are constantly taking place in the soil these same minerals are being converted into soluble substances, which plants can take up, and by means of those wonderful natural laboratories, the leaves, convert into a part of their own substance. Of these mineral substances I will speak presently. Let us take a case of two soils called A and B. A may be rich in all the chemical constituents required for the growth of, say, the Orange plant, and found in the ash of that plant, whilst B may show some deficiency in some of those particular constituents, and yet an Orange grove on A might be a most lamentable failure, whilst B might produce a tolerably fair crop. The physical condition of the soil A may be such that the process of solution cannot take place, as is often the case with humus imprisoned in a stiff clay. Plants cannot live on the crude material. Their food must be, so to speak, cooked for them, and this is what is at the head of the system of rotation of cropping, and the practice of allowing land to lie fallow. The expression "giving the soil a rest," applied to the latter system, is a misnomer. What is really done is to give the soil time to work, time to resolve, under the influence of sun and air, the crude substances contained in it into soluble and, so to speak, properly cooked plant food. It will be seen from this that the similarity between the chemical constituents of a soil and the ashes of a green plant cannot be accepted as a criterion of its suitability for the growth of that plant, and that tables professing to guide the farmer by means of such comparisons are misleading. Again, some plants are surface feeders, and others draw their supplies from far beneath the surface. Others have their roots formed to penetrate the interstices of stony ground, and others to push their rootlets through stiff soil; and no temptation in the shape of chemical constituents approximating to their ashes will induce them to alter their predilections in these respects. The theory so brilliantly expounded by the great agricultural chemist, Baron von Liebig, that the adaptability of a soil for a given plant depended on the similarity between the often minute mineral constituents of one and the ash constituents of the other, is now thoroughly exploded in Europe under the crucial test of extended practical experiment; and I was not a little surprised to find that a large measure of credence is still extended to it in these colonies. Consequent upon the proportions which the clay, sand, chalk, and humus occupy in the soil, it possesses—

1. Permeability to water, &c.; power of absorbing and retaining moisture.
2. Power of absorbing and retaining plant foods in gaseous and liquid forms.
3. Colour.

The permeability of soils to water is of great importance, and many soils apparently similar will be found to differ largely in this respect. Fill a number of tubes of 1 inch in diameter, having the lower end closed by muslin, with soils of different samples; stand the tubes upright; and gently pour on water, filling the tube to a certain distance above the soil. It will be found that in some soils the surface will always be dry long before others. That soil which has its surface soonest dry, while holding relatively by weight the greatest quantity of water in its pores, is, all things being equal, the most fertile soil. Thus the surface of poor sand will soon be dry, but the water will all have run through, and little relative increase in weight will be recorded, while with an equally unproductive clay the surface will not be dry for a long time, though the weight will be increased considerably. The following table of the comparative ab-

sorptive powers of soils is taken from Schubler, and will be useful in this connection:—

	Water absorbed by 100 parts. Percent.	Of 100 parts of water absorbed, there evaporate in four hours, at 66° F.
Sand	25	88.4
Light clay	40	52.0
Stiff clay	50	45.7
Heavy clay	61	34.9
Pure clay	70	31.3
Humus	190	20.5
Rich garden soil ...	96	24.5

From these figures it will be seen that the richer a soil is in decaying vegetable matter the more rapidly and extensively it will absorb water, while the more slowly it will part with it. This is not only true as regards the water which falls upon a soil in the shape of rain, but also of the moisture deposited in the shape of dew and absorbed by the soil from contact with damp air. The power of absorbing and retaining plant food in gaseous and liquid form is another peculiar property which they possess. This property was well illustrated at Merthyr Tydvil when the sewage of that town was poured on to an area of sandy loam, with the result that the water came through quite clear and entirely deprived of the matters—chiefly plant foods in soluble form—which it had held in solution on suspension. This important property is much more active in soils possessing a fair degree of humus in its composition, and it is also markedly more active in soils which are porous, and soils which are well worked will absorb from the water which passes through them far more plant food in a fit condition for the immediate needs of the plant than those which are allowed to remain untilled, and this is one great reason why the surface of soils should be continually stirred and exposed to the air, from which it absorbs no small part of its supply of plant food. I have divided the plants in a large conservatory into two equal classes, of equal numbers, and in about equal states of health. I had the surface of the earth in the pots of one class continually stirred, and the surface in the other pots left untouched for four months during the growing season. The result was a most marked increase in growth and improvement in health on the part of those plants which had the surface of the soil around them constantly stirred.

The colour and texture of soil have a great effect upon their fertility by the absorption of heat. Black humus soils absorb heat far more readily than those of a lighter colour, and the heat penetrates to a greater depth. Anyone can try this for himself by sowing two boxes of seed, one in light-coloured and the other in dark-coloured soil. He will find that the seeds in the latter will germinate a comparatively long time before those in the former.

Plants derive from the soil the mineral constituents which compose their ash, and it is in the determination of the presence, or otherwise, of the mineral constituent that the chemist can aid the farmer after the latter had either chosen his soil with a due regard to its physical qualities, or, by means of judicious admixture with other soils, has brought it to a state of loam, and has so improved the subsoil as to secure the essential free drainage. The following methods, which I have used in India for the rough determination of the character of soils may prove useful:—

1. Weigh an imperial half-pint of the soil in its natural condition. The result multiplied by 150 will be the weight of a cubic foot of that soil within a fraction.
2. Dry the soil in the sun. The loss is the water with which it will part under atmospheric conditions.
3. Expose the soil to 300° F. until it ceases to lose weight. The loss on its original weight indicates the total amount of water it contains under ordinary conditions.
4. Burn whatever remains. The loss is mostly organic matter.
5. Add to some of the soil strong hydrochloric acid. The presence of lime is indicated by an effervescence. If peroxide of iron (that is, iron in its beneficial form)

is present, the acid will quickly become brown; and if black oxide of manganese is present, chlorine will be evolved, and its peculiar smell readily recognised.

6. Wash your sample of soil under a very gentle tap in a shallow dish or in a running stream, so as to get all the clay out of it. This requires some time, care and patience. What is left is insoluble siliceous sand.

7. Dissolve common soda in a small enamelled saucepan of water. Powder some of your soil; put into the water and well boil. Pour the solution into a tumbler and allow to settle, then pour off into another glass without sediment. It will be of a clear brown colour. Add vinegar or dilute hydrochloric acid, and if humic acid be present in the earth, brown flakes will fall in the solution. Poor soils possess little or no humic acid; rich soils contain much.

8. To test presence of phosphates of lime, weigh 200 grains of soil into a glass, pour half an ounce of dilute hydrochloric acid over it; stir with a glass rod. Let stand for thirty hours, then add half an ounce of distilled water; stir again and filter through a filter paper. To the clear solution add a little liquid ammonia, and if phosphate of lime be present, an amber liquid will rise to the top and float on the water.

9. Saltpetre may be determined by boiling 500 grains of powdered soil in 2 ounces of distilled water. Cool and filter. Evaporate the solution to a teaspoonful, and then dip in it a bit of the margin of a newspaper, or other unglazed paper, and sun-dry it. When dry, if nitre is present in the soil the piece of paper will burn like touch-paper.

ORCHIDS.

ORCHIDS AT CLAPTON.

On a recent visit to the Messrs. Low's nurseries at Clapton I noted some excellent varieties of the richly-coloured *Cattleya Percivaliana*. One which has been called *Lowiana* very much resembles in the markings the variety of *C. Trianae* known as *Backhousiana*, having a broad feathery central stripe of deep rose extending down the petals, which are of a lighter colour than in the majority of the forms. There were also in the same house many thousands of unflowered *Cattleya Mossiae*. There were also numbers of *Cattleya Eldorado* still in their prime, and amongst them the pure white form, which is variously known as *virginialis* and *Wallisi*. Here also I saw the first of the *C. Trianae* of the season represented by some richly-coloured examples. Past its best was a fine plant of *Laelia superbiens* bearing two spikes of bloom, the flowers richly coloured. This appears to have left off its character of being shy blooming which it used to have, as in nearly all places we see that at least every two years it sends forth its flowers. Amongst *Cypripediums*, there are several species and varieties in flower, such as *C. villosum*, *C. Amesianum*, *C. Sedeni candidulum*, *C. Harrisonianum*, and a beautiful form of *C. Lathamianum*, a hybrid raised by Mr. Latham, of the Botanic Gardens, Birmingham. Various *Angreecums* are now showing flower. Of the *Dendrobiums* from Burmah, there is a goodly show of *D. Wardianum*, *D. Findleyanum*, *D. crassinode*, all just opening. *D. pycnostachyum* is a very free bloomer. Its blooms are not showy, but they are said to be sweet-scented. *D. Jamesianum* was just beginning to open its flowers. Here the plants have done remarkably well in quite a cool house, having made very large growths with ample foliage. These large growths are developing flowers well down the stems. Other plants in warmer houses were shown me from the same importation, but the cool house plants were by far the best. One of the freest growing plants from India is perhaps *Saccolabium giganteum*, which is now displaying its trusses of blooms, which are bright in colour

and deliciously scented. The beautiful small growing *Vanda lamellata* Boxalli from Manilla is also in flower. The racemes of this are longer than in the typical plant and the individual flowers more brightly coloured, these being creamy white or creamy yellow, suffused with reddish brown, the lip purplish rose spotted with a lighter shade of the same colour. The plant is not seen so much as it deserves. *Vanda Amesiana* also appears to be a winter bloomer, great numbers being in full flower. It blooms very freely. None have yet appeared that can equal the original plant which went to America. The first plant came from a different spot, and some years before the plants which were introduced with the equally beautiful *V. Kimballiana*. *Saccolabium bellinum* is now in great beauty. This, I think, is much earlier than I

blooms, and upon each spike the peculiar dimorphism in the flowers is very remarkable. This species used to flower well some thirty years ago with the late Mr. Rucker, of Wandsworth. The plant was discovered and sent home by Mr. Hugh Low (now Sir Hugh). It was named by Lindley *Vanda Lowi*, but the German professor has removed it to the genus *Renanthera*.
WM. HUGH GOWER.

***Dendrobium Veitchianum* (W. R.).** This evidently is your plant, which you say is flowering so well. No doubt the cutting given it by the former gardener was a step in the right direction. The plant broke well, and it took several years to produce ten flowering leading shoots. I have never seen a plant with this number of flowering growths. The plant is a variety of the species known as *D.*



Pergola of wood. (For description, see p. 107.)

have ever seen it. Some plants from a new locality which are showing flower are expected to yield something new and startling. *Phalænopsis* are here in great numbers, and the spikes of flowers will indeed produce a fine effect if the fog keeps off. The beautifully spotted *P. Stuartiana*, *P. leucorrhoda*, and some very richly coloured forms of *P. Schilleriana* are amongst the most conspicuous forms yet open. Another of Boxall's achievements is the introduction in a good state of a quantity of that remarkable plant, *Renanthera Lowi*. Here are to be seen something like 100 fine well-rooted young plants of this species. These no doubt will be some years before they arrive at a flowering size. There are also some other large plants that have been established in native pots. One of these has now three of its long spikes of bloom carrying respectively seventeen, sixteen, and twelve flowers, thus making in all forty-five

macrophyllum, a native of New Guinea, but which has never yet been introduced in a living state. *D. Veitchianum* is a native of Java, where it is said to inhabit very hot, moist places, and does not appear to be a difficult plant to manage.—W. H. G.

***Epidendrum stenopetalum*.**—Flowers of this very attractive and, I think, somewhat rare species came to me from Messrs. Pitcher and Manda, of the Hextable Nurseries. The stems are from a foot to 18 inches or more high, the flowers deep rosy mauve, having a very distinct square white patch at the base of the lip. It is found in the warmer parts of Tropical America and in Dutch Guiana, so that the temperature of the *Cattleya* house suits it best.—G.

***Oncidium Jonesianum*.**—I fully agree with the observations of "W. H. G." as to the cultivation of this pretty species being greatly misunderstood. For a time I grew my plants in the *Cattleya* house, but as they appeared to be degenerating, I removed them to the warmest house, where the

growth has been much freer. I think the young roots dislike sunshine, although the curious leaves will stand a fair amount. Taking this into account, I have hung the rafts against the end of the house, the points of the roots thereby being sheltered. Being such a pretty species, it is well worth cultivating, the flowers being very useful for cutting.—A. Y.

NOTES OF THE WEEK.

A note from Newry.—Spring has set in here, and in sunny spots the Aconite is in full flower. Large masses of Elwes' Snowdrop are sheets of white, while many other kinds are opening. Crocus Imperati and Iris histrioides are lovely. I. Bakeriana continues to open its charming black-blue, white, and azure flowers. Cyclamen coum is bright and cheery. Christmas Roses and many Lenten Roses are fully open, and there is a general rush forward on the part of all spring bulbs.—T. SMITH.

Rose White Lady.—We observe in THE GARDEN of January 16, p. 62, your correspondent "Ridgewood" says he can see "very little, if any, difference between White Lady and Lady Mary Fitzwilliam." As the introducers of the former, we ask permission to say that they are very different, as we have abundantly testified by showing them repeatedly side by side at various exhibitions. White Lady was seen when in bloom here last summer by many rosarians, amateur and trade, and pronounced absolutely distinct both in colour and form of flower, many expressing the opinion that it is one of the most beautiful of garden Roses. The growth is also more vigorous than that of Lady Mary Fitzwilliam. We have good ground for supposing that Lady Mary Fitzwilliam has been sold under the name of White Lady, which may perhaps account for your correspondent's opinion as expressed in the article in question, but if he will come and see the true variety of White Lady in bloom here next summer, we are sure he will no longer have any doubt as to its distinctness.—WM. PAUL AND SON, Waltham Cross.

Phalænopsis Schilleriana.—Since the dispersal of the late Mr. Partington's famous collection of Phalænopsids at Cheshunt, no private establishment has shown the capabilities of this genus more strikingly than that of Mr. F. Wigan, East Sheen. In the matter of foliage alone, most of the plants grown there make charming pictures, some of the beautifully mottled leaves of P. Schilleriana, for instance, being over a foot in length. Notwithstanding the fogs which occurred towards the end of the year and destroyed many of the spikes of this species, there is still a fine show of bloom, some specimens having huge branching spikes carrying several scores of flowers. Taken altogether, there is no more desirable species of Phalænopsis than P. Schilleriana. Whilst not inferior to any of the species in beauty, it is the most abundant flowering of any. It is on record, indeed, that a single inflorescence has borne 174 flowers. Each blossom is $2\frac{1}{2}$ inches to 3 inches in diameter, the sepals and petals being of a delicate mauve, varying considerably in depth of shade in different plants. The lip is distinctly three-lobed, the central one of these again dividing into two outwardly curving horns; it is nearly like the petals in colour, but spotted with reddish brown, and the centre bears a yellow callus. It was introduced from the Philippine Islands in 1860.—B.

Odontoglossum pulchellum.—It is now a little over half a century since this pretty Odontoglot was first flowered in England, the credit of this feat (a more noteworthy one in those days than would be the case now) belonging to the veteran orchidist, Mr. Bateman, whose monograph of this genus is one of the classics in Orchid literature. It had been discovered in Guatemala and sent to him by Mr. Ure-Skinner. Owing probably to the wealth of Odontoglossums now available to the cultivator—many of which this species cannot be said to rival in showiness—it is not very extensively grown. Its flowers have, however, a

quiet delicate beauty distinct from that of any other species, which, combined with their charming fragrance, entitle it to a wider notice, especially as it flowers so early in the year as January and February. Its pseudo-bulbs are compressed, about 3 inches high, and bear two or three long, narrow, almost Grass-like leaves. The erect scapes carry from six to ten flowers, which, with the exception of the yellow disc on the lip, are of a pure glistening white. There are two forms in cultivation, the smaller-flowered being sometimes known as O. Egertoni, the other as O. pulchellum var. majus or var. grandiflorum; the latter has flowers about an inch across and slightly more in vertical diameter. The species is one of the most easily cultivated of Odontoglots, the deep green foliage of its thickly clustered pseudo-bulbs rendering it pleasing at all times.

PROPOSED INTERNATIONAL HORTICULTURAL EXHIBITION.

THE following preliminary prospectus of a horticultural exhibition to be held in London during the present year has been sent to us:—

The great international horticultural exhibition, to be held this year in the grounds at Earl's Court, which have been secured from the Metropolitan District Railway Co. for this purpose, will be opened on the 14th of May. It will display the state of progress of horticultural science, taste, resources, implements and plant culture at the present date; and, in addition, the various departments and exhibits will serve as models, not only for the possessors and managers of estates, but for each and every one who loves a garden. An abounding profusion of plants and flowers from all parts of the world will display their beauties of form and colour, grouped for effect in a garden charmingly laid out, both under cover and in the open, in one of the few available spaces in London. There will also be music of the highest class, the buildings and grounds will be brilliantly lighted by electricity, and everything will be done to ensure that this exhibition—which appeals so much to the great English love of gardening—shall be a success.

Here will be found examples of the gardens of all ages, including restorations of the ancient gardens of Egypt, Greece and Rome; copies of those in China and Japan, and types of the Baronia, Italian, Tudor, Jacobean, Georgian and Victorian eras. A large sub-tropical garden will also form a feature of the attractions. The Tea gardens of India and Ceylon will be represented, illustrating the growth of the Tea plant and the manner of drying and manipulating the leaves. A model cottage garden and allotment ground will be shown, demonstrating practically what can be done in a limited area.

This exhibition will be not only representative of all that is being done in the United Kingdom to promote horticulture, but, in addition, arrangements have been made whereby foreign countries, especially Belgium, France, Italy, and Germany, will co-operate to show the progress in their respective lands. This will be interesting, not only on account of the display of the beautiful objects sent over, but as demonstrating the manner of overcoming different climatic conditions, and also the careful treatment adopted abroad.

Flower and fruit shows will be held periodically. There will be flower fêtes, besides special exhibits of American plants, Orchids, herbaceous plants, &c.

Lectures and demonstrations in practical gardening will be given regularly, and competitions in garden design and in gardening operations will be held and prizes offered.

Pictures representing all phases of the art of gardening, as well as photographs of particular trees and scenes, will be exhibited, and a reference library is being collected.

There will be exhibits of new and rare and of special collections of plants; seeds; conservatories, greenhouses, methods of heating, ventilating, glaz-

ing, and general construction; garden requisites, tools, and all labour-saving machinery; statuary, vases, edgings; rockwork and fountains; seats, tents, and summerhouses; fencing; draining methods; decorations, and all objects and appliances that tend to enhance the beauty of a garden, or are necessary to its working.

Medals (both gold and silver) and certificates will be awarded by the most capable judges, in addition to considerable money prizes.

The entire net profits will be devoted to such gardening institutions as the executive committee may select.

H. E. MILNER, F.L.S., Assoc. M.Inst. C.E., Chairman of the Executive Committee.

G. A. LOVEDAY, B.A., Hon. Sec.

Temporary offices: 11, Grocers' Hall Court, Poultry, E. C.

OBITUARY.

Mr. Jas. Taplin.—We regret to learn from *Garden and Forest* that Mr. James Taplin, at one time gardener at Chatsworth, died lately at his home in Maywood, New Jersey. Our readers may have noticed letters from him now and then in THE GARDEN. We believe he established a very good business in America. He was in his sixty-first year.

Robert Parker.—We have also to announce the death on the 21st inst., at the age of 65, of Mr. R. J. Parker. For a long time Mr. Parker was well known in the gardening world of London, but during the last few years he had retired from business. He originally, in conjunction with Mr. Williams, established the nurseries of Messrs. B. S. Williams & Son, Holloway. This partnership was dissolved and Mr. Parker removed to Tooting, where he made a very interesting nursery of hardy plants.

Grafting Coniferae.—Would some of your readers give their experience in grafting Coniferae both in and out of doors, particularly the latter, as I have a few varieties of rare Mexican Pinuses that have not yet produced fertile seeds, and I have thought it just possible to increase them by grafting on P. insignis or other suitable stock. I remember about thirty years ago seeing one of the rarer Piceas grafted on the silver Fir out of doors, and doing well the first year or so, but lost sight of it afterwards.—PATULA.

Crickets in vinery.—"J. W." will find the following get rid of the crickets in his vinery: Mix two ounces of arsenic with half a pound of oatmeal and a little coarse brown sugar. Put a little of the mixture (on pieces of paper) on the floor and borders of the house at night, taking the papers up in the morning for fear of accident. I lost half a crop of Grapes in a vinery here last year by crickets eating the buds as the Vines were breaking. I was advised to try the above mixture; it cleared them all out in a few nights, and I have not seen one about the house since.—ROBT. GOODALL.

Forcing Lilacs.—I should be grateful if someone who has had experience in forcing Lilacs would answer the following questions:—

(1) Is it possible to force such varieties as Charles X. so that the flowers shall be perfectly white, and for the plant to be well clothed with green foliage at the same time?

(2) Is there any white variety which will force as readily and flower as profusely as the above?

At the present time I have medium-sized plants of the above variety with from thirty to forty trusses of beautiful white flowers on them, but they are devoid of leaves, consequently not so serviceable for room decoration as could be desired.—INQUIRER.

Names of plants.—Alec. Chalmers.—Your flowers remind me of a good variety of *Lælia peduncularis*.—Thomas Griffiths.—1, *Lælia Gouldiana*; 2, *Lælia autumnalis*; 3, *Lælia superbicus*.—Geo. Meadows.—1, *Lælia harpophylla*; 2, *Phalænopsis Stuartiana*; 3, *Dendrobium nobile album*, but very deeply coloured in the lip.—M. R.—*Lælia superbicus* Quesneliana.—J. S. W.—1, *Cattleya Trianae*; 2, *Lælia abida*; 3, *Cattleya Eldorado*.

WOODS AND FORESTS.

TOWN PLANTING.

(Continued from p. 90.)

THE MAIDEN-HAIR TREE (*Salisburia* or *Ginkgo biloba*) well merits a second place in the list of such trees as have been found suitable for planting in smoke-infested districts. So far as London is concerned, the tree must certainly hold a high place, as at no less than five districts in and around the metropolis, and such districts, too, where one is almost stifled with atmospheric impurities, it thrives with unwonted vigour and puts on a freshness of foliage tint that is quite remarkable. Even in the smoke of Chelsea may be seen specimens of no mean size, and whose appearance denotes perfect unity with their surroundings. Late in the season, and when just about to be shed, the leaves of the Maiden-hair Tree betray little evidence of the almost incessant struggle that must go on between vegetation and the smoke and filth of our towns and cities. But not only in London is the Maiden-hair Tree valued for its peculiar properties of withstanding smoke, as in several others of our large towns where the air is vitiated with impurities it succeeds in a manner that is truly remarkable. The thick shining leaves and generally robust constitution of the tree have, no doubt, much to do with its powers of withstanding long-continued exposure to the generally deleterious effects of a confined atmosphere. Another advantage the tree has is that the foliage, being stiff and shining, is readily washed by the rain, while the annual shedding of the leaves goes a long way towards casting off the sooty scum or nodules which work such havoc in rough or hairy-leaved subjects. Some people may think that the Maiden-hair Tree does not deserve a second place in the list of town trees; but my own observations and notes, taken principally in the great metropolis, lead me to believe that it is the second best town tree that we have yet become acquainted with.

THE BLACK ITALIAN POPLAR (*Populus monilifera*), though for many reasons not to be recommended for general planting, has proved itself one of the very best trees for town embellishment, it standing smoke and chemical fumes well, and as it grows quickly it soon forms a mass of green in almost any class of soil. In Liverpool and Glasgow it grows freely, while the numerous fine specimens scattered about in various stuffy parts of London tell us that the tree must not be passed over for planting in smoky localities. A word of warning is, however, necessary regarding this Poplar, and that is, it should be planted sparingly, and if possible not too near dwelling houses, for the wood is short-grained, the tree, therefore, being liable to get broken over during stormy weather. In the

AILANTHUS, OR TREE OF HEAVEN (*Ailanthus glandulosa*), we have another excellent tree of medium growth for town planting. It is able to do battle with the impurities of a town atmosphere in a certainly most remarkable manner, as may be noticed in many of the London streets and byeways. On the Continent the tree is largely used for boulevard and street planting, while at home almost every town and city can boast of its Ailanthus. Being a tree of particular beauty from its rich spreading foliage, extra value is thus imparted, while when quite established it grows with great freedom, and is a by no means particular subject as to the soil in which it is planted.

THE FALSE ACACIA (*Robinia Pseudacacia*) is another tree of the greatest value for withstanding the smoke and filth of our large towns. Even in dry, warm summers, and when most trees begin to show signs of the evident struggle they are continually carrying on, the Acacia looks bright and happy, a shower of rain causing the dusty foliage to assume that lively green tint for which the tree is so remarkable. Then as an ornamental flowering tree the Acacia is perhaps surpassed by no other, the festoons of the purest white flowers

being produced in rich abundance and imparting to the tree an appearance that well merits the share of attention it usually receives. Few soils come amiss to the False Acacia, and the rapidity with which it reproduces itself is remarkable. The best varieties for town planting are *microphylla*, *Decaisneana*, and *sophoræfolia*; while of the upright-habited kinds several are desirable. Almost by the hundred may the False Acacia be seen growing in London and most other English towns, while on the Continent it is much planted as a street and boulevard tree.

A. D. W.

(To be continued.)

NATURAL FORESTS.

In a natural forest there is a very small proportion of perfectly formed trees; and these occur only in such places as permit some individuals to stand isolated from the rest, and to spread out their branches to their full extent. When we walk in a forest, we observe several conditions which are favourable to this full expansion of their forms. On the borders of a pond or morass, or of an extensive quarry, the trees extend their branches into the opening; but as they are cramped on the opposite side, they are only half developed. But this expansion takes place on the side that is exposed to view; hence the incomparable beauty of a wood on the borders of a pond, or on the banks of a river, as viewed from the water; also of a wood on the outside of an islet in a lake or river. Fissures or cavities sometimes occur in a large rock, allowing a solitary tree that has become rooted there to attain its full proportions. It is in such places and on sudden eminences that rise above the forest level—a precipice, for example, that overlooks the surrounding wood—that the forest shows individual trees possessing the characters of standards, like those we see by the roadsides and in the open field. We must conclude, therefore, that a primitive forest must contain but a very small proportion of perfect trees; these are, for the most part, the occupants of land cleared by cultivation, and may be found also among the sparse growth of timber that has come up in pasture land, where the constant browsing of cattle prevents the formation of any dense assemblages.

In the south of Europe many of the woods are mere plantations, in which the trees were first set in rows, with straight avenues, or vistas, passing directly through them from different points. In an assemblage of this kind there can be nothing of that interesting variety observed in a natural forest, and which is manifestly wanting even in woods planted with direct reference to the attainment of these natural appearances. "It is curious to see," as Gilpin remarks, "with what richness of invention, if I may so speak, Nature mixes and intermixes her trees, and shapes them into such a wonderful variety of groups and beautiful forms. Art may admire and attempt to plant and to form combinations like hers; but whoever observes the wild combinations of a forest, and compares them with the attempts of art, has little taste if he does not acknowledge with astonishment the superiority of Nature's workmanship." When a tract is covered with a dense growth of tall trees, especially of Pines, which have but little underbrush, the wood represents overhead a vast canopy of verdure supported by innumerable lofty pillars. No one could enter these dark solitudes without feeling a deep impression of sublimity, especially if it be an hour of general stillness of the winds. The voices of animals and of birds, particularly the hammering of the woodpecker, serve to magnify our perceptions of grandeur. A very slight sound, during a calm in one of these deep woods, like the ticking of a clock in a vast hall, has a distinctness almost startling, especially if there be but little undergrowth. These feeble sounds afford one a more vivid sense of the magnitude of the place than louder sounds, that differ less from those we hear in the open plain.

In a grove we experience different sensations. Here pleasantness and cheerfulness are combined,

and the feeling of grandeur is excited only perhaps by the sight of some noble tree. In a grove the trees are generally well formed, many of them being nearly perfect in their proportions. Their shadows are cast separately upon the ground, which is green beneath them as in an orchard. If we look upon them from a near eminence, we observe a variety of outlines, and may identify the different species by their shape, while in the forest we see one unbroken mass of foliage. A wild wood is frequently converted into a grove by clearing it of undergrowth and leaving the space a grassy lawn. It may then yield us shade, coolness, and other agreeable sensations of a cultivated wood, but the individual trees always retain their gaunt shapes. As we proceed southward, we witness a constant increase of the number of species gathered together in a single group. Nature is more addicted at the north to the habit of classifying her productions and of assembling them in uniform phalanxes. The painter, on this account, finds more to interest the eye and to employ his pencil in the picturesque regions of frost and snow; while the botanist finds more to exercise his observation in the crowded variety that marks the region of perpetual summer.

Trees at Binsted-Wyck.—I think it is about two years ago since I sent you the statement of the measurements of certain trees, showing their increase in girth in a given number of years. I hope it may interest some of your readers to have this further extended according to enclosed table. The trees are measured at about 4 feet from the ground:—

	Measure- ment Jan. 1888. ft. in.	Measure- ment Jan. 1892. ft. in.	Growth in 14 years. ft. in.
Sycamore in garden	7 0½	7 10	0 9½
Cut-leaved Alder do.	8 6	9 5	0 11
Oak do.	10 0	10 11	0 11
Cryptomeria japonica do.	2 3½	4 8½	2 5½
Spanish Chestnut do. (has been pollarded)	13 10	16 4	2 6
Spanish Chestnut in park	12 7	14 4	1 9
Another do.	8 8	9 10½	1 2½
	Jan. 1880 ft. in.	Jan. 1892. ft. in.	12 years. ft. in.
Another Oak in garden	7 3	7 9	0 6
Larch do.	6 2	6 6	0 4
	Jan. 1882. ft. in.	Jan. 1892. ft. in.	10 years. ft. in.
Paulownia imperialis in garden	1 11½	2 9½	0 9½

—W. WICKHAM, Binsted-Wyck, Alton, Hants.

Picea alba.—Although this tree does not yield a very good or durable wood, it is recommended for cultivation on account of its hardness, and because it will resist the pressure of the wind even on the most exposed positions, or on very poor soil. It should, therefore, form the outer belt, say for five to ten rows on very exposed ground, and be left there as long as possible to form a permanent shelter-belt for the more valuable forest.

"The Garden" Monthly Parts.—This journal is published as a monthly and Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference purposes to the owner of the botanical volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols., price, cash, £29 8s.

"Gardening Illustrated" Monthly Parts. This journal is published as a monthly and Monthly Parts, in which the coloured plates are best preserved, and it is most suitable for reference purposes to the owner of the botanical volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts. This journal is published as a monthly and Monthly Parts, in which the coloured plates are best preserved, and it is most suitable for reference purposes to the owner of the botanical volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—A treatise describing plants of all kinds at their best, and giving directions for their arrangement in culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Containing Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10, 1891. The Lists of Gardens and Country Seats (containing over 10000) are given in a separate and extra section. Price 1s. 6d.; post free, 1s. 9d.

No. 1055. SATURDAY, February 6, 1882. Vol. XL.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

CHRYSEANTHEMUMS.

CHRYSANthemum NOTES.

THE September-blooming Chrysanthemum *Mme. Desgrange* is deservedly popular, there being but few flowers to equal it for wreath-making. It blooms in early autumn, too, and is sought after when harvest thanksgivings are held in most of our churches. A grower who cultivates thousands of this variety has no difficulty in finding a ready sale for his flowers, those most in demand being large, well-developed blooms, grown on something like the exhibition style. *Mme. Desgrange* and its sports (*Mrs. Burrell*, primrose shade; *G. Wernig*, a deeper yellow; and *Mrs. Hawkins*, a deeper yellow still) are all lovely flowers. They are, however, in the early stages of growth the most tender of Chrysanthemums. A little fire-heat will assist the cuttings to strike, and, when potted singly, a shelf near the glass in a cool house should be afforded till the end of March. Their fine roots require a light gritty mixture of leaf-mould and sand. Early in April the plants will be ready for a shift into 5-inch pots; an equal portion of loam may be employed with the leaf-mould this time. Stand them now in frames and admit air freely, but do not be too free with water for a week or two. In about six weeks they will be large and strong enough for the final potting. A similar compost to that already named, with a good quantity of rotted manure, is suitable. Pot firmly and use 8-inch pots, carefully drained. Each plant should have a stick about 2 feet long. It is well to use pieces of tile or wood to stand the pots on to prevent the drainage from getting clogged. If a good head of bloom be desired, do not pinch the shoots or disbud. In this way excellent bushy specimens can be obtained. Should, however, largely developed flowers be the cultivator's wish, then cut away about 6 inches of the single stem the last week in May. The growths that proceed from this lower part of the plant will attain a height of 1 foot or more before flower-buds appear. These buds should be secured. One plant may carry from three to six blooms, according to its strength. I have found the *Desgrange* family impatient of stimulants. An occasional watering with that made from soot or from cow manure, given after the buds are set, will assist in putting size into the blooms. In any case, err on the side of weak applications. Place the plants under glass when the flowers show colour and let abundance of air always play among them. Shade during the sunniest parts of the day. *Mme. Desgrange* and its sports are so distinct and pretty, that I fear few if any among the best of new sorts from France introduced this year will attain to their high standard of excellence. About the best is *M. Gustave Grunerwald*. It is not a tall grower, produces its blooms freely, and has not inaptly been likened to a pink *Desgrange*. *Souvenir de M. Menier* was sent out two or three years ago. It should be extensively grown. The plant is about a yard in height, and the flowers when disbudded come very large and rich deep crimson in colour. This blooms in September. *Mlle. Leonie Lassalli*, ivory-white, is another pretty early kind. The flowers are of medium

size and reflexed in form. *i Arthur Crepey*, *Mme. Leon Collin*, *Rose Lang*, *P. Radelli*, and *Grace Attick* have been well tried and found wanting.

From early varieties I should like to step to late ones so that a kind may be recommended which should be in the hands of all growers who try to lengthen the Chrysanthemum season, namely, *L. Canning*. It came from America with an excellent reputation, but as yet I have failed to get a large bloom of it. The crown-buds have a bad habit of coming blind. This has been noticed in other collections as well, nor have I seen the variety at exhibitions, so that it may be a general complaint. But this year, after observing the non-formation of the crown-buds, I let the plants grow as they liked and they made capital bushes about 3 feet high, which were covered with flowers at Christmas. The blooms are pure white and have the Japanese shape, every one filled with florets to the centre. When better known, the kind so often seen in florists' windows, *Lady T. Lawrence*, should retire in its favour. The older kind, *Virginal*, a small *Anemone pompon*, has often been named and praised. A houseful of this, grown without stopping, was among the best things seen in the way of Chrysanthemums a week before Christmas; *Golden Gem* in the same garden was very fine also. It is wonderful what a firm hold the Chrysanthemum has got, and we see on all sides a keen desire to obtain new varieties. When they are obtained this enthusiasm leads us sometimes to give them as we think extra attention. We become fidgety, and the valuable cuttings are shifted here and there, water is not allowed to touch them, and in the end we lose them by kindness or coddling. If we could but treat them in the ordinary way all would be well.

The most of our Chrysanthemums are well rooted, and are now, early February, being potted singly into 3-inch and 4-inch pots. I favour a soil chiefly of decayed leaves and sand with a small quantity, say, a 5-inch potful, of bone-dust to three bushels of the compost. This gives health and strength as the young plants grow. They will remain for a couple of weeks in the house where they have been rooted. The house is kept closed, and a sprinkling of water will be given overhead each morning. After this time I shall place them in cold frames and gradually harden them. Varieties of the incurved section, also most of the Japanese, require a long season of growth if blooms of exhibition standard are to be had. There are a few, however, which the merest tyro will have noticed very distinct and much alike in growth, namely, *Edwin Molyneux*, *Mrs. Wheeler*, and *Beauty of Castlewood*, that have given better results when struck from this time. Oftentimes the autumn cuttings get hard and refuse to root; whereas soft little tips about 2 inches long, which should be plentiful on old stools, strike root in a very short time and start away freely at once. The popular white varieties *Avalanche* and *Eynsford White* do not appear particularly happy in the depth of winter. These give capital results if taking the cuttings be deferred till now, but for whatever purpose the Chrysanthemum is intended, it is wise to finish striking by the end of this month. I have tried various mixtures for cuttings, and find cocoa fibre and sand produce roots most quickly. It can be well watered every day without becoming sour, and the cuttings seldom flag.—*H. S. S.*

—I have read with pleasure the notes by Mr. Douglas, &c., in your late issues, and should like to offer a few remarks, as during the past season I have paid great attention to the question of dividing the incurved and Japanese classes at exhibi-

tions. Some correspondents seem to totally ignore the fact that one of the primary objects of Chrysanthemum societies is to "encourage the growth of this lovely autumn and early winter flower." What I should like to know is: Do large classes of mixed blooms do as much as small separate ones in this direction? Of course I do not refer to the National Chrysanthemum Society, Birmingham, or any of the largest societies, but I have no hesitation in saying that by dividing the classes in the medium and smaller societies much is done to stimulate and increase the number of growers. Many of the smaller growers will become exhibitors when they find classes to suit them. I know many growers who are very successful with one section, while they quite fail with the other. Consequently, they can only compete in the smaller classes; whereas, if the best (*i.e.*, most valuable prizes) were separate, they could at any rate go in for one section. At our (the Leicester and Midland) show last November the experience was quite contrary to that at Hull. The classes were divided, and the entries were ten 24 incurved and eleven 24 Japanese against three 48 mixed blooms for the preceding year. Now, which did most to encourage Chrysanthemum growing, the show which brought eleven exhibitors, or the one with three? From the tone of the exhibitors, the committee, and the public, there is little fear of the "open classes" being joined again for some time.—*W. BELL, Leicester.*

SEASONABLE NOTES.

THE earliest struck batch of cuttings will now require to be potted, no matter for what purpose they are intended. I find the cuttings have struck better this year than they did last, owing mainly to their not being subjected to so much dull weather, consequent on the long frost at the end of 1890 and the commencement of 1891. It is a mistake to allow the young plants to become root-bound before they receive their first shift. A good foundation is the only safe road to success, and this cannot be secured by crippling the plants at first. Where the cuttings were inserted singly in small pots, no check whatever will be given to the growth by potting, but where three or more cuttings were struck in one pot, some check must necessarily occur in removing them, no matter how carefully this is done. My advice is to always strike singly in small pots. Pots 3½ inches in diameter are large enough for the first shift, and from the 3½-inch the next shift will be into 5½-inch pots, and finally into 9-inch pots, in which the plants will flower. The compost for the first potting should consist of two parts fibry loam, one part leaf-mould and one part spent Mushroom-bed materials, with the addition of some sharp silver sand, the quantity to be regulated by the kind of loam; if this be heavy, add more sand. Crushed charcoal is good for the plants when the loam is heavy, as it not only keeps the soil porous, but acts as a store-house for ammonia. If the soil is moist when used—as it should be—no water will be required for a day or two afterwards. The soil ought to be pressed moderately firm into the pots to induce a fibrous root-action right through the soil.

The best position for the plants after potting is on a shelf close to the glass in a cool house, where they will obtain abundance of light and air. No artificial heat whatever should be given at this stage, except, of course, to keep out frost. What is wanted is a stout, robust growth without in any way being drawn up weakly, and this cannot take place if the plants are subjected to much heat. If shelves do not exist, temporary ones can be put up by the aid of boards, some stout wire and a few screws fixed to the main rafters of the house, on which the wires are suspended which support the shelves. On each side of the shelf there should be a groove to run the water off to one end.

The question as to what the plants are intended for must quickly be decided after the first potting. If large blooms are required, it is best to allow the plants to grow naturally for a time, that is, with one single stem, until the first or natural

break occurs. From this point a number of extra shoots will be made, and from these one must be selected. The time of the first break varies according to circumstances, such as the variety in hand and the time at which the cuttings were inserted. Some varieties will enter on this stage the first week in April, others will not for six weeks later. By allowing them to grow somewhat in a natural manner the growth becomes solidified as it progresses, and without maturity of the wood or growth, blooms of high quality cannot be expected. In the case of specimen or bush plants grown for the number of their flowers rather than for their individual quality, the plants should be topped at 4 inches high to induce additional growths to form the future bush. Where space is limited and a quantity of flowers is required, this method of growing the plants can be recommended. Now is a good time to insert cuttings to form small bushes, which will be found extremely useful for decoration, and hide the stems of taller plants. Two cuttings inserted in one pot, afterwards grown on together, is a good method of obtaining large bushes with a minimum of labour.

E. M.

ORCHIDS.

SCHOMBURGKIAS.

I HAVE flowers of a species of this genus from J. Gibson and "J. H." for a name, the former saying he has three spikes which have been in full beauty for a month. It is just fifty years since its discovery by M. Linden, of Brussels. The name is given to commemorate the well-known traveller in British Guiana, Sir Robert Schomburgk. The genus is very nearly allied to *Lælia*, but *Schomburgkias* differ in having the sepals and petals nearly equal, and in having the flowers arranged in a loose panicle at the end of a very long scape. In this latter feature *Lælia superbiens* comes very close. All are strong growing, some of them having hollow pseudo-bulbs when they have matured their growth. *Schomburgkias* require a strong temperature, and the best place to grow them is along with the *Cattleyas* and *Lælias* and at the warmest end of the house. During the season of growth they should have an abundance of moisture in the atmosphere. There are several species which may be subjected to a slightly lower temperature during the resting season, but all like full exposure to the sun in summer, saving during just the middle of the day, when a slight shading will be necessary. In potting they should be treated like the *Cattleyas* to good brown peat fibre mixed with a little chopped *Sphagnum Moss*. Growing upon rocks naturally, these plants like good drainage under cultivation, and being of large growth, a greater depth of soil may be given.

S. UNDULATA.—This species is here noted first because I have flowers now to hand. It first flowered in Mr. Rucker's collection at Wandsworth, he having received it from M. Linden, its discoverer. There is some slight variation in the colour of these flowers, but it is only in the lighter or darker hue of the sepals and petals, and from this "J. H." said he thought it was *S. crispa*, but this is a different plant. In *S. undulata* the sepals and petals are equal, much crimped on the edges, nearly 2 inches across, and of a uniform deep reddish-brown, having a three-lobed lip of bright rosy-purple. The plant is of strong growth, making stout fusiform bulbs nearly a foot in length, bearing a pair of leaves each upwards of 6 inches long, which are leathery in texture and deep green in colour. From between these rises the scape, which is from 2 feet to 5 feet in length, bearing the flowers upon the apex. The number of the flowers varies; the imported spikes show the scars of as many as twenty blooms, but I do not think the cultivated plant has produced more

than six or twelve. It is found in Venezuela, New Grenada, and Caracas, thus having a somewhat wide distribution, which will account for the variation in the colour of the flowers.

S. CRISPA.—This plant, on which the genus was established by Lindley, was discovered in Guiana growing upon trees. It is smaller than the last-named species, and its fusiform bulbs are somewhat compressed, bearing a pair of lanceolate leaves some 9 inches long. The scape rises from the apex of the bulb and varies from 2 feet to 3 feet in length, the flowers being some 2½ inches across; sepals and petals about equal, much crimped on the edges, tawny-yellow; lip three-lobed, rosy-pink. It varies somewhat in its markings, and one of its forms is figured under the name of *S. marginata*.

S. HUMBOLDTI.—This is a rare plant in collections, the growths stout, the flowers large, and the sepals and petals of a lilac-mauve. The large three-lobed lip is bright purple with a yellow disc.

S. LYONSI, named after Mr. Lyons, of Mullingar, by Dr. Lindley, was long anxiously looked for. I think it has been successfully imported by Mr. James O'Brien from Jamaica, whence it was originally said to have been brought. It is of strong growth, its fusiform bulbs being from 9 inches to a foot long, bearing two or three oblong leaves, which are each nearly a foot in length. The scape is 3 feet or more in length, terminated by a many-flowered raceme. The sepals and petals have a ground colour of white, which is more or less spotted with rich purple. The lip is of the same colour, with several raised fleshy ridges.

S. TIBICINIS.—This was first sent home by Mr. Skinner nearly sixty years ago. It was afterwards sent home to Mr. Bateman, then a large grower of Orchids at Knyppersley, who succeeded in blooming it, and it was figured in his "Orchidaceæ of Mexico and Guatemala," t. 30. It makes stout ribbed bulbs, which are each from 1 foot to 2 feet long, bearing two to three leaves. The scape is a yard or more long, but in its native home I am told this often rises 10 feet in height, bearing near the end a large pyramidal panicle of handsome flowers each nearly 3 inches across; the sepals and petals beautifully undulated, dark brownish purple inside, becoming paler towards the base; lip large, three-lobed, the lateral lobes deep mauve-purple on the outside, anterior lobe short, deep rosy-purple in the front, paler in the centre. The throat and inside of the side lobes are rich yellow, streaked and veined with reddish-purple.

S. ROSEA.—A species from Santa Martha. It is said to be the finest of all the *Schomburgkias*, and if so, the sooner it is re-introduced the better. In growth it resembles the other species, the sepals and petals rich deep red, the lip of a bright rose colour.

S. THOMSONIANA.—Named by Reichenbach in honour of the gentleman with whom it flowered some five years ago. It is said to be a miniature *S. Tibicinis* in growth. The flowers are some 3 inches or more across; the sepals and petals undulate, creamy-white, passing upwards into tawny yellow; lip three-lobed, the side lobes white without, the inside streaked with purple, and the front lobe very deep purple.

WM. HUGH GOWER.

Restrepia antennifera.—Ignored to a great extent as this Orchid is, there are few others in cultivation whose flowers display such rich and exquisite colouring. Their comparatively small size and the fact that they rarely appear on a plant in sufficient numbers at any one time to make a striking display are the reasons probably of its neglect. Yet for those who appreciate a combination of the curious and beautiful in plant life this Orchid may be recommended, especially as it flowers for at least four months in the year. It has slender stems about the thickness of a straw and about 5 inches in height, bearing at the top one leathery cordate leaf, usually with a marked purple tinge. It is at the union of the leaf with the stem where the flowers are produced, and they occur singly on very slender

almost thread-like stalks a few inches long. The beauty of the flower consists chiefly in the two lower sepals which, being united, form one broad oblong segment 1½ inches long, which occupies the position of the lip, and is, indeed, usually mistaken for it. The ground colour is a rich yellow, but this is thickly striated with lines of velvety crimson. The other portions of the flower are small, but the petals are noticeable as bearing a curious resemblance to the antennæ of some insects, being almost thread-like except at the tips, which are inflated. The altitudes at which this Orchid is found, from 6000 feet to 12,000 feet, denote the necessity of cool treatment; it may, in fact, be treated in every respect like the cool *Odontoglossums*.

Lælia superbiens Quesneliana.—"M. R." sends flowers of this plant asking if it is a named variety and if it has been figured. He will find this form figured in the 8th vol. of the "Orchid Album" (t. 383). It is like the typical plant in every respect saving in the colour of the flowers. The sepals and petals of the flowers now before me are of a deep rosy purple, the lip deep crimson-purple in the side lobes, the front lobe being bordered with rich magenta-purple, the throat and back part deep yellow. It is a very charming variety, and "M. R." says it flowers regularly every January.—W. H. G.

Odontoglossum blandum.—This species of *Odontoglossum*, at once one of the rarest and most charming in the genus, is a native of the Eastern Cordilleras of New Grenada, where it occurs in a now restricted area at elevations a little above and below 6000 feet. It is a dwarf plant with compressed pseudo-bulbs bearing a pair of leaves 6 inches to 8 inches long. From four to ten flowers are borne on a raceme. The sepals and petals, each of which is a little over an inch long, are white spotted in an irregular fashion with reddish-purple. The lip, which is considerably broader than the petals and toothed at the edges, is also white and spotted. The species was originally discovered by Blunt about 1865. It was afterwards gathered by Roezl, but neither of these collectors succeeded in getting any plants to Europe alive. Indeed, it is said that no species of *Odontoglossum* suffers so much as this in the process of transportation from its native place to Europe, many thousands having perished in this way. The first plant to flower in this country was in the Royal Horticultural Society's garden at Chiswick. A plant is now in bloom in the Clare Lawn collection.

SHORT NOTES.—ORCHIDS.

Orchids from Cheltenham.—Mr. Cypher sends me some very nice forms of *Odontoglossum Alexandræ*, with broad round petals; *Masdevallia tovarensis*, still in great beauty; and a fine form of *Dendrobium Phalaenopsis Schroderianum*, beautiful in colour and large in size. W.

Odontoglossum luteo-purpureum.—T. Wheeler sends me a spike of an *Odontoglossum*, asking if I think it is *O. Wilckeanum*. It is the above-named plant, and not a first-rate form. This species is widely distributed, and consequently varies much in quality. *O. Wilckeanum* is a natural hybrid and not very common.—W. H. G.

Odontoglossum Oerstedii majus (D. Phippen).—This is the name of your specimen. It is undoubtedly the *majus* variety, the flowers being quite half as large again as any I have seen. Moreover, it has the branched spike, which I always associate with the *majus* form of this species. The flowers are pure white, with a stain of yellow at the base of the lip, dotted with orange-yellow on the crest and charmingly scented.—W.

Lælia anceps Hilliana.—This is a remarkably fine form of this variety, which comes from T. Thompson. There are five flowers on the spike, the individual blooms large and pure white in the sepals and petals; the lip also pure white; the tips of the side lobes and the front lobe being bright pink; the throat rich yellow, streaked with lines of reddish-crimson. It is one of the oldest of the white forms of *anceps*.—W. H. G.

Odontoglossum Lindsboroughianum.—"J. K." sends me flowers of a very good variety of

this plant and asks what causes the bulbs to rot so quickly. Perhaps they get some drip upon them from the roof, or perhaps they are treated to sprinklings from the syringe, either of which it dislikes. This plant likes the temperature of the Cattleya house and to be well exposed to the sunlight. It also likes an abundance of fresh air.—W.

Dendrobium nobile album.—From Mr. Norman, gardener to Mr. Dorman, The Firs, Laurie Park, Sydenham, comes a flower of what appears to be this variety. The sepals and petals are pure white, the lip also white, stained at the base with pale rose. The lip, however, is more pointed than that of most nobile flowers, and it has somewhat the appearance of a hybrid between *D. nobile* and *D. transparens*. These two species, I believe, are found together. I should like to see this again when the plant is stronger.—W. H. G.

ROSE GARDEN.

PRUNING ROSES.

THIS is one of the most important points in the cultivation of Roses, and yet it is one where very many growers make a great mistake. Most jobbing gardeners consider it a very simple thing to prune a few Roses, and so it is when looked at from their standpoint, viz., to cut them back to a certain length. Almost all classes of Roses have some peculiar characteristics, and want pruning accordingly. I know a garden where some grand standards of Gloire de Dijon and Mme. Berard have been growing for the past six or seven years, but I have never seen half a dozen flowers upon either of these plants at one time. "My Roses grow stronger than yours, and yet they do not flower so freely," is a remark that has often been made to me. This is often due to a wrong system of pruning. To prune Roses with the sole object of securing good and symmetrically-shaped plants is as unreasonable as pruning fruit trees with the same object in view, and the result is the same—in the one instance few Roses, in the other not much fruit. And yet we often see the stronger growing Roses cut back almost as hard as such varieties as Baroness Rothschild or Louis Van Houtte. What is the result of such treatment? All of the strong growers make more shoots, if anything even stronger than before. Consequently, the symmetry of the plant is not improved in the end, and one does not obtain a sufficient quantity of blooms to induce the cultivation of these strong-growing varieties. You should never use the knife freely amongst these rampant growers. Cut away all weakly side growths, and also any immature points of the long rambling shoots. When pruned in this way, flowers are produced from almost every one of the properly matured eyes upon the strongest shoots. In the case of standards, allow the shoots to droop or weep, which they will do in a very pretty and natural way as the weight of the foliage and flowers increases. These vigorous growers are excellent varieties to cultivate in the form of standards, because their vitality is so much greater and they will maintain the Brier stock in a more healthy state. Where these kinds are used as climbers on walls or arches, or as pillar Roses, the same system of pruning should be followed, making the growths secure in the position desired. A great deal depends upon the summer-pruning of climbing varieties, as unless the growths that have flowered are removed soon after the blooming is over, much of the strength of the plant that should have gone into the vigorous young shoots that will carry quantities of flowers for the next season is lost. All of the strong growers make a number of short side growths, but these are of no real value, and will require cutting away when the plants are pruned

during the following spring. It is much wiser, therefore, to cut them away at once, and so let the strength go into those growths that are left upon the plant to flower. You will not find the cuts bleed to any extent, as the sucker-like shoots from towards the base of the plant will soon use all the sap.

The strong growing varieties of Teas, Noisettes, Bourbons, and in fact almost any of the climbers should be pruned in this way. Very few people would think of cutting away the long summer growths of Maréchal Niel, and yet they do not treat other climbers in the same rational manner. Strong growers, when first received from the nursery, should be cut down hard as soon as they are planted. Not being established, they are unable to throw and properly support any flowers. It is better to cut away the wood at once, as otherwise drying winds will absorb the little sap, and a great strain will be put upon the roots for any moisture they may be able to supply; and not being established, and also in a dormant state, the result is that the plants often gradually dry up and perish. The very strong growing Hybrid Perpetuals should be pruned in the same way as the climbing Teas and Noisettes, and instead of using this class for wall or pillar Roses, it is much better to plant them in beds and peg the long shoots down each spring. These kinds rarely flower well more than once during the summer, and far more success is obtained with them when summer-pruned as advised for the Teas, good growths being secured for pegging down the following spring. When the strong shoots of Hybrid Perpetuals are trained perpendicularly, they are apt to break into growth from the few top eyes only; hence the advisability of pegging them down. Teas and Noisettes are inclined to break from all of their eyes in a much more even manner than the Hybrid Perpetuals, and this is the reason that these classes are better adapted for climbers and pillar Roses. Hybrid Perpetuals, Tea-scented, Noisettes, and Bourbons of the shorter and more compact-habited kinds should be somewhat hardly pruned. Cut these back to from 4 inches to 9 inches of the point they were pruned to the previous year. The weaker the grower the harder you should prune it. Do not be afraid to cut away the growths of such kinds as may have made young shoots some 2 inches to 4 inches long. This will often be the case during a very mild spring, and it is always the top eyes on the shoot that are the first to start. It is of very little use leaving these with the hope of securing early flowers, as they seldom come to anything owing to late spring frosts. Personally, I like to see a few of these premature growths, as they get the roots of the Rose into active work, and at the same time retard the more useful eyes near the base of the shoots. These eyes break into growth very rapidly after pruning, and a quick, unchecked growth will soon catch up and pass any that was much forwarder, and so received a check from a slight frost or cold unkind winds. An uninterrupted growth also produces better and more perfect flowers. It is when the early shoots receive a check that the buds bind or else burst with green cores in the centre of the flowers.

This brings us to another important point, viz., when to prune the Rose. This varies very much according to the season, a cold, late spring making it advisable to defer the operation, sometimes as much as a month later than the previous season. One of our large amateur growers says, "Prune about a fortnight previous to the last spring frost." This is the correct time, and although it is a difficult matter, you must judge as nearly to it as possible. This

will also be a better guide than any dates, because sheltered places in the south and west and high-lying situations will escape many of the late frosts that would injure Roses growing in low-lying districts or in the north and northern midland counties. As I remarked earlier, do not be in any hurry to prune, simply because some of your plants are commencing to grow. Some varieties are particularly early. Marquise de Castellane, for instance, will often have several inches of young growth while other varieties are quite dormant under similar conditions. Large and thoroughly established specimens of varieties other than climbers may be pruned freely and have a great part of their centre wood cut away entirely. It is better to prune to an eye having an outward direction, but this need not be made such a hard and fast rule as many act up to, because the young growth will naturally turn towards the greater light and air. Finally, think a little before cutting away any healthy and well-ripened growth, as it will take twelve months to replace it should you happen to prune away the wrong shoot.

RIDGEWOOD.

NOTES OF THE WEEK.

The Crimean Snowdrop (*G. plicatus*), with its broad, glaucous strap-shaped leaves, with plicate or deflected margins, is now flowering nicely. It thrives best with us in good old, rich loam, the bulbs turning out as clean and plump as could be desired. The flowers, as a rule, larger than those of the common Snowdrop, and standing well above the fine foliage, are very effective in groups.

Eranthis hyemalis (the Winter Aconite) is one of the most valuable spring flowers we have; the bright yellow Buttercup-like flowers surrounded by a whorl of shining green leaves give a fine effect on lawns and such places. We find it useful for planting under trees with dense shade, and where Grass is thin or wanting the Winter Aconite supplies a grateful covering to the bare, unsightly ground.

Hardiness of Cyclamen persicum.—I should be glad to know from cultivators what their experience is as to the hardiness of *C. persicum*. It may interest readers to know that some old bulbs have stood in a cold Peach house here through this last cold weather. The soil in which the bulbs are growing was on several nights frozen quite hard, and on looking at them lately they appear none the worse.—J. C. F.

Royal Horticultural Society.—The society's second show this year will be held in the Drill Hall, James Street, Westminster, on Tuesday, February 9. Besides the plants, flowers, and fruits to be submitted to the committees, a silver medal (presented by Messrs. Barr and Son) will be offered for the best collection of forced Daffodils, Polyanthus excluded. At 3 p.m., instead of the usual lecture, the annual general meeting of Fellows will be held in the Lindley Library, 117, Victoria Street, when the report for 1891 will be submitted and officers for the current year elected.

Crocus Imperati is an old species, but one of the very best even in this large genus. Excepting *C. vernus* and its varieties, it is one of the most variable species we have in the colour markings, and size of its flowers. We find it a splendid species for lawns, useful on the rockery as being an early and certain flowerer, while it will remain in condition without lifting as long or longer than any other species. It is being largely used for forcing for greenhouse work, but it does not seem to like much heat, and never does so well as when planted in the open air.

Elwes' Giant Snowdrop (*Galanthus Elwesi*) has bloomed this year earlier than the commoner species, and although by no means so certain when planted in Grass, the large flowers are very effec-

live. It certainly is not so useful as *G. nivalis* and its varieties for general purposes. It appears very difficult to establish in Grass lawns, and even those bulbs planted on the rockery are gradually becoming weaker, although flowering fairly well every year. It does not seem to like a dry, sandy soil—at any rate such is our experience of this giant Snowdrop.

Helleborus olympicus is also in full flower in the open border, but I do not care very much for it. The flowers are neither so well shaped nor so pure in colour as those of *H. orientalis*, and I have never yet found a plant identical in every detail with the figure in the *Botanical Register*, 1842, tab. 58. The plant in cultivation is very nearly allied to *H. orientalis* and *H. odorus*, the flowers greenish-white produced in early February even in severe winters. Native of Mount Olympus, from whence it was sent to Dr. Lindley, who named it as above.—K.

Crocus corsicus, a comparatively new species, is also flowering freely now. It is nearly allied to *C. minimus* (also in bloom), differing by its finely reticulated corm tunic, its larger paler flowers, and bright scarlet stigmata. It is a native of Northern Corsica, ranging from 2500 feet to 6000 feet elevation, and flowers from February to the beginning of April. It is a striking species even before the flowers open, the ground colour of rich buff being finely feathered with rich purple markings. It is a hardy species, and one that seems to increase with great rapidity. It does well planted in Grass, and a group of it is very effective.

Hyacinthus azureus, also known as *Muscari azureum* and *M. lingulatum*, is one of the earliest and most beautiful of the dwarf Liliaceæ, flowering in spring. In its earliness it runs the Snowdrops and *Crocuses* very close, its rich sky-blue bell-shaped flowers being very handsome. It is perfectly hardy, but apparently a tit-bit for slugs, which will certainly find it if the leaves and flowers are not well protected. A collar of perforated zinc answers the purpose very well, and failing this a line of well-broken coke round the plants will be found effectual. A figure of it will be found in *THE GARDEN*, August 10, 1889, p. 126.

Crocus Biliotti is a new species flowering at Kew for the first time. It was discovered near Stauros in May, 1880, and was first flowered in England by Mr. Maw at Broseley. In general appearance it is scarcely distinguishable from another rare species, *C. ærius*, and differs chiefly in the presence of a basal spathe and in the absence of annulæ on the corm tunic. The flowers are dark rich purple with a darker blotch near the throat. The anthers are yellow, and the nearly entire stigmata orange. It is a charming species, and as our climate seems to suit it well, it is likely to soon become a favourite.

The purple Hellebore (*H. purpurascens*) is a very useful hardy plant for early spring flowering. It is one of the deciduous group and is nearly allied to *H. intermedius* and *H. cupreus*; indeed, it is doubtful whether the latter name at any rate should not be included under *H. purpurascens*. The best form of this species in cultivation goes by the name of *H. torquatus*, the flowers of which are shallow bell or saucer-shaped, greenish-purple on inside, and of a rich deep purple on the outside, enhanced by the thin layer of glaucous bloom on the purple. It begins to flower towards the end of January and continues for a couple of months. The only fault we can find with this charming Hellebore is the absence of leaves when in flower, and which necessitates choosing a sheltered spot in which to plant it. It is a native of Hungary.

Clematis flammula.—Where can the true white-blossomed Virgin's Bower be obtained? I ask this because I have bought plants under this name by the dozen, and they are dingy greenish-flowered and nearly scentless; whereas the true Virgin's Bower *Clematis* yields a snowy cloud of blossoms and its perfume is like a hedge of Roses in a field of newly-mown hay. This is another flagrant instance of names not quite representing

things. All the species of *Clematis* vary much. Take *C. montana* for example, of which there are one or two forms with flowers twice the size of those of the type plant as usually seen. I am, I find, by no means the only person who wishes to know where the true *C. flammula*, with silvery stars and sweet perfume, can be obtained, and any information will be welcome.—F. W. BURBIDGE.

Carnation Marguerite.—I noted in *THE GARDEN* for January 2 the statement of "S. D." on the Marguerite Carnation, and think probably he obtained a poor strain of the seed. It is a well-known fact that when a novelty attains the popularity this did, there are bound to be several grades of seed in the market. I have grown this Carnation for the past two years. The first year I was very much pleased with it, and the past year more so. From seed sown in the open ground I obtained flowers in less than four months, and this with only ordinary cultivation. The flowers I hardly expected to find all double, and was perfectly satisfied with 60 per cent. being so. As to colour, one must not expect to find them as bright as those of the highly cultivated named sorts, noticing among the lot I grew a quite good white and a very bright red, both perfectly double. I agree with "S. D." that there are great prospects of a new race to be obtained by crossing with the perpetuals. During the season of 1891 many seedsmen in America advertised this Carnation largely, and from the catalogues received so far this season I think it will even be advertised to a greater extent.—HOWARD M. EARL, *Wynnewood, Pa., U.S.A.*

Early Snowdrops.—After 14° of frost and the scathing influence of the snow, it is pleasant to see the early uprising of these meek and dainty flowers. *Galanthus octobrensis* was our first Snowdrop to flower in November last, or a month behind its usual date. Then *G. corcyrensis* came into bloom, followed by an unnamed Snowdrop from Mr. Allen, also from Corfu. In December also bloomed *G. Elsäe*, from Mount Athos, and just now we have *G. Imperati* in many forms, *G. Elwesi*, *G. nivalis*, *G. nivalis* var. *pallidus*, *G. Imperati* var. *umbrius*, and several other kinds. Our first bloom of *Iris stylosa* opened to-day (Jan. 30), and there are signs of many others. One of the gems of all the early Irises has been *I. alata* lilacina, and *I. alata speciosa* was also lovely a month ago. Our earliest Daffodil in pots in a greenhouse is North Star, a very close relative of the wild English Daffodil; still, it is welcome as giving a refreshing foretaste of the blossoming to come amongst the members of this family. *Crocus Imperati* was lovely in the sun lately, hundreds of blooms all wide open, when a chill set in, a few gusts of wind came, and in a few moments all the flowers had closed into purple-striped amber buds again.—F. W. B.

Senecio Petasites.—As a winter-flowering plant for the greenhouse this old species of *Senecio* has some value. It blooms freely during the months of January and February, and its brightly coloured flowers have the advantage of being set off by large handsome foliage. Although it is not extensively cultivated, it has long been known in English gardens, the first plant having flowered in a garden at Battersea in the winter of 1812. It is a native of the Valley of Mexico. The flower-heads are produced in a branching panicle terminating last year's growth, and measuring about 1 foot across. The ray petals, of which there are five or six to each flower-head, are, like the disc florets, bright yellow. The leaves, as may be guessed from the specific name, are in shape like those of the English Butterbur (*Petasites vulgaris*), but the largest are little more than a foot in diameter. They are covered with short, fine hairs, which render them quite velvety to the touch. The most convenient method of growing it is from cuttings each year; these may be taken in March (or as soon as obtainable), and after they are struck they may be planted outdoors in a sunny border. About the middle of September they should be taken up and repotted, reducing the balls of soil so as to get them into 8-inch or 10-inch pots, afterwards keeping them safe from frost. On account of its

large growth, it is better suited for large than for small houses. It is now in flower at Kew.

A winter picture—Willows and Dogwood.—In the Cardinal Willow, the yellow Willow, and the Dogwood we have a trio of cheap and common things that, suitably blended, will enliven the landscape in the depth of winter with the brightest colour. All who have a lake, stream, or damp spot should endeavour to plant a bold mass of these three things. Each alone is exceedingly beautiful. The yellow Willow (*Salix vitellina*) makes a handsome tree, but is, perhaps, most effective when occasionally cut down, so that it becomes a thicket of wand-like shoots, whose bark is of a rich yellow colour. What the Cardinal Willow is exactly is not quite clear. Some make it a variety of *S. vitellina*, but instead of the bark being yellow, it is of a glowing red colour. Under the name of the Cardinal Willow, however, it is largely grown in the Surrey nurseries chiefly for tying, as its shoots are exceedingly tough. No other tree or shrub that we have could produce such an effect in the midst of winter, and the harder and sharper the weather, the brighter the colour becomes. This lovely Willow retains its brightly-coloured bark if permitted to grow into a tree, and then the Dogwood comes in admirably for associating with it. The bark of the Dogwood is hardly less bright in colour than that of the Cardinal Willow. The Dogwood will make a dense spreading mass, from which here and there trees of the red and yellow Willows might arise, and the result will be a beautiful picture—a welcome relief from sombre Evergreens. Certainly these three things are in their fullest beauty when naked and leafless, for with the rise of the sap in spring, although the colour does not wholly disappear, it fades, and later on is hidden by leaves.

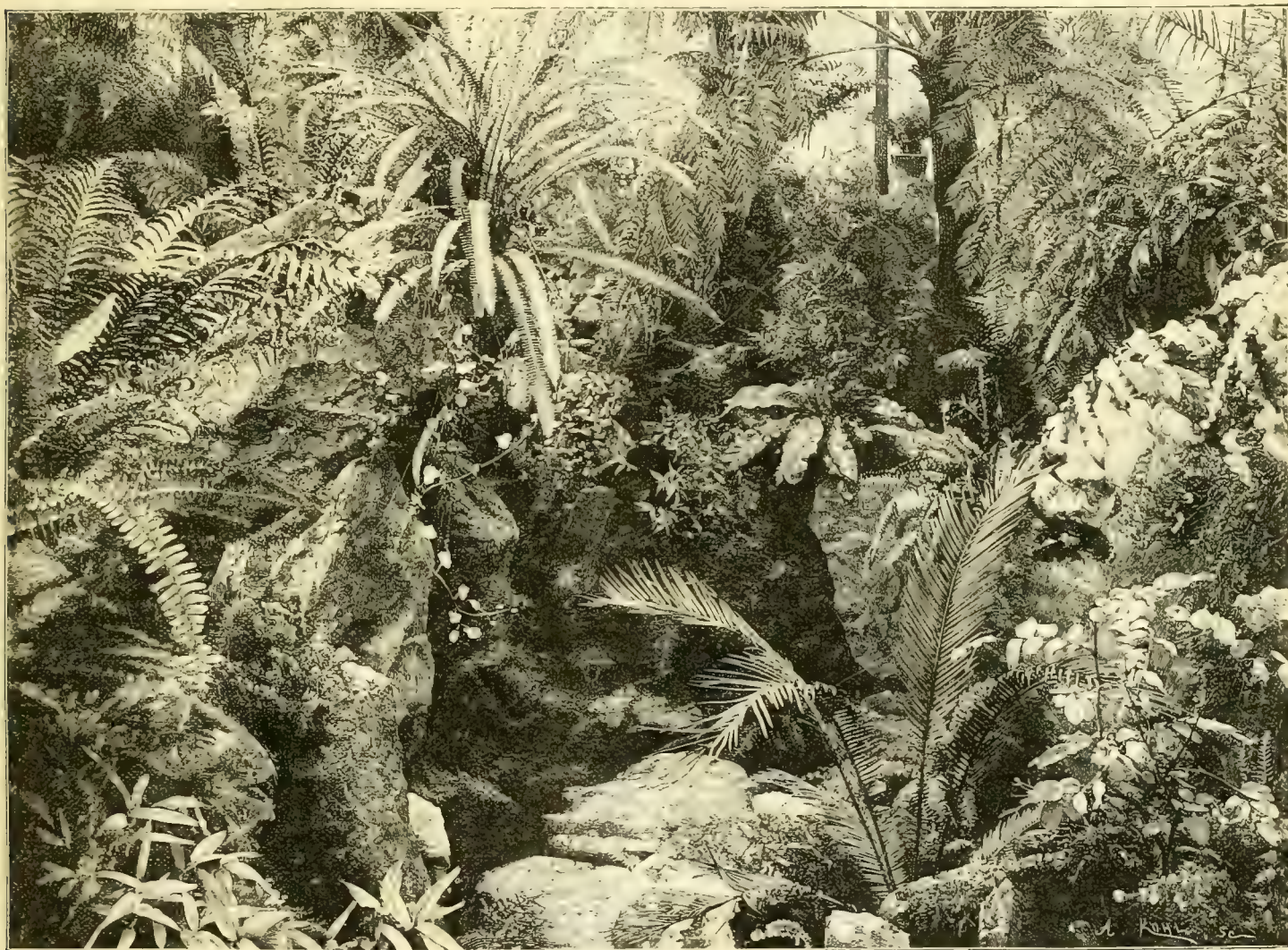
Notes from Fota.—The weather has lately been very severe here with sharp frost and snow for several days. We waited anxiously for a change to know the result on our Tree and other Ferns. The weight of snow bent the large heads of fronds of *Dicksonia antarctica* and *Cyathea medullaris* very much, and in order to keep the fronds from breaking, we gave them a gentle shake, but left some snow upon them to afford protection against the severe frost. Now that the snow has melted and frost gone, I am glad to say the *Dicksonias* seem none the worse, the fronds being as green as at midsummer. The fronds of the *Cyathea*, which were about 8 feet long, have been killed; the crowns of the plants, however, are all right, having been covered with a few dry leaves. The fronds of the *Cyathea* have been killed in former severe winters, and when this happens, the new ones do not begin to grow so soon nor so strong as when no injury has been done. Hardy ferneries are often uninteresting in winter for the want of more evergreen species; much of this might be avoided by planting *Cyrtomium falcatum* and *C. Fortunei*. These are natives of Japan, but in most sheltered ferneries they will prove quite hardy. *Balanium culcita*, a native of the Azores, is a most desirable evergreen Fern which has not been injured in the least here, although it has been unprotected for several years. It grows from 2 feet to 3 feet high and has light green spreading fronds. This, with *Woodwardia radicans*, was collected by my employer, who found them growing together on shady banks in the Azores. He remarked that he did not find them growing where the sun could shine upon them. The *Woodwardia* is not quite so hardy as the *Balanium*, but still it is a most handsome Fern, its fronds reaching from 5 feet to 6 feet. The fronds of this sometimes suffer. *Todea arborea* is another evergreen Fern, native of New Zealand and quite hardy. It, with the others named, should be planted largely where it is desirable to have the hardy fernery interesting in winter. *Lomaria chilensis* should be found in every hardy fernery; it seems quite at home here and grows 3 feet to 4 feet high, its tall fertile fronds with the black spore-cases rendering it most interesting. Many others might be named which would help to make our hardy ferneries brighter at this dull season of the year.—W. O., *Fota, Cork*.

PALM HOUSE AND ROCK GARDEN AT STREATHAM HALL, EXETER.

Our illustration represents a portion of the picturesque rockwork just erected by Messrs. Robert Veitch and Son, Exeter, in the large new Palm house at Streatham Hall, the residence of Mrs. Thornton West. The building is one of the largest Palm houses in the west of England, and has been erected from a

deep gully with overhanging rocks. The paths and steps leading to this and all other parts of the work are so arranged as to afford an easy means of access to all the plants without being conspicuous or of stiff and unnatural appearance. On the higher portions of the rockwork have been planted large Palms and Tree Ferns, amongst others *Sabal princeps* 15 feet to 16 feet high, *Latania borbonica*

exaltata. Other prominent puts have been planted with *Phlebodium aureum*, *Blechnum corcovadense*, *Lomaria gibba*, *Asplenium Nidus-avis*, *Asplenium Veitchi*, *Davallia polyantha*, *Selaginella umbrosa*, &c. Less shaded parts are decorated with small Palms, *Encyphalartos*, *Cycas revoluta*, *Phyllanthus nivosus*, *Pandanus Veitchi*, *Begonia Rex*, *Panicum variegatum*, *Tradescantias*, &c. The deep



View in the Palm house at Streatham Hall, Exeter. Engraved for THE GARDEN from a photograph sent by Messrs. R. Veitch & Son, Exeter.

design by Mr. E. H. Harbottle. It is 71 feet in length and 40 feet wide, the roof rising to a height of 40 feet. The base is of stone, and the roof, which is of steel, forms a clear semi-circle, being free from bearers to allow for the expansion of the larger plants. There is a large centre bed with two smaller ones at each end, surrounded by a handsome mosaic marble pavement.

The arrangement of the rocks and plants is exceedingly effective. On entering the house the visitor seems to be gazing down into a

25 feet high, several *Scaforthia elegans* 14 feet to 18 feet high, *Cocos flexuosa*, 16 feet high, large-sized *Alsophila australis*, *Dicksonia antarctica*, *Cyathca medullaris*, &c. Between these large plants a great variety of scenery has been produced by means of rocks and smaller plants. Where the rocks are shaded or partially shaded by the Palms a large number of Ferns have been used. The overhanging rock in the centre of the picture has been rendered additionally effective by the arching fronds of a large *Nephrolepis*

recesses and level portions between the rocks are carpeted with various Mosses and Lycopods. Narrow fissures are planted with the smaller kinds of Maiden-hair Ferns, various *Selaginellas*, *Doodia aspera*, *Nephrolepis Duffi*, *Lygodium scandens*, and similar kinds. The stones used are large blocks of trap of a dull reddish grey tint, which forms a pleasing contrast to the lively green of the Ferns and other plants. As the stones selected had a weather-beaten surface, partly covered by natural Moss, the work looks old rather than

that of recent construction. With very few exceptions, the whole of the Ferns, &c., are planted out, only such varieties being plunged with their pots as might require removal or rearrangement in a short time. Most of the large plants had been previously grown at Streatham Hall in smaller houses.

By way of variety, the small beds at the ends of the new Palm house are planted with varieties of Bamboos, small Palms and Ferns being interspersed here and there. Altogether this artistic arrangement is a pleasing departure from the general orthodox style of planting Palm houses.

STOVE AND GREENHOUSE.

ZONAL PELARGONIUMS.

To judge from what one is in the habit of seeing in most private gardens, zonal Pelargoniums are not so often met with as they deserve. One sometimes comes across a few, and they, perhaps, of such sorts as the old Vesuvius, whose place might be filled with something more desirable. I am told that in America and other countries than ours zonal Pelargoniums are great favourites, and that those who trade in them at home can tell of constant demands from those quarters. Be this as it may, we have had many careful hybridists working steadily for improvement ever since the Pelargonium Society ceased to exist.

Cultivating zonal Pelargoniums is not only an interesting and inexpensive hobby, but for the decoration of greenhouses or conservatories during the summer there are few classes of plants which supply such a constant wealth of colouring. For the seasons of autumn and winter again, at which time there is often wanted something to brighten up floral arrangements, this plant can be recommended. At a more proper time I hope to have a word on this last phase of the subject, but the present cultural remarks will be confined to the summer-time. I generally strike a leading batch, one cutting in a pot, in early autumn. They are kept on shelves near the glass through the winter, and when about a month of the new year has passed the young plants are shifted into 4½-inch pots, using a compost of loam, sea-sand, and bone-meal. The Pelargonium is particularly partial to bones, and I have always obtained the best results when in some form this manure has been employed. I use crushed bones for crocking, quarter-inch or half-inch, according to the size of the pots. It is not a difficult matter to get this plant to grow, but if a light rich soil is used leafage is made at the expense of bloom, and the simple compost recommended should be used at all stages; also at all times practise firm potting. About the time above-mentioned I go over the larger specimens and take off a cutting here and there where it can be spared, striking the same in a warm house. Water at this time of the year must, however, be sparingly given till the cuttings are rooted. These young plants are potted on, and so continually through the season a few are rooted to follow those that may have passed their best. All flower-buds as well as the tips of the shoots are nipped off growing plants until we get bushy little specimens. Some are allowed to flower in the 4½-inch pots, and are used as required for decoration; others are shifted into 8-inch pots

and grown on through the summer to make large bushes. Many again are treated for what I will call a florist's hobby, that is, a plant is allowed to produce but one or two trusses only, and liberally fed with stimulants to further development, the trusses obtained being truly remarkable for size and substance. Some years ago I was struck with the beauty of long greenhouse shelves full of the newest kinds, grown in this manner by Mr. Banks, of Fuchsia fame. To test new kinds before increasing them, this plan can be recommended. With regard to those plants in large pots that are to make specimens, pinching the tip off each shoot when it has made two or more joints and removing all flower-buds, is carried on throughout the summer, thus concentrating all the plant's forces into making short, well-ripened growth. After May they are placed outside in a sunny position and plunged to the pot's rim in cocoa fibre, for however carefully watering may be done, when the pots are not covered the scorching sun heats the side most exposed, and the roots may burn, thereby causing loss of health.

The hard and fast training to flat wires which is in vogue among growers of large zonal Pelargoniums has never been favoured by me. My plants are simply supplied with a few short sticks to allow all parts room to develop. By potting firmly in a compost that does not favour quick growth, and by constant topping they assume a dwarf bushy shape. Get the specimens into their winter quarters by the middle of September, selecting a position near to the glass. During the dull months keep them on the dry side at the roots and let no more fire-heat be given than is necessary to keep away frost and to prevent the leaves from decaying by damping. The following February remove the plants to a light structure where they may flower. Some may object to waiting so long and taking such care without blossoms, but when once a few large plants are fairly established, with others coming on to take their place, this waiting is not felt. Besides, it is after all but little over a year from the time of putting in the cutting to its flowering. Treated as above, I have had plants on which 100 trusses have been counted, many of them being of really splendid proportions; the flower-stems, too, so strong, that little if any support was needed, and they have gone on blooming for months. When in flower, feeding with stimulants is essential. Peruvian guano water made weak is good. Shade (but not too much) is necessary when in bloom, and, of course, at all times give abundance of air. It is my practice to put each pot inside another of larger size when under glass and open to the sun's rays; this somewhat prevents the plants from quickly becoming dry at the roots. Fortunately, the zonal Pelargonium has few diseases. Spot in the leaf is the worst, and I fancy this is mostly caused by overwatering. When a plant exhibits signs of decay from this, I simply lay it on its side and forget it for a time. Fresh roots are made and the plant invariably gets a new lease of life.

The following are selected as being first-rate—*White*: Swanley Single White, Queen of the Belgians. *Salmon*: Mrs. Robert Cannell, Lady R. Churchill, Countess of Derby. *Pink*: Duchess of Portland, Mrs. Wildsmith. *Crimson*: H. Cannell, Jun., Phœna, Lord Rosebery. *Scarlet*: Hyacinth, Brilliantissimum, Plutarch. *Various shades*: Cannell's Favourite, Rev. R. D. Harries, Swanley Gem, Lady Brooke, and Souvenir de Mirande. A dozen capital double varieties are Silver Queen, Swanley Double White, Golden Rain, H. M. Stanley,

Nydia, F. V. Raspail, Gloire de France, Emile de Gerardin, Grand Chancellor Faidherbe, Miss Floss, Lord Hartington, and White Abbey.

Shirley.

H. S.

Spiræa astilboides.—If good clumps of this Spiræa are potted and just protected by a cold frame, they will break strongly and form a succession to the latest plants of *S. japonica*, that not only flowers naturally earlier in the season than *S. astilboides*, but also readily lends itself to forcing, which the newer kind does not. *S. astilboides* is, however, rapidly becoming popular, despite the fact that in a confined place the smell of the blossoms is somewhat heavy and overpowering. The flower-spikes are more lumpy than those of *S. japonica*, while they are not pure white, being, in fact, more of a creamy tint. Forming as it does a large bold specimen, this Spiræa is just the thing for the embellishment of the greenhouse or conservatory; while, when it is not forced in any way, the blossoms retain their beauty a considerable time. In the open garden, too, or as a rockwork plant in a moist spot, this Spiræa is just at home and very attractive. Considering the limited number of species, there are very few classes of hardy herbaceous plants that can be so generally employed for flowering in pots under glass as this section of Spiræas. Thus, besides *S. astilboides* mentioned above, we have the many-named *S. japonica*, so universally grown for forcing, and the newer form of it known as multiflora compacta, which last spring received an award of merit from the Royal Horticultural Society. There is, I think, little doubt that this Spiræa must have originated from the golden-veined variety of *S. japonica*, which early in the spring when the leaves are freshly expanded is, from a foliage point of view, very attractive. At that time the centre of each leaf is of a beautiful golden hue, while the green portion is very fresh and bright. The flower-spikes of this variegated variety are more dense and compact than those of the common form, and the newer compacta multiflora appears to be a counterpart of it, except that the foliage is green. The Japanese *S. palmata*, with its flattened corymbs of brightly coloured blossoms, is another one that can be grown well in pots, but it must be liberally supplied with water when growing and hard forcing should not be attempted. The same remarks will also apply to its white-flowered variety *alba*, which has not been grown nearly as long as the typical kind. The double-flowered variety of the Dropwort (*S. filipendula*), though rarely seen employed for the purpose, forms very effective specimens when grown in pots.—H. P.

Eurya latifolia variegata.—Though this pretty variegated shrub was introduced from Japan 20 years ago or thereabouts, it seems to be more plentiful this season than I ever remember it before, that is as a pot plant, for it is not sufficiently hardy to be relied upon as a shrub in the open ground. This Eurya bears a considerable amount of resemblance to a Camellia, to which it is closely allied, but the leaves are longer in proportion to their width, and not quite so thick in texture as most of the garden varieties of Camellia. If the points of the shoots are just stopped two or three times during their earlier stages this Eurya forms a neat, well-balanced bush, and one by no means of a lumpy aspect. The leaves are variegated in various ways; thus when young they present an almost indescribable blending of white, yellow, pink and green, but when mature a good deal of the pink disappears. The brightness of its colouring, equal almost to some of the Crotons, renders it extremely useful for many purposes, especially during the winter, as being nearly hardy it may be employed in halls or corridors where owing to the draught more tender things would quickly suffer. As large bushes, too, it is very valuable for the conservatory or any structure from which frost is only just excluded. It is propagated by cuttings of the current season's shoots, taken when they are in a half-ripened condition, which will to a great extent depend upon the temperature in which they have been growing.

The best cuttings are furnished by the side shoots, which should be taken off at a length of about 4 inches, severed clean at the base, the bottom leaf removed and then dibbled firmly into pots of sandy soil. The cuttings should be kept in a close propagating case where the temperature is slightly higher than that they have been grown in. Then they will take from two to three months to root, when the young plants must be potted off in a mixture of loam, peat or leaf-mould, and sand. The shoots formed on a plant that has been kept altogether in the greenhouse will strike root more readily than one placed in a colder position. This *Eurya* shares with the variegated variety of *Coprosma Baueriana* the peculiarity of the cuttings being difficult to revive if allowed to flag. By botanists I believe the *Eurya* in question is regarded as a variety of *E. japonica*, which is altogether a smaller growing plant. Of this last there is also a variegated form, in which the leaves are irregularly edged with white.—T.

GARDENIAS AS BIENNIALS.

EARLY in January every year I insert a goodly number of short-jointed *Gardenia* cuttings in efficiently drained $4\frac{1}{2}$ -inch pots filled with a compost consisting of equal parts light loam and leaf-mould (passed through a quarter of an inch mesh sieve), with a surfacing of sand. These, being watered through a fine-rosed watering-can, are then plunged to the rims in sawdust in hand-lights and placed over some slates resting on the flow pipes in a forcing house, in which the cuttings soon root. The young plants are then potted singly into 3-inch pots in soil similar to that in which they were rooted, and placed in heat as before until the roots have pushed well into the soil, shading with paper from sunshine in the meantime. They are then shifted into $4\frac{1}{2}$ -inch pots, using equal parts fibry peat and loam, with a good dash of sand added, the whole being well mixed and rammed firmly together in potting. They are afterwards grown on shelves near the glass in forcing houses and pits, and carefully supplied with water at the roots and overhead. By the middle or end of July the plants will have nearly filled the $4\frac{1}{2}$ -inch pots with roots, when they will be transferred to 6-inch pots, using the compost recommended above, only in a coarser state, and adding sufficient sand to render it somewhat porous. They are then returned to their former position on shelves and walls in forcing houses and pits—in fact to any place where they can have plenty of atmospheric moisture and heat, giving water to settle the soil about the roots and shading from bright sunshine until the latter have taken to the new soil, when it is discontinued. Weak liquid manure is given at the roots alternately with clear water until the plants have completed their growth.

About the middle of October the plants are placed in a cold pit from which frost is excluded by covering the sashes with mats and shutters. Here they remain for about six weeks, water being sparingly applied at the roots, that is, only given when the soil has become moderately dry, when sufficient to moisten it is applied. At the end of the time specified the plants are taken into the *Camellia* house, where they have a temperature ranging between 45° and 50° , and from which they are introduced into the forcing houses in batches at short intervals during the winter and spring months. These plants are only stopped once after they have been placed in the $4\frac{1}{2}$ -inch pots, the object being to obtain a limited number of extra large blooms rather than a greater number of smaller ones from each plant. Owing to the rest accorded the plants and the partial withholding of moisture, they invariably ripen and become well furnished with flower-buds. From the time the plants are put into the forcing house until the last flower-bud is developed copious supplies of tepid liquid manure are applied to the roots, with occasional surface dressings of some artificial manure. These waterings and dressings tend to produce large, well-formed blooms. I need hardly say that plenty of atmospheric moisture and heat is necessary to produce and maintain a good supply of

Gardenia blooms during the winter and early spring months. The successional supply of blooms from Christmas will be afterwards maintained by putting into heat the remaining portion of the plants in the *Camellia* house at short intervals, as stated above, and then by plants now in flower yielding a second crop. Thus, each successional batch of plants following in the same order with a second crop of flowers, the supply may be continued uninterruptedly throughout the year. The two-year-old plants are thrown on the fire heap.

H. W. WARD.

Acacia pulchella.—This is entitled to a foremost place among the *Acacias* that may be grown and flowered successfully in the shape of neat little bushes in pots not more than 6 inches in diameter, but if shifted on or planted out, it will attain the dimensions of a good-sized shrub 6 feet or so in height. Its usual habit is to form a dense growing specimen, whose slender branchlets are clothed with prettily divided leaves, these forming a mass of beautiful rich green foliage. Even in this stage it is very attractive, but when in full flower and covered thickly, as is its wont, with rich golden-coloured bills, its beauty is, of course, greatly enhanced. Besides this *Acacia*, other kinds that flower well when small are *A. Drummondii*, with very deep green pinnate leaves and cylindrical spikes of pale lemon-coloured blossoms; *A. cordata*, whose long slender shoots are clothed with little straw-coloured flowers closely picked to the stem; *A. armata*, a sturdy growing bush, whose blooms are of a rich golden-yellow colour, which are thrown into prominence by the very dark green foliage; and *A. lineata*, with long narrow leaves and a great profusion of pleasing coloured blossoms. Of this last a coloured plate was given in Vol. XXVIII. of THE GARDEN, in which its bright golden-coloured blossoms were contrasted with the pale sulphur-coloured blooms of *A. leprosa*.—T.

Two good cold house Primulas.—Lovers of flowers are often perplexed by the many plants in cultivation that they cannot grow in winter, and often ask what plants they can grow to bloom through that season. *Primula obconica* and *P. floribunda* are two valuable kinds for a cool house. Neither is quite hardy, but both will succeed well in a cold greenhouse and bloom throughout the winter. *P. obconica*, I find, will bear 12° of frost without being injured. Last winter I kept some plants in a garden frame well protected, and they did not suffer in the least. *Primula floribunda* is not so well known. It is a most continuous blooming plant, equally as free as *P. obconica*, its clear rich yellow flowers making it most attractive. Although the flowers are small, this is compensated for by the profusion of bloom. Some plants of this *Primula* have been blooming for several months past in a cold house here and promise to continue for months to come. Both these valuable *Primulas* are easily raised from seed. Our plants of both kinds now in bloom were raised from seed last March, sown in a pot, placed in a garden frame and grown on with *P. sinensis* during the summer.—J. C., *Forde Abbey*.

Rhododendron præcox.—Where plants of this *Rhododendron* have been forced into bloom for several successive seasons they gradually acquire an early flowering habit, and there is then no difficulty in inducing their pretty flowers to open during the first weeks of the year. In any selection of hardy shrubs suitable for flowering under glass this *Rhododendron* must have a place, as not only are the flowers very beautiful, but the plant readily lends itself to such treatment, and with ordinary care and attention it may be kept in health for years in pots, and will set its buds and flower freely so treated. *R. præcox* was one of the earliest hybrids raised by Mr. Davis, of Ormskirk. It was the result of intercrossing *R. dahuricum*, a native of the colder mountainous districts of Europe and Siberia, with the Himalayan *R. ciliatum*, which has proved to be one of the most useful of all *Rhododendrons* to the hybridist, for it has played a part in a great many of our best varieties. *R. præcox*

varies a good deal in colour, no doubt owing to quantities having been raised from seed. Of the richest-coloured form known as *rubrum* a beautiful coloured plate was given in THE GARDEN, July 12, 1890, where a flowering branch is truthfully portrayed. This *Rhododendron* is quite hardy, and therefore, in addition to its other merits, it forms a most desirable dwarf shrub for the open ground, or, better still, where it is just a little sheltered, as owing to its early flowering qualities, the blossoms are at times liable to be injured by late spring frosts. It is now over a quarter of a century since this *Rhododendron* was put into commerce—in fact, it made its first appearance at the Royal Horticultural Society as long ago as March, 1861, when it received a commendation. The cross between these two *Rhododendrons* is easily effected, so that *R. præcox* may be increased in quantity from seeds if desired. There is a second hybrid variety of this class, viz., *Early Gem*, which was raised in Messrs. Veitch's nursery, Coombe Wood, between *R. præcox* and the dark-coloured form of *R. dahuricum*—certainly a mixed relationship. This is a dwarf compact-growing plant, whose comparatively large rosy purple blossoms are very showy and borne in great profusion. It is equally desirable with *R. præcox* for flowering under glass.—T.

COLUMNEAS.

THESE are showy basket plants, but yet how seldom do we see them now-a-days. They are natives of Colombia, Mexico, and the West Indies, &c., but though these countries are so frequently traversed for Orchids, we never now receive any seed even of *Columnneas* and other beautiful plants which are found in these regions. The time was when the various nurserymen at home, as well as on the Continent, used every spring-time to send out new flowering and ornamental-leaved plants, but now nothing but Orchids appears to have any value. *Columnneas* flower very freely, and have a long tubular corolla, which is for the most part of some shade of scarlet. They also strike freely from cuttings. The best soil for them is good fibrous peat, mixed with some light turfy loam and a little chopped Sphagnum, the whole made fairly sandy. The baskets should be well lined with Sphagnum in order to prevent the soil falling through. The plants require stove heat, and they enjoy a liberal supply of water to their roots, but they do not like much overhead syringing, as the long hairs with which the leaves of the majority of the species are clothed hold the moisture too long. This is not a fanciful objection, as I had two sets of these plants in the same house. One set I syringed overhead every day, while the other was taken down and dipped. The dipped plants grew and flowered twice as well as those sprinkled overhead. The following are some of the best kinds:

C. AUREO-NITENS.—The leaves of this are lanceolate, thick and fleshy in texture, covered with long silky hairs, which give it a very distinct appearance; the flowers are tubular and of a rich bright reddish orange colour.

C. AURANTIACA has a villous stem, the flowers, too, being villous, but the leaves, which are bright green, are smooth. The blooms are of a rich tawny orange-yellow.

C. ERYTHROPHLEA is a strong robust plant, having smooth, deep green, fleshy leaves. The flowers are large, with a very large calyx, which is deeply lobed, light green, stained with deep red at the base; the corolla is tubular, smallest at the base, and of a deep bright red.

C. SCANDENS.—This is not a climbing plant, although its name would imply that it was. It is a native of the West Indies, and has been in cultivation upwards of a hundred years, and is still the

species most frequently seen in our stoves. It has dark green fleshy leaves and large, bright scarlet flowers, which are paler in colour in the mouth.

C. CRASSIFOLIA has long, narrowly lanceolate leaves, which are thick and fleshy in texture and deep green, smooth above, but densely villous beneath. The flowers are long and tubular, hairy, and of a rich rosy red colour.

C. SCHIEDIANA is a very singular species, the leaves being thick and fleshy in texture, rich green, and hairy. The flowers have a large spreading calyx, the tube of the corolla being some 2 inches in length, with a ground colour of orange-yellow, densely spotted with rich purplish brown. This plant is one of M. Linden's introductions from Mexico.

After the plants have done flowering, they should be cut back to below where the blooms first appeared, or they will get too long and straggling, and when they begin to break they should be repotted or basketed in fresh soil and treated as before directed, never allowing them to have a lower temperature than 60°; in fact, they like a somewhat warmer temperature than this, but that given should be the minimum.

WM. HUGH GOWER.

TREATMENT OF PANDANADS.

KINDLY let me know how Pandanads should be kept. Should they be treated in the same way as Crotons? I had three very fine specimens, two of which I placed on the dining-room table for three days. At the end of that time they fell to pieces and died. I fear some mischief occurred. As I am replacing them, I should very much like to know how they should be treated.—J. B., *Menzie Castle, Crief.*

** In order to grow any of the varieties of Pandanus, the heat of an ordinary stove is at least necessary. By ordinary stove, I mean one where the night temperature rarely falls below 60°, for if often below that point, the falling complained of by "J. B." will frequently occur, more particularly in the case of *P. Veitchi* or *P. javanicus variegatus*, the two most popular varieties for use as table plants. These and other members of the Pandanus family are from tropical or sub-tropical regions of the globe; hence they delight in heat, whilst moisture also is most congenial to their successful cultivation. Until the plants reach a large specimen size they do not form any solid stem, and even then it can hardly be termed enduring wood; hence, when they receive any check, as in the case of being in too low a temperature, there is not that resisting power which is so essential in sustaining a plant. Decay therefore supervenes, and the work of destruction is soon completed, and that frequently before there has been time to secure a young sucker to maintain the stock. This is a common occurrence in the case of the Pandanus during the winter season, more particularly if the plants are, as in this case, kept out of the stove for a few days at the time. It is furthermore accelerated by the three following causes, viz., through being supplied with too much and too cold water whilst in a cooler temperature, through being in larger pots with too much soil around the roots, hence being colder when over-wet, and through being exposed to cold draughts, probably such as would arise from an open window in the early morning hours. These three causes may be guarded against or their ill effects materially obviated by the following precautionary measures—viz., firstly, keeping the plants comparatively dry whilst in a cooler temperature, when watered by using tepid water and by never using them at all when over-wet at the roots; secondly, by always making it a practice never to use plants that have been recently repotted, but rather choose those which are one mass of roots, these latter plants having a more wiry and hardy constitution when not so much pot-bound as to starve and exhaust the plants; and thirdly, by guarding against chills through taking care to keep the plants standing in sheltered positions when not in use—at any rate

avoiding both open windows and doors. Having used plants of all kinds for many years for these purposes with every success, I would state that, in addition to the foregoing safeguards, I have adopted the following measures. Boxes have been provided for placing the plants in when removing them from their growing quarters to the house. These boxes would be used for at least six months out of the twelve, the plants, therefore, not receiving anything like the check they would if exposed to the outdoor atmosphere, when it would often be below the freezing point. In addition, I would avoid using such as the Pandanus for more than one night at a time during cold or uncongenial weather; in fact, my plan has been to change dinner-table plants every day when possessing a good relay of plants as well as variety; thus but little, if any, actual harm is done to the tenderest of plants. Crotons are alluded to by "J. B." in contrast to Pandanads. Of the two, I consider the Crotons the hardier plants; they may be grown in a slightly lower temperature, say 57° instead of 60° at night. Furthermore, neither Crotons nor Pandanads should be used during the colder six months of the year if they have been grown in a warm stove, as 65° at night or probably often nearer 70°. These temperatures would induce a soft and tender growth. Plants, again, that are taken from a moderately dry atmosphere will withstand changes far better than where there is any excess in this respect. Drip, again, is very destructive to the Pandanus. I have lost plants of *P. Veitchi* from this cause, where, unfortunately, the drip reached the hearts of the plants through imperfect glazing, and soon carried out the work of destruction in the same way as "J. B." describes by "falling to pieces," which, to say the least, is very disappointing. PLANTSMAN.

Calliandra Tweedei.—The genus *Calliandra* is a pretty extensive one, there being about eighty species known to botanists, very few of which are, however, cultivated in this country, though one of them, *C. Tweedei*, is a most beautiful flowering shrub, that well deserves a place in the stove, as in addition to its showy blossoms, it is very dissimilar from the common occupants of such a structure. It forms a freely-branched bush, clothed with pinnate leaves, a good deal like those of some of the Acacias and Mimosas, to which, in fact, it is closely related. The foliage is of a tender shade of green. At the first glance the inflorescence might be taken as belonging to one of the Australian Bottle-brush plants, a name applied to several genera of the Myrtle order, among them being the *Callistemons*, *Melaleucas*, *Beaufortias*, *Metrosideros*, and others. In the *Calliandra* the flowers are small, and borne in crowded globose heads, their most showy portion being the long prominent stamens, which stand out like clusters of crimson silk. Given the same treatment as most stove plants it will grow freely, but to ensure its flowering, a light position must be assigned it in order that the wood may be thoroughly ripened. Cuttings of the current season's shoots taken when in a half-ripened condition are not difficult to root on a gentle bottom-heat. This shrub, which usually blooms during the first three or four months of the year, was introduced from Brazil in 1840, but at the present day it is almost unknown, though far more beautiful than many subjects that are in general cultivation.—H. P.

Richardia Little Gem.—This miniature form of the common *Richardia* well deserves the title of Little Gem, for it is in every respect except in size the exact counterpart of the ordinary type. This newer variety reaches a height of 9 inches to a foot, so that neat little flowering specimens may be had in pots 4 inches or 5 inches in diameter. It flowers very freely, and plants that bloomed with me in the autumn are again pushing up their spathes. They are right welcome now, for neat little flowering specimens in the greenhouse are much admired, being very different from most of the occupants of that structure, and when contrasted with the ordinary *R. æthiopica* the pigmy character of Little Gem becomes even more pronounced. It produces

suckers freely, which should be taken off carefully and potted into small pots, when if kept rather close for a time they will soon start in growth. This pretty little variety received an award of merit from the Royal Horticultural Society October 14, 1890. It was raised by Mr. F. Elliot, of Springfield Nursery, Jersey, and is now pretty generally distributed. Another form upon which last autumn the award of merit was bestowed is compacta, whose distinctive features are well expressed by its name. This variety will doubtless in time be extensively grown, as most probably it can be pushed along in a little additional heat without running up so tall as the ordinary kind. Such a peculiarity is a great advantage, as where a quantity are required in bloom at any particular time, some of them have often to be kept in a warm structure to hasten on the flowers, and then the foliage soon gets weak.—H. P.

Seeds of Musa from Upper Assam.—J. McPherson says he has had some seeds of a scarlet-flowered *Musa* sent him from Upper Assam, and wishes to know whether it would be advisable to sow them. One species was found in Assam about twenty years ago, and it proved to be a new one, attaining a height only of some 3 feet or 4 feet. It produces deep red-coloured bracts, and is really a handsome plant. I certainly should put the seeds at once into bottom-heat; they will probably soon grow, and you must take care to remove some of the suckers from the plant in order to perpetuate it. I shall be glad to hear how you succeed with it. I think you will find that it is *Musa sanguinea*.—W. H. G.

WINTER EFFECTS.

MANY are now aware that it is a decided gain to retain the old stems of flowering plants until the appearance of fresh growth in spring necessitates their removal. Our ideas as to what constitutes neatness may lead us to excess, and they certainly did when we thought to make everything prim and tidy for the winter, so as soon as flowers had ceased we razed everything to the ground and turned up the surface of the border. A good effect is to be had in winter simply by letting things alone. The tall nut-brown gracefully arching wands of the giant Knotweeds (*Polygonums*) are hardly less beautiful now than they were in summer when clothed with leaves, and the Japanese Plume Poppy (*Bocconia*) has a winter charm, for its lofty stems are hidden in summer with its wealth of fine foliage, but now that the stems are leafless we admire their silvery colour, and are convinced how much is gained by retaining them. They cannot do harm, and where plants are boldly grouped, even if the stems of themselves were not ornamental, it would be a gain to have a furnished appearance instead of nakedness. In winter, too, we are impressed with the good effect of foliage that many hardy plants give us at that time, those that not only retain their leafage, but enhance its appearance. In summer it is green and growing, but in winter whilst stationary it develops charming hues. Now purple and crimson tints pervade the otherwise naturally green leaves of the broad-leaved Rockfoils (*Megaseas*), and if we have them as a carpet beneath Yuccas, the effect is very good at a dull flowerless time. Again, the *Epinediums* clustering against the terrace walls form a charming mass of dark bronzy foliage; they are pretty always, but doubly so now. The Alum Root (*Heuchera*), especially the variety named *Richardsoni*, is just the plant for winter effect. In summer its tufts of leaves make a charming foil to bold flowering plants. The leaves are rich green veined with red, and the colour grows brighter as days grow shorter and darker. *Tellima grandiflora* is similarly effective, and more conspicuous still is *Helleborus foetidus*—a native plant, yet one whose value in the garden is little known. It is just the plant for a place where hardly anything will grow. Its great digitate leaves are deep green and disposed upon plants that grow up and spread out into vigorous tufts without care or attention. A. H.

FLOWER GARDEN.

BASAL ROT IN NARCISSI.

MR. BURBIDGE (p. 86) says much that is valuable upon this subject, but, I think, gives rather too much weight to unsuitable soil as a cause of this disease. I believe with him that rich and loose soils cause a condition of hypertrophy and sickness in many kinds of Narcissi, and sickness, however caused, usually shows itself in decay of the basal plate (the most sensitive part of a Daffodil's anatomy), and in powerlessness to suit abundant and healthy roots. Before seeing Mr. Burbidge's notes I had, in correspondence with a friend, pointed out the appearance of basal rot in Dr. Ritzema Bos's figure of a bulb attacked by the larvæ of the Narcissus fly. But I feel fairly certain that basal rot may appear where the soil is not at fault, and is therefore due to climatic causes. How does Mr. Burbidge explain the fact that the fine section of large yellow trumpet Daffodils known as the *spurius* varieties die out in my garden, although planted in the purest and most wholesome soil? Again and again have I imported perfectly healthy bulbs from Ireland and planted them in beds of virgin loam, or loam largely mixed with burnt earth. I have access to turfy loam from upland pastures in unlimited quantity, and have grown these bulbs in it, un-mixed or mixed with burnt earth or with clean sand, over and over again, but they entirely refuse to be happy. *N. spurius*, moreover, dies out when planted in Grass in my orchard. And yet I should call my garden a good one for Daffodils in general, as I think the flowers which I have brought to the Royal Horticultural Society's meetings so often and in such abundance testify. Again, why is it that last winter, as I lately pointed out, some *N. cernuus*, which lay for nearly three months under a great snowdrift, showed no disease, while another lot which happened to be bare was ravaged by the disease? Both batches had been grown as one stock in the same bed the previous season, so that the health of all was the same at planting time. And why is it almost an unknown thing for my seedling bulbs to be touched by the sickness during the two years in which they lived in cold frames, while many of certain kinds perish the first year they are planted out, and that in beds of pure soil free from manure or old humus? It would need at least 100 years of life and observation to make a trustworthy induction from the difference of seasons, but it seems to me that in a dozen years' study of my Daffodils I had noticed a comparative absence of disease in years when January, February and March have been moist and mild. Can Mr. Burbidge grow the beautiful little *N. moschatus* of the high Pyrenees out of doors in the purest of soils? and if he can, why cannot I?

I ask these questions with an open mind, and not as casting doubt upon the assertion that crude manure is bad for Narcissi. I believe it to be death to many kinds. But many growers will bear me out in the state-

ment that there are Daffodils, and those not the tender southern species, which fail in England, though planted in irreproachably pure soil. For my own part, I attribute the failure to climatic conditions. Hardy, in a sense, they are, but they resent the incalculable vicissitudes of some English winters and springs. A wet autumn, it may be, pushes up their shoots, and then from December to April they are frozen and thawed and thawed and frozen, or scorched by freezing winds, until they are fairly worried into a consumption. Most Daffodils bear all this with indifference, but not all do so.

I will add a word to express my opinion that certain kinds which are difficult to grow with us, *e.g.*, the *Corbularias*, the *Pyrenean moschatus* and others, pro'ably multiply in

present find the trace of a single plant, only such as remain in their dry dead state. It is a most pleasing plant when in flower—finely cut silvery foliage, elegantly arranged on erect stalks of 6 inches to 12 inches high, with its apex and lateral shoots tipped with small flowers of delicate pink and canary-yellow tints. I have often been amused, but could not wonder at the way in which garden friends have admired this little beauty when seen in summer. In the estimation of some, its annual duration has proved fatal; but I strongly wish to commend it in another light, and I may best do this by advising seed to be sown in spring, either on the rockery or in the border near to a gravel walk, and should you succeed in flowering one plant, it will be pretty sure to self-sow itself in the hard gravel and other parts, so that you may consider you have a perennial possession of an annual plant. Why I advise its culture by the walk-side is because if it should prove desirable to transplant any of the seedlings, those from the hard walk would probably prove the best for the purpose.—J. W.

IRIS ASIATICA.

It seems that this *Iris* holds in Asia the place which its near ally *I. germanica* does in Europe. It has been found in Asia Minor, and spreads from there to Turkestan, whence it has been sent to Europe by the Russian General Kaufmann. The plant does not grow to the size and dimensions which a clump of *Iris germanica* soon attains when left alone for a couple of years, but the flowers are much larger than those of any variety of *I. germanica* I have yet seen; the lip especially is very long and broad, and altogether the flower is a very handsome one; its colour is a very fine pale purplish-blue, the standards a little paler than the falls. The culture of this class of Irises does not present any difficulties, being sufficiently hardy to withstand any amount of cold, although sometimes when there is any fresh manure around the roots or when the soil is too retentive of moisture, the rhizomes are apt to rot off suddenly.

C. G. VAN TUBERGEN, JUNR.



Iris asiatica. Engraved for THE GARDEN from a photograph sent by C. G. van Tubergen, Jun., Haarlem.

their native places from seed rather than from bulb increase. The little white *Corbularia*, for instance, is sent to us almost always in single round bulbs, showing no offsets. It is probable that in Algeria the old bulbs die soon after flowering, just as they do in England, and that therefore the proper way of maintaining a supply of this and some other kinds is from seed. Certainly I always have much finer batches of the *Corbularias*, *triandrus*, &c., from seed than I can get in any other way, and as seed is sown annually, I do not regret the loss of the old bulbs.

G. H. ENGLEHEART.

Corydalis rosea is only an annual, and I do not think that under any circumstances it is a good subject to transplant. In fact, though practically a weed here, I question whether I could at

Lathyrus tuberosus—I have once before referred to this low-climbing, bright, and free-blooming species. There is no better time than the present for setting the tubers, should the land be free from frost; not that frost can do them any harm from mere cold, as nothing can be harder. Its tubers vary in size from a pigeon's egg to a hen's egg, and they are held together by slender, yet tough, thread-like strings at distances of a few inches to a foot apart. They are produced in enormous quantities where the plants are left alone for two or three years. Last spring I had occasion to dig around my oldest specimen, and though I did not go nearer than 2 feet to the original centre of the plant, I found hundreds of tubers in the space of a few superficial feet. I mention this for the double purpose of showing that the plant should be cultivated only in special quarters where it can ramble in its own wild way, as around, say, a dwarf bush or in a low hedge, either of which it would be capable of draping in a most charming manner in summer with its tender foliage and bright rosy clusters of flowers. With me it climbs to the extent of 4 feet to 5 feet. I know nothing that could be more effective or satisfactory if employed in the semi-wild garden, or even at the edge of bushes in the copse, for its flowers are borne in such abundance as to make the whole plant glow

with colour. In planting, the tubers might be set in groups of half a dozen or more, so as to get immediate effect, and it does not matter whether they are separate or left strung together. The other fact in connection with the tubers is of interest, because they have been highly esteemed as an article of food, and in some countries have actually been cultivated with that object. J. W.

PRIMULA SIEBOLDI.

THE many charming varieties which now go to make up this excellent group of spring-flowering plants have during recent years become most popular, a popularity, by the way, they richly deserve. Fifteen or twenty years ago the varieties of this group, which then was known, though erroneously, as *P. cortusoides amoena*, were by no means numerous, and good varieties especially so. Still, we cannot overlook the fact that even then we had the snow-white variety *grandiflora alba*, than which, even to the present time, I have not seen a finer or purer blossom, while the truss, so far as quantity of flowers are concerned, was all that one could wish. But with all these good qualities it had its weak point, which in this particular variety was its inclination to look to the ground, the flowers drooping somewhat, and if this could be transformed into an erect or semi-erect habit, I consider that the acme of perfection would then be attained. I do not, however, at the moment, and speaking from memory, remember to have seen any pure white kind which, regarded from all points, may be considered superior to the one named. At the time stated we had also a good variety in form and substance in *lilacina*, while *intermedia* was a pale washy-looking flower, though somewhat larger than the rest in point of size. Still, one of the best, both for colour as well as the general aspect of the truss, is *grandiflora*, which is at the present time fairly plentiful and beautifully adapted for large permanent patches or for spring beds, and likewise for conservatory decoration when grown in pots. But since the time to which I have alluded above, the florists, both at home and on the Continent, have been busy in their endeavours to improve this group, and their labours have resulted in several fine and useful additions to what is undoubtedly a valuable and highly decorative group of plants. During recent years visitors to the leading metropolitan exhibitions have been made familiar with these plants owing to the representative displays that have been made by several firms who grow them in quantity. Yet there is a difficulty still to overcome here; for the public are slow to recognise, and still more so to fully realise the fact that these very useful flowers are perfectly hardy, and that they may be grown with comparative ease in good soil in the open ground, enduring severe winter frost with impunity. As proof of this I may state that during the memorable winter of 1890-91 I had large patches of some of these fully exposed in the open ground occupying spots where they had stood for a couple of years at least, and which at the end of that long-protracted winter appeared not one bit the worse. When I say that fully two-thirds of their rhizomes were lying quite exposed on the surface, I think we need no further proof that these varieties of *Primula Sieboldi* are among the hardiest plants that we could possibly have in any garden. Some, however, I feel sure, are rendered more tender than is their wont by being kept in the greenhouse much too long, and considered in the light of a purely hardy plant, when used for indoor decoration it should occupy an airy position the while, and when flowering is completed be returned to frames where it can be

afforded abundance of air and full exposure as soon as may be deemed prudent. It is an excellent time just now, or indeed at any period during their resting, to repot or divide them. At one time I used to pot them in May when flowering was finished, but although I was quite satisfied with the results, I changed my time for potting, and now prefer to do this when the plants are at rest. A disadvantage from May potting and dividing is the highly probable loss of good foliage; therefore greater care is needed in doing the work at this time, while an advantage from potting and dividing in May is that you invariably get plenty of new roots before autumn. Where hybridising and seed-saving are indulged in, the spring division and replanting are out of the question, though this matter affects but a very few. During their resting period, however, they are much more manageable than at any other time, and after some experience and observation I prefer this time for repotting.

Where large patches of these are either in the herbaceous border, the pleasure ground, or the rockery, it will generally be found, after a summer's weeding, cleaning, and so on, that a large percentage of the rhizomes are lifted above the surface, and the many roots with which they are closely studded are therefore exposed to external influences. Despite the fact that the plant is sufficiently hardy to endure all such exposure, and that it is the nature of these rhizomes to come to the surface, I cannot but think that the general vigour and welfare of the plants are increased by their being planted periodically, so as to bury them, or that the plants in autumn receive a good mulching for the same reason. There need be no fear of burying them, for they will rise to the surface during the ensuing year. In the open ground the varieties I have tried do not appear particular as to soil, but where given the conditions, they one and all show unmistakable preference for abundant moisture and partial shade, so much so, that a few years ago, in making a bed for these plants, I removed all the good surface soil and then dug out several inches of the subsoil, and, dispensing with the latter, returned the former to its place, thus leaving the surface of the bed some inches below the ordinary level. This was done in order that the *Primulas* might receive the advantage of all the rainfall. I have, however, never seen the plants more generally luxuriant than at the Botanic Gardens, Birmingham, where Mr. Latham has them planted in a moist, low-lying portion of the gardens in a somewhat shady spot and rather heavy soil. Here the plants seem to revel, and where these *Primulas* are planted in the open these are the primary conditions for imitation. On the other hand, the rockery in hot, dry situations is the worst place for them.

As pot plants, they may be grown in rich loamy soil, making a point of supplying plenty of water during the growing season. Some 5-inch or 6-inch pots will be convenient for general work, while for the embellishment of the large conservatory or winter garden they may be grown in larger pots or even pans, and if introduced as the flowers are expanding, would be productive of good results and the plants would not be weakened in consequence. Few things among spring perennials are more bright or cheery when properly grown and where the colour of the flowers is not enfeebled by having been subjected to too much heat. Grown as pot plants they are very easily managed, and when potted, say in autumn, may be stood close together on a hard bed of coal ashes, covering the plants an inch or so with cocoa-nut fibre to keep them uniformly moist. Here they may

remain till the young leaves begin to push forth in the early days of the year, when a few may be taken to the shelter of a frame till the spikes are fully developed and the flower-buds showing colour, by which means their flowering season may be extended. Out of doors large established patches may, during favourable weather in winter-time, receive frequent doses of liquid manure, which will stand them in good stead by-and-by; or, failing this, a good annual mulching of manure would prove equally beneficial; indeed, in whatever way they are grown, a good generous treatment should be adopted throughout. E. J.

FLOWER GARDEN NOTES.

TAKING an average of years, it is an undoubted fact that less work is done in the flower garden in January than in any month of the year. Frost-bound ground and snow are effectual checks to outdoor work in this department, so whether it be the laying out of new grounds, alterations, or the routine of an established garden, all labour is often at a standstill. If this be the case with outdoor labour, it does not, however, apply to all work in connection with this department, and before the end of the month if bottom-heat is ready, propagation either by seed, cuttings, or division will have commenced. Many of the things employed in the flower garden either for what is usually termed sub-tropical work or to be hereafter used as dot plants on a dwarf carpet should be sown early, especially if the seed is of slow germination. Thus the end of this month or the beginning of February is not too soon for *Grevillea robusta*, *Eucalyptus globulus* and *E. citriodorus*, *Cannas*, some of the *Solanums* and *Wigandias*, Japanese *Maze*, and *Acacia lophantha* and *A. dealbata*. Apropos of the last named, seed of many varieties reached me last spring from Sydney, and although a goodly portion was rendered useless by premature germination, plants of several sorts were obtained, and I hope to try them out of doors during the coming season. *Cobaea scandens*, so useful for clothing bare pillars and trellises during the summer months, should be sown about this time either singly in small pots or thinly in pans, and potted off as soon as it can be handled with safety. The *Tobaccos* can be left until later, but I like to put a little pinch of *N. affinis* in early, as if plants are required for some special purpose, the earlier date enables one to have some capital plants by the beginning of May that will throw up their flower-stalks very quickly after planting. A few Sweet Peas may soon be sown in pots; these flowers are always acceptable, and if half a dozen seeds are put into 4-inch pots, they can be grown along, planted out early, and if sheltered for a time with a few bushy twigs, they will anticipate the season of outdoor-sown ones by nearly a fortnight. I cannot say I care about autumn sowing, as if they appear above ground very early it is a very difficult matter to preserve them from the ravages of birds, slugs, and other marauders. Coming down to plants of dwarfier habit that require early attention, *Begonias* want a long season, and should be sown by the end of January. As before recommended, it is a good plan to plant out the seedlings the first year on some warm and sheltered border in the kitchen garden, and make an annual selection of those varieties deemed most suitable either for pot work or bedding. They can be marked, and tubers stored away for another season's display. The silvery-foliaged *Centaureas* and *Cinerarias*, too, must be sown early if a stock is to be raised in this manner. They are not so much grown as formerly, but make really handsome beds associated with the old *Verbena Melindres* or a dark, free-flowering *Heliotrope*. A large bed of striking appearance last year had a carpet of *Centaurea ragusina* interspersed with a few pyramidal plants of double pink Ivy-leaved *Pelargoniums* nearly 5 feet high. A pinch of *Carnations*, *Grenadin* and *Marguerite* may also soon be sown, another sowing being made later on. The above comprise most of the things that require sowing thus early in the year.

The attention of the propagator may be next directed to any specialities that are to be increased by division or cuttings. I have before noted the necessity of filling house boxes nicely, so that they shall be well furnished when placed in position. They should be planted not later than the middle of March, grown on for a time in a little warmth, and well hardened off. Anything, therefore, required for them not already to hand must be pushed forward as rapidly as possible. Amongst the good and useful plants for this work are, as trailers, Ball of Fire *Tropeolum*, the white and blue trailing *Campanula*, Harrison's Musk, and *Koniga variegata*. To plant to train upwards on balustrades, railings, &c., that may be in the immediate neighbourhood of the boxes, *Cobæa scandens* and Canary Creeper, and for the general filling of the boxes, *Marguerites*, *Fuchsias*, *Petunias*, and *Begonias* are useful. I have noticed many boxes in towns filled with nothing but mixed *Petunias*, and very pretty they were. A few bits of bushy twigs had been placed at the back. The plants had climbed to the top of these, and from this height to the bottom of the boxes, completely hiding the wood-work, was a mass of flower. Some of the *Begonias* of the pendula type are grand for vases and boxes, and if good rich colours in light or dark pink or scarlet of this type show themselves among the seedlings, they should be saved for this particular purpose. One of the first jobs in the flower garden, so soon as it can be done, will be to see to all plants used either as a straight front edging or that occupy permanent positions in the foreground of borders, herbaceous or otherwise. Such things as the old double *Camomile*, *Daisies*, *Thrift*, *Dactylis*, the silvery *Veronicas* and *Antennarias* may, where unsightly gaps occur, be lifted, divided and replanted; indeed, any work of a similar nature that requires attention can be performed as early in the year as possible; any extra beds, for instance, of the common Musk that may be wanted can be planted in February if the soil is in a suitable condition. With the first appearance of foliage in the herbaceous borders, an examination of the same can be made to ascertain amount of loss sustained and to replant where necessary. Summer-flowering *Chrysanthemums* of the Desgrange type and early-flowering pompons often succumb during a severe winter, and a few pots of cuttings must be ready to take their place. These are the only varieties of *Chrysanthemums* except the annual types, as tricolor and its varieties, that are tolerated in the herbaceous border; the display made by the great body of autumn-flowering sorts would be of a very precarious nature, and these are consequently consigned to special borders, where ample provision can be made to shelter the flowers. Where additional planting is in progress in the herbaceous border, let me add to the list of *Spireas* lately given, *S. palmata alba* and *S. Ulmaria fl.-pl.* The former is now rather expensive, but a clump or two must be included in a collection. It is a gem and a lovely vase flower.

E. BURRELL.

Claremont.

SWEET PEAS.

THERE are few plants of annual character so valuable for supplying cut flowers as the different varieties of Sweet Peas, which of late years have been so improved as to give a great variety of distinct colours. I have grown Sweet Peas for many years, and, like a good many more, I had not treated them half so well as they deserved, so that I was really surprised, when I gave them a little extra good culture, at the results that followed. A few years ago I had a few seeds of a very fine variety of the pure white Sweet Pea, and as white flowers are always valuable, I resolved to see what these would do if treated well. I sowed the seeds in 3-inch pots in January, putting half-a-dozen seeds in each, using good sifted loam and leaf-mould, and setting them on a shelf near the glass in a cool greenhouse. The seeds soon germinated, and in February the seedlings were placed in a cold frame and kept freely ventilated in mild weather, so as to keep the growth sturdy. In the

meantime I had prepared trenches very similar to those employed for Celery. The trenches, which were 1 foot deep and nearly 2 feet wide, were filled quite half full with good manure and the soil returned, nearly filling the trench level, and raising the remainder at the sides so as to form a bank to keep the water supplied in dry weather from running off. About the middle of March the Peas were planted out, setting the little clumps about 2 feet apart, and staking at once with good stout Hazel sticks. An extra protection of evergreen branches was also given at the base not only to ward off frost, but to break the cold currents of air caused by the prevalence of easterly winds about that time. The plants soon started into growth and began flowering freely in May. The blooms were regularly picked when fully expanded, none being allowed to go to seed until after midsummer. This success I attribute to planting thinly, abundance of food for the roots, and keeping the blooms closely picked. The varieties most in request are white and scarlet, as they always find a ready sale, but for private gardens the many beautiful mixed colours may be grown with advantage. Those who wish to grow Sweet Peas in the coming season should lose no time in sowing the seed in small pots and thoroughly preparing a site for them in good soil and an open situation.

JAMES GROOM.

Gosport.

LITHOSPERMUMS, AND HOW TO GROW THEM.

In looking over some books to-day, I noted a paragraph on *Lithospermums*, in which the writer threw out the idea that only one or two species were really hardy plants; in fact, special allusion was made to *L. Gastoni* as being one of the doubtful hardy kinds. Then, again, I notice in *THE GARDEN* of January 23 (p. 87) an interesting note on *L. graminifolium*, where the writer gives us to understand that this plant will not bear the cold of our climate. It reminds me of a gentleman who purchased it and immediately divided the plant, planted the divisions in autumn, and because the divided morsels failed to root and grow in spring, the plant got into bad repute! Having known this plant, imported it, and grown it for many years, I hope a few remarks about it and other species of the genus may be acceptable to the readers of *THE GARDEN*.

L. GASTONI.—I remember well Messrs. Backhouse and Sons importing this for the first time. It then was so much sought after, that the stock soon became exhausted. It is a most distinct plant and is found at high altitudes on the Pyrenees. It forms strong underground woody shoots, or root-stocks; from these arise fleshy, leafy stems, 4 inches to 12 inches high, varying according to the richness of the soil or the age of the tuft. The flowers, of a beautiful azure-blue, with a white centre or eye, are borne in terminal erect clusters; occasionally the blossoms are more or less suffused with red. It is a difficult subject to establish. I have grown it successfully in the ordinary nursery borders. I have it also in pots of various sizes without the slightest covering or protection, and rarely lose a plant; in fact, the plants, earth and pots are at the present time literally balls of ice. In planting it, I like to mix the soil pretty freely with nodules of stone. The soil, however, should be enriched by well-decayed manure.

L. GRAMINIFOLIUM.—The first time I saw this plant was many years ago in Mr. Maw's garden. The tuft was fully 18 inches in diameter, and Mr. Maw informed me that it was one of the best alpine on his rockery. From the size of the tuft it must have been there some years and without protection, therefore quite hardy. No alpine garden should be without it. It forms large, half-woody root-stocks, with tufts of grassy leaves resting upon the earth (and in this fact lies the danger in winter to the well-being of the plant). From these grass-like tufts arise slender wiry stems 6 inches to 12 inches high, surmounted by a

cluster of pendent blossoms, six to a dozen together, lovely, bell-shaped, intense deep blue flowers, which continue for weeks in succession. In planting it, dig out the ordinary soil to a depth of 24 inches, put in 6 inches of drainage, then fill up to within 6 inches of the top with a compost of loam, nodules of stone, plenty of white sand and a little decayed manure. For the last 6 inches add much larger pieces of stone, place these in perpendicular positions, and amongst these the plants can be inserted. It will be seen that with the above arrangement the foliage of the plant would rest upon the upper edges of the stones instead of on the earth. When treated in this way I feel sure the plant will gain the title of being "quite hardy." It might also be planted in crevices of rocks, the plant being placed in a horizontal position. In this case, however, it is important that there should be abundance of the above-named compost behind the rocks for the plant to root into. Another little-known plant and one rarely seen is

L. OLEIFOLIUM, a perfectly distinct species. It forms spreading tufts, composed of large obovate leaves, which are leathery in texture. The blossoms, of a pleasing light, almost sky-blue shade, broadly campanulate in shape, are borne in loose terminal clusters on short slender stalks. It should be planted in sheltered positions, say under an overhanging rock or bush or amongst Heather, and so placed as to be sheltered from the rays of the early morning sun, in very sandy peat, the same as is used for the hard-wooded *Ericas*. A little limestone or old mortar can be added if at hand. Water as little as possible over the foliage.

L. PROSTRATUM (the purple Gromwell) is so well known and so great a favourite, that I need scarcely say anything about it. No collection should be without it, forming as it does such exquisite sheets of deep gentian-blue. In the next species,

L. ROSMARINIFOLIUM (the Rosemary-leaved Gromwell) we have one which is certainly not hardy, but is nevertheless so valuable as a winter-flowering greenhouse shrub, that we can ill afford to lose it. It forms erect bushes 12 inches to 18 inches high, much branched. The flowers are deep blue, suffused in parts with white.

L. PETRÆUM (the Rock Gromwell).—This forms little Lavender-like bushes, the leaves being of a greyish silvery shade, with compact clusters or heads of pendent, violet-blue flowers, which appear in June and July. It should be planted on rock-work in deep rich sandy loam. Not difficult to grow, but very impatient of being transplanted.

Holgate, York.

R. POTTER.

SEASONABLE NOTES ON FLORISTS' FLOWERS.

THE CARNATION AND PICOTEE.—With the lengthening days the mind of the cultivator is much exercised in preparing for the repotting of such plants as he intends to flower under glass. The entire collection must have a final look over as soon as it is convenient to do so. Green-fly will frequently appear on the plants, and they seem hardy enough to pass through frosts without injury. I think it is the best way to fumigate the frames with tobacco smoke, and if this is done on a still, quiet night, the pest will most likely be destroyed. We are now preparing the material for repotting the plants. The soil should be good yellow loam; that taken from the top spit of an old pasture or common is best, and it should have lain long enough for the grass and roots to have become decayed. We look this loam over carefully for wireworms, tearing it in pieces by hand. We add to this a fourth part of decayed manure, as much leaf-mould and some coarse sand with a little broken-up charcoal. I like this mixture to lie in a round heap for three or four weeks before it is used, as the materials get more perfectly mingled together. The flower-pots should be washed and laid up ready for use; the sizes used are mostly 8 inches and 9 inches in diameter, inside measure. Clean potsherds must be ready for drainage, and

we have also some fibrous form, from which the finer particles have been shaken out, to place immediately over the crows. I usually begin repotting about the last week in February or the first in March, returning the plants to the frames again. A pair of the weaker-growing plants go into the smaller flower-pots, and the stronger growers into the larger. Plant them rather deeper in the soil than they were before; in some instances they may be fully an inch deeper, and space should be left between the surface of the soil and the rims of the pots to allow of a surface-dressing of some rich material in May when the time arrives to place sticks to the rising flower-stems. The plants out of doors in the open borders do not at present show very much signs of vitality. The leaves look rather more shrunk than they did when we planted them out in November—it was rather too late, I admit, but a pressure of other work prevented its being attended to sooner. The soil around the plants has been much loosened by the winter frosts, and some of the plants are also rather shaky. I will endeavour to go over the entire collection of named varieties and stir the surface of the soil, pressing in most of the plants with the fingers, leaving the surface neat and clean. The seedlings intended to flower during the present season for the first time need only to have the surface stirred, all the weeds removed, and a surface dressing of short decayed manure put over the surface is an excellent stimulant. I live in a district where game is very scarce, but a stray hare obtained entrance into the garden, and cropped over a large number of fine plants. Hares and rabbits are very fond of nibbling Carnations and Pinks when they get a chance. I wrote upon the Tree or perpetual flowering Carnation at page 6; since that date I have put in a large number of cuttings. The first of them are now rooted, and are being planted in 2½-inch pots; these deep flower-pots answer well, as the plants are quite small, and space at this season being of considerable importance, they go into less space than the wider, more shallow 3-inch pots. The main point to attend to at present is cleanliness; placing the plants near the glass in a warm greenhouse.

TULIPS.—I observe the plants are pushing through the ground regularly and strongly. The weather after planting them out this year was very favourable, and enough rain fell to give them a kindly start without being injurious in any way. I do not intend to cover them over; they have taken their chance in the open borders for more than ten years, and we obtain regularly large well-ripened bulbs. I am not sure but that the precedent of covering the Tulip beds in the early spring to shelter the young plants from inclement weather was set by the growers in such a wet cold county as some parts of Lancashire, and copied by those living in more favoured districts who might be anxious about rare and choice bulbs in which a small fortune had been invested. If it is thought necessary to protect them, the usual plan is to bend over the beds strong iron rods; connect them with stout laths to keep the rods in place and cover with mats or stout canvas.

THE POLYANTHUS.—The gold-laced section should be placed first, as they are more decidedly florists' flowers than the fancy varieties. The plants are grown in pots from September until it is time to plant them out again after flowering. They are now starting into growth, and when wintered with the Auricula, start into growth before them. Except that these plants when grown in pots require rather more water at the roots than Auriculas, the treatment in other respects is the same. The gold-laced Polyanthus is more a flower for the cooler northern districts; the plants in the south of England become sickly by persistent attacks of red spider during the hot dry weather experienced in summer, and they seldom recover sufficiently to flower well next season. What for want of a better name are termed "Fancy Polyanthus" seem to me to be of much greater value for cultivation in the south of England. All that they need is a border of rich, deep soil in a partially shaded place, but not under trees, and the plants flower with the greatest

profusion. We have two hundred or three hundred plants in a shady border from which flowers can be obtained during nine months in the year.

THE DAHLIA.—This has become again a very popular flower, and rightly so, for it is a plant that can be grown by anyone, and its culture is so simple, that it may be left in the hands of those who scarcely know garden flowers at all. It has the disadvantage of not being a hardy plant, but the tubers can easily be preserved through the winter in a spare room or cellar that may be comparatively dry. If the place is close and damp, decay may set in at the neck of the tubers, and this will sometimes destroy the eyes from which the young shoots are to be obtained. Those who have vineries in which the Vines are now being started to grow, should place the tubers in them at once. I have shallow boxes in which they are placed close together with enough fine soil to cover the tubers. They will soon start into growth, and as soon as the shoots are 2 inches or 3 inches long, take them off and plant each one by itself in a 2½-inch pot. Scarcely any plants form roots more readily than these young Dahlia cuttings in a little bottom-heat. When well rooted, repot them into 4-inch and 5-inch pots. The single-flowered varieties are not so popular as they were; the small-flowered pompon Dahlias are the most useful for the production of cut flowers in autumn, the white and buff or terra-cotta colours being the best. The Cactus Dahlias, as they are termed, come in most useful as cut flowers, and in this instance also I find the varieties with white flowers are most in demand, the buff and reddish-buff being next to them. We grow a less number of the bright purplish and crimson shades. A few good varieties with rose or pink flowers would be in great demand, gaudy showy colours not meeting with popular favour.

J. DOUGLAS.

GARDEN FLORA.

PLATE 843.

HYBRID STREPTOCARPI.

(WITH A COLOURED PLATE.*)

THE plate for this week represents a group of the seedlings of Streptocarpus raised in the nurseries of Messrs. J. Veitch and Sons. They are the progeny of hybrids which have been the subject of several notices in THE GARDEN recently, and whose beauty and usefulness in the greenhouse are now generally recognised. A picture such as that now published serves to give a much better idea of the character of the plants than could be conveyed by mere words. Seeds of these Streptocarpus have been distributed by Messrs. J. Veitch and Sons for the last two years, and those who have tried them are satisfied with the results. No plants are more easily managed and none are less likely to fail to produce a good display of flowers within half a year or so from the time the seeds are sown. They grow as freely as tuberous Begonias and are very nearly as hardy. From a packet of seeds sown in February, plants with white, pink, red, crimson, purple, lavender and variegated flowers will probably be the outcome, blooming about August of the same year. If seeds are saved from these, other varieties will very likely be the result, especially if the different kinds are crossed whilst in flower. Good varieties may be kept and multiplied, the plants being perennial and easily propagated

by division or from leaf cuttings. The plants like plenty of light in a greenhouse or warm frame, and they prefer a light rich soil. Pot cultivation suits them, but the finest specimens are obtained when the plants are grown in a border in a greenhouse, whence they may be lifted and potted when in flower without suffering. We are as yet only beginning to discover the value of these Streptocarpi as greenhouse plants; it is therefore probable that in about ten years' time selection and judicious crossing will have developed a race of these plants which will equal in value the Begonia and the Gloxinia.

The history of these hybrids has not yet been told in the pages of THE GARDEN. In May, 1886, a coloured plate representing several hybrids raised at Kew from *S. Rexi* and *S. parviflorus* was published in THE GARDEN. A comparison of that plate with the present one will show what influence a third species (*S. Dunni*) has had when crossed with these two. *S. Rexi* has tufted leaves and long flower-scapes, bearing one, sometimes two large lilac-blue flowers, with streaks of purple on the lower segments of the corolla. *S. parviflorus* has the same habit as *S. Rexi*, but a shorter scape, bearing sometimes six or more flowers, which are small and white, faintly tinged with yellow in the throat. By crossing these two we obtained several good seedlings, one named *S. Rexi multiflorus* having flowers nearly as large as those of the type, and as numerous on the scape as in *S. parviflorus*. Another, named *White Pet*, had white flowers intermediate in size. In 1886 *S. Dunni* flowered for the first time at Kew, whither it had been sent from the Transvaal by Mr. E. G. Dunn, of Cape Town. This species has only one leaf, which grows almost flat upon the ground, and sometimes attains large dimensions, leaves having been grown at Kew which measured a yard in length by half a yard in width. The flowers were each borne in numerous erect panicles, quite a sheaf of them being open together; they were each about 1½ inches long, tubular, and coloured brick-red. This species when crossed with *S. Rexi* yielded *S. kewensis*, which has two or three large oblong leaves and numerous six to eight-flowered racemes, the flowers each 2 inches long and coloured mauve-purple, streaked with maroon in the throat.

S. Watsoni was the result of crossing *S. Dunni* with *S. parviflorus*. It has several long green leaves and erect crowded panicles of bright vermilion flowers, streaked in the throat with deep crimson. These two hybrids flowered in 1887. In the same year the hybrids were crossed with each other and with their parents, the result being a most interesting and promising brood. The colour of the flowers varied from white through every shade to crimson and purple. The fault most of them had, however, for pot cultivation was in the large and somewhat ungainly character of the leaves. This we set about to remedy. A selection of these seedlings was obtained from Kew by Messrs. Veitch and Sons, and upon these Mr. Heal has employed his well-known skill

* Drawn for THE GARDEN by Miss Low in Messrs. Veitch's nursery, September 25, 1891. Lithographed and printed by Guillaume Severelyns.



as a plant breeder with excellent results. He has almost got rid of the ungainliness of the leaves, and at the same time has raised some kinds with very prettily marked flowers. Numerous crosses have also been made annually at Kew. The flowers are very easily manipulated if required for crossing. An interesting fact worth recording with regard to *S. Watsoni* is that of its failing to produce seeds, although its pollen is potent when used for other kinds. This hybrid is a striking picture in summer along the edges of the borders in the temperate house at Kew, where it grows and blooms very freely. Some of the hybrids here described have been crossed with *S. Saundersi*, a monophyllous species, which was first introduced by the late Mr. Wilson Saunders from South Africa, and flowered at Kew in 1861. The leaf is heart-shaped, from 2 feet to 3 feet long and about half as wide, dark green above, crimson below. The panicle is 18 inches high, branched, and many-flowered, the blooms each 1 inch long, narrow-tubed, with a flat limb, and coloured white tinged with violet. Some of the seedlings obtained from this cross have large flowers quite distinct in form from those of all other seedlings, but the leaves are awkward. An interesting hybrid has also been raised by M. Lemoine & Son, of Nancy, I believe, from *S. Rexi* and *S. polyanthus*, the latter a one-leaved species with a many-flowered panicle, the blooms small and coloured blue. The hybrid is interesting. It flowered at Kew last year.

Pesides these species of acaulescent habit, there are several with fleshy stems, which grow to a height of about 6 inches, branch freely, are clothed with small ovate leaves, and bear numerous axillary racemes of small Lobelia-like flowers. So far we have failed to cross these with any of the stemless kinds. The new introduction from the Transvaal which flowered at Kew last year, and has been named *S. Galpini*, is a plant of great beauty, which, however, need not be described here, as a plate of it will shortly be published in THE GARDEN. W. W.

Dendrobium Ainsworthi.—The finest hybrid Dendrobiums hitherto raised are undoubtedly those that have been obtained by crossing *D. aureum* and *D. nobile*. Up to the present time three kinds of this origin have been described, viz., *D. Ainsworthi*, *D. Leechianum* and *D. splendidissimum*, with the addition, however, of several varieties. They all bear a strong likeness to each other; so much, indeed, do some of their varieties run one into the other, that occasionally it is impossible to determine by their characters from which cross they were originally derived. *D. Ainsworthi*, being the oldest, is, in consequence, the best known and the most widely cultivated. It was raised near Manchester by Dr. Ainsworth and flowered by him for the first time in 1874. Combining as it does to a great extent the good qualities of both its parents, it may safely be said, from the standpoint of horticultural value, to occupy one of the first places in the beautiful genus to which it belongs. Its flowers, which are borne in pairs or threes from the joints of the stems, are each about 3 inches across, the sepals and petals being white, more or less tinged with rose-purple towards the points. The somewhat funnel-shaped lip is white round the edges, the centre being of a rich amethyst-red, pro-

ceeding from which are numerous rays of the same colour. An example of its free-flowering qualities and general usefulness as a garden Orchid is afforded by a well-grown plant now in bloom in Mr. F. Wigan's collection at East Sheen.

THE WEEK'S WORK.

ORCHIDS.

TOWARDS the end of this month we may expect greater heat than some plants like. Some *Cypripediums* of the *C. superbiens* parentage and this species itself are checked in their growth by exposure to sunshine early in the year, and most Orchid growers are aware that the Moth Orchids (*Phalænopsis*) will not stand bright sunshine during the present month. This being the case, it is very desirable that the blinds should be got in order. Our garden is very much exposed, and the wear and tear of the blinds are very considerable; even new ones that have been up one year only will require mending before they are placed on the rollers and laths again. Some cultivators do not trouble about blinds and rollers, but merely stipple the roofs of their houses with some sort of green or white powder. The material termed "summer cloud" I have used on parts of the roof where it was not quite convenient to fix blinds; but it ought to be borne in mind that when this "stippling" is used, it robs the plants beneath of light in dull weather, and even in sunny weather when shading is not needed in the early and later parts of the day; whereas when blinds are used and fixed with pulleys and rollers, the plants need not have the blinds over them ten minutes longer than is necessary. After a considerable experience of various methods of shading, I do not think any better plan can be devised than that of roller blinds. The first house to be shaded is that where the East Indian Orchids are grown, and in this department the shading may be allowed to rest on the glass roof. I have tried it in this way, and also raising it from the roof by means of laths fixed on irons about 9 inches from the glass, and the plants have certainly been more satisfactory when the blinds were not so raised to admit the air freely under them. For the *Cattleya* and also for the cool house I prefer the blinds to be raised off the glass. One must consider the nature of the plants to be shaded. For instance, the general run of plants in the *Cattleya* house needs only the lightest shading material, and that need not be put up until March for most of the *Cattleyas* and Mexican *Lælias*; but to pass from these to the class of plants requiring the extreme of shading, such as the *Bolleas*, *Batemannias*, *Huntleyas*, &c., the difference in the shading material should be considered; moreover, something may be done with regard to the position to be selected for the latter in the house. There is always a part where the sun does not have so much effect; that would be the best corner for the *Bolleas*, and it should also be noted that they do not need so much ventilation as *Cattleyas*; they require to be kept almost constantly moist at the roots with the atmosphere surrounding the plants also in a moist state. Of course where two classes of plants requiring such opposite treatment as *Cattleyas* and *Bolleas* are in the same house, it is not so easy to keep them in so good condition as if a different house could be afforded for each. The finest grown collection of *Bolleas*, *Pescitoreas*, &c., I ever saw was grown in a lean-to house with a northern aspect. The choicer and more difficult plants to grow were in teak baskets suspended near the glass roof. Some of the larger plants were on the side stage near the front, but all were clean and healthy, the flooring, which was merely composed of clay and garden mould under the stages, being constantly moist. On the stage nearest the wall were handsome specimens of the beautiful *Sobralia xantholeuca*. The right conditions for certain plants cannot always be obtained, but it is just as well to know what they are.

Masdevallia towarensis has passed out of bloom, and the plants may now be repotted; the large overgrown ones may be broken up. I have always repotted these in February, and find it answers well to do so at that time. All the species and varieties of the *Chimæra* group may be re-basketed at this season. They would grow very well indeed in pots, but the flowers are produced on descending stems which push through amongst *Sphagnum* on the surface, and even below it; they are not very effective as pot plants. Suspended from the roof glass in baskets of teak the flowers are seen to the best advantage. Most likely the leaves will need sponging over with soft-soapy water to make sure that no thrips or red spider are established upon them. The best potting material is peat and *Sphagnum* in about equal parts. The higher temperature of the *Cattleya* house will encourage the more rapid formation of roots in the case of those plants which have been recently divided, or even if they have been just repotted. I always put these *Masdevallias* on the shady side of the *Cattleya* house. The *Anguloas* are esteemed by some people, and rightly so, for the flowers are not only of singular formation, but truly handsome. The great golden globes of *A. Clowesi* with their powerful odour not unpleasing to many persons, and the column so delicately hinged that it oscillates backwards and forwards with the slightest touch, is an interesting object in itself. The nearly allied *A. Ruckeri sanguinea* is another very beautiful species, the sepals and petals dyed with purplish maroon. In striking contrast to these are the blush and pale rose-tinted varieties, such as *A. eburnea* and *A. uniflora superba*. These plants may be potted at two periods — now, before the roots start into active growth, or later, when the plants pass out of flower in June. I prefer doing it at once unless the roots have started well into growth, when to disturb them would be a serious check to the full development of the bulbs. Although these plants form large heavy bulbs, it is not necessary to give them so much pot room as the size of the bulbs and leaves would suggest. The potting material ought to be clean *Sphagnum* Moss and the best fibrous peat torn up in pieces by the hand, with clean potsherds. Fill the pots half full of drainage. When the days are bright and the houses can be shut up in the afternoon to conserve the sun-heat, the temperature may be a little higher at night than it would when the days are dull and cold, but it is not desirable to increase it thus early in the season unless the conditions are favourable to it. J. DOUGLAS.

PLANT HOUSES.

GREENHOUSE PLANTS. — GENERAL REMARKS. — Plants in all cool houses will not yet make much progress in growth, more particularly such as are of a permanent character. Soft-wooded ones, as annuals, it is true, will show more disposition to grow, but this growth should not be in any sense hastened; it should rather be allowed to proceed naturally; the ultimate result being, as the sun gains power, that they will not feel nearly so much the effects of a few days' bright sunshine. With a change now to milder weather be careful not to keep the greenhouse too close by day or too warm by night. A close, stuffy atmosphere, whether with heat or not, is prejudicial to nearly all greenhouse plants; a regular circulation of air when the weather is mild should be aimed at by free ventilation. This should be applied in as equable a manner as possible, not admitting a large volume of air in one part and none in another. The peculiarities of plants have, of course, to be studied; some will stand a brisk current much better than others; such as are of a soft growth will be found the most sensitive, yet these even are benefited when not too much exposed. When the wind is in the east, not nearly so much air is required, and it should also be carefully admitted from that quarter. After a few days of mild weather with a humid atmosphere, there will be often a tendency to damping off in both flowers and soft foliage. This should be guarded against by applying heat to the pipes early in the day, when it is seen a good quantity of air can be

admitted to act in conjunction with the warmth, so as to dispel the damp before nightfall, when the heat should be taken off and the temperature be allowed to assume its normal figure. By carefully watching the weather, it will be possible to dispense with fire-heat frequently at night. When the outside thermometer stands between 40° and 50° at the time of banking up the fires, there will not be much danger of such a rapid decline in the temperature of a greenhouse as to cause any apprehension before the morning. I would rather at any time see a cool house stand at 35° in the morning with no warmth in the pipes than at 45° with warmth, particularly if the latter temperature were maintained by any excess of fire-heat. Too high night temperatures are most prejudicial to greenhouse plants as a whole, and should be most carefully guarded against, and that more particularly when it is considered that even at the present time the proportion of daylight to darkness is as ten to fourteen. Watering should be seen to early in the day, any excess being guarded against, more particularly where the plants are comparatively inactive. All decaying and fallen leaves should be removed frequently, both for appearance sake as well as for the good of the plants themselves. If the glass be at all dirty either inside or out, the first opportunity should be taken advantage of to give it a good cleansing on both sides; none too much light will be admitted for some considerable time to come.

CAMELLIAS.—These, where in quite cool houses, with only just sufficient heat applied to exclude the frost, will now be swelling their buds. The plants will now receive considerable benefit by frequent syringings. Ours have received this daily attention for some time past. Two objects have been aimed at in doing this, one being to avoid as far as possible any injury from the obnoxious gases contained in the London fogs, which reach us all too often, and the other to counteract any ill effects from fire heat, even when sparingly employed. This frequent syringing also serves the purpose of cleansing the plants from any dirt or dust upon the foliage, the deep glossy green colour of which when in good health is almost as much an ornament as the flowers themselves. See to it also that the plants do not suffer from want of water at the root; plants in pots will usually feel the ill effects of this sooner than those planted out, but these latter even are at times dry around the stem when such a circumstance is hardly suspected. If scale of any kind, or other insects, are infesting the Camellia, a good syringing with soluble paraffin oil insecticide will make short work of them in most instances; what may remain of either scale or mealy bug will not probably escape one or two careful spongings. In doing this syringing, the roots should be protected by something to absorb the mixture before it can reach them; for this purpose old shading, refuse Moss or cocoa fibre refuse could be used.

CYTISUS AND CORONILLAS, &c.—These, where in good health, will now take rather liberal supplies of water, more especially if the plants are showing a profuse crop of flower. If pot-bound, assistance should be rendered by a mild stimulant; weak manure water, or the application of an artificial manure upon the surface occasionally will be found to assist them. Note the words "mild" and "weak," for any excess will do harm in exciting growth of a woody character rather than assisting the flowers, or cause the leaves to fall if given too strong. Eupatoriums are more gross feeders; these will take more liberal supplies, and that with advantage. Where these latter are excessively pot-bound, I would advise that the plants be stood in saucers to avoid as far as possible any injury from drought.

EPACRIS AND SOFT-WOODED ERICAS.—These, where now either in flower or advancing, will require to be looked after rather more frequently for watering. If Epacris are allowed to suffer in this respect, the flowers will fade all the more quickly. Where any shoots of these plants show a disposition to grow too much at the extremities, it will be advisable to pinch out the points, so as to concentrate the energies of the plants more towards the flowers. *Erica hyemalis*, where past its best, with

only faded flowers, should soon be cut back, so as to obtain an early growth from the base rather than allowing the shoots first to make a start at the extremities and then cut them off, which is nothing but wasted energies.

JAMES HUDSON.

THE KITCHEN GARDEN.

SPINACH.—The growth of Spinach being naturally at a standstill throughout the winter months, and the constant pickings also conducing to check growth, with a return to milder weather fresh growth will soon begin. As it will be from this time onwards and throughout the spring months that this wholesome vegetable will be in most request, every encouragement must be given so that a quick healthy growth will follow. If the frost has loosened the plants, which it is apt to on light land, advantage should be taken of the first favourable opportunity to press in the soil about the crowns. To encourage quick growth, a little stimulating manure should be sprinkled over the surface, afterwards hoeing it in. Generally after the main breadth of winter Spinach has run to seed, there is often a blank where no provision has been made to sow a later crop. In my own case the little plants are about an inch across, and these form an admirable succession, and at a time when Spinach is generally scarce. If no such provision has been made, then should the first opportunity be taken of making a sowing, preferably on a sloping south border, a favourite position being between the rows of Peas, where these may be arranged far enough apart for this being done.

SPRING CABBAGE.—By what I have seen and judging from the plants in our own garden, spring Cabbage will be cut early this season, weather permitting. Unless Cabbage can be cut early they are not much appreciated on the dining table, as other good vegetables being in, they are apt to be cast on one side; this being the case, the plants must be encouraged to make as quick growth as possible. Certainly much assistance may be given to hasten the crop, and this by frequent hoeing. The hoe should now be run through the rows to settle the soil about the plants, not a mere surface skimming with a Dutch hoe, but with a draw hoe, well working it into the soil. As soon as the plants are seen to be growing freely, a sprinkling of soot and guano will assist them, and later on if a stimulant is thought necessary, a sprinkling of nitrate of soda will quickly change the colour and bring about a marked improvement in the growth of the crop. If by any chance there are not sufficient plants to form a crop, or they may have been so injured by slugs as to necessitate further planting, do not think by sowing now that the loss will be made good, for even by sowing in a gentle heat and pushing the plants on as fast as circumstances will admit, they will be found to be considerably behind the autumn-raised plants, and therefore cutting "early" Cabbage will be out of the question. The best way out of the difficulty is to purchase autumn-raised plants of an approved early kind, relying on the sowing, which might be made now, for forming a succession. This sowing should either be made thinly in a box of rich soil placed in a gentle heat, or on a slight hot-bed, the plants in this position growing freely enough not to necessitate pricking off until planting-out time arrives.

EARLY CELERY.—It is not often that Celery need be sown at this early date unless required for exhibition, when a start must now be made. For private use it is best to defer sowing for the earliest crop until later on, as there is nothing to gain by sowing now unless early heads are looked for. Celery sown now requires close attention, for the least check from cold or dryness at the roots is quite sufficient to arrest growth. Another of the evils is thick sowing, and as for any purpose a great many plants will not be needed, the precaution must be made of sowing thinly in a shallow box, so that each small plant will have room to develop. Place in a gentle heat to germinate, taking the precaution as soon as the seedlings are through the soil to place them near the glass

in the same structure. A cold draughty structure must be avoided, this very quickly checking growth. The young plants must be pricked out into other boxes and be kept growing on, planting out afterwards in prepared frames to further prepare them for outdoors. Never let the plants suffer from want of water. The white forms are generally selected for this early sowing, but Fulham Pink and Early Rose are also valuable.

LARGE ONIONS.—The large Onions seen at exhibitions, and of which there are now some fine types, have many admirers. To secure these large Onions, sowing under glass must be adopted. The usual Tripoli kinds as sown in the autumn may also be sown now. The seeds must be sown thinly in pans or boxes, and be placed in a gentle heat to germinate. The seedlings should be grown on well exposed to the light, and afterwards hardened off preparatory to being planted out. The Tripoli or indeed the larger kinds may be planted direct from the box, although they are often potted off singly.

A. YOUNG.

HARDY FRUITS.

PREPARING FOR GRAFTING.—Experts have long been of opinion that the stocks ought to be cut down ready for grafting several weeks in advance of the period for fitting the scions to them. It is not advisable, however, to expose fresh wounds or bare wood to the action of severe frosts, but there should be no further delay in cleanly cutting across all the stocks exactly where the grafting is to take place. No fixed date can be given for the latter operation, everything depending upon the state of the stocks. Not till the upward movement of sap takes place should the scions be inserted, or otherwise these may perish for want of sustenance, shrinking of the bark being another cause of failure if the grafting is done too soon. It is also of the greatest importance that the scions be in a fresh, yet perfectly dormant state when wanted. If left on the trees they would most probably be equally as forward as the stocks, and to prevent this all ought to be taken off and half plunged in a north border or in some cool, moist position.

APPLES.—These, perhaps, are more generally grafted than any other fruit that can be named, but only a comparatively few gardeners prepare stocks specially for the purpose. That, however, need be no hindrance to the desirable object of increasing the stock of superior varieties. If there are no moderately strong young seedling trees of any kind suitable for heading down to within 8 inches of the ground, there are usually several trees of inferior varieties that might well be re-grafted with something that better repays for cultivation. This applies with equal force to pyramids and bush trees as to standards in the orchards or elsewhere. It would be a great mistake and loss of much valuable time to head these down to near the ground or hard back to near the trunk as the case may be, the proper course to pursue being to insert grafts in every strong branch all over the trees, and then it will not be long before they are once more capable of producing a full crop of fruit. Prepare these trees as just previously advised by cleanly sawing off all the branches to within 6 inches of the main limbs, but the spray or wood not large enough to be grafted may well be left for at least one season. Re-grafting large trees is perfectly advisable in the case of that valuable Apple Blenheim Pippin, as by no other means can trees be had nearly so quickly in full bearing order.

PEARS.—Much that has been advanced concerning Apples also applies to Pears, and there are thousands of trees in this country that are of little value as they now are, but which if re-grafted with superior varieties would, in the course of five or six years, produce very profitable crops. Especially is it advisable to change the character of wall trees that do not merit the valuable site they now occupy. If preferred, one half of the branches may be grafted early this spring and the rest left for several years longer, or till the newly-grafted branches are in full bearing. Every other limb may be sawn

off to within 6 inches of the main stems, or one side of the tree be wholly re-grafted. The trees being in fairly good health, the grafts grow with surprising rapidity, and if not unduly pruned are not long before they produce fruit. There is nothing to prevent or much to be said in favour of the old practice of placing several varieties of Pears on one tree being adopted. Not unfrequently Pear trees against walls lose their leaders, but if the stunted ends of any of the branches are sawn off and re-grafted with healthy shoots of the same or any other variety, a fresh and healthy lead will usually result.

VARIOUS. — Strong sucker growths and seedlings of any kind may all be converted into stocks for grafting, though, seeing that the Green Gage comes perfectly true to name, and seedling trees are only a comparatively short time before they attain a bearing state, it is not often a wise proceeding to convert seedlings of this variety into stocks. Good-sized trees of any variety not much appreciated may also be cut over and re-grafted with a sort preferred to it. The Plum stock is that usually selected for Peaches and Nectarines, and these, if the precaution of early taking off and retarding the scions has been taken, graft quite as readily as any other fruits. Old trees may also be re-grafted with a fresh variety. Apricots, as well as Peaches and Nectarines, are principally propagated by means of budding, but there is nothing to prevent grafting on to young Plum stocks, or the re-grafting of old trees. Seedling Cherry stocks, notably those obtained from the Morello, form excellent stocks for most Cherries, the Mahaleb stock being good for dwarfing. Cherries may be re-grafted similar to other fruit trees named, while the Quince and Pear stocks are suitable for Medlars.

W. REBULDEN.

KITCHEN GARDEN.

POT CULTURE OF VEGETABLES.

VEGETABLES, with one or two exceptions, cannot often be profitably grown in pots, but it would seem that very many gardeners have to learn this by experience before they can be persuaded to adopt other methods of forwarding them. Now-a-days so many flowers have to be grown under glass that there is little or no room for vegetables, and unless the latter can have the best positions and liberal treatment generally, it is worse than useless to attempt to grow them. Even when plenty of room under glass is available, it does not follow that any vegetables that may be forced or forwarded considerably should be grown in pots. On the contrary, it is my belief that boxes are much to be preferred to pots, as being of a more non-conducting nature, their contents, therefore, are less likely to suffer from too much heat or dryness than is the case when they are rooting in pots. Kidney Beans are of all vegetables perhaps the most largely grown in pots, and they succeed well in them till hotter weather arrives in the spring, after which fairly deep narrow boxes, or, say, 9 inches wide, the same in depth, and of any length are much to be preferred. In these they do not require nearly so much water as do pot plants, and if the two plans are tried side by side, the Beans rooting in boxes of soil will in most cases be found in a healthy productive state, when perhaps those in pots are badly infested with red spider and quite exhausted. Boxes are certainly not so handy for moving about, but the later crops of Beans under glass ought not in any case to be grown on high shelves or close up to the glass, their proper place being much nearer the water tanks, or at any rate where they can be readily watered as often as need be.

Peas scarcely ever pay for house culture, but if boxes were more often substituted for pots

when a trial was made there would be fewer failures. At the outset they may not require much water—in fact they may easily have too much and turn yellow accordingly, but when the pots are well filled with roots they must be kept well supplied with water and liquid manure, or otherwise light crops of puny pods filled with poor, dry Peas will be the result. They are not amenable to hard forcing, but I have done well with them in long narrow boxes, shifting these from one vinery to another, or one Peach house to another, according as the heat was raised beyond what was good for them. In reality the outcome of so much care and labour, this whether pots or boxes are used, is anything but satisfactory, and in no way equals what can be done with the aid of rough pits and frames, glazed or otherwise. Raise a sufficiency of plants in small pots or boxes in gentle heat, and plant out in rich soil disposed on a slight hotbed, taking care that a little partially decayed manure is within easy reach of the roots, and the Peas will succeed well. If preferred, the seed could be sown where the plants are to be grown, but it answers my purpose better to plant them out and to roughly protect till the plants are well advanced in growth. Dwarf varieties, such as Chelsea Gem, William Hurst, and British Wonder in rows 15 inches apart, succeed admirably under this method of culture, or, as before hinted, very much better than they will in pots. Potatoes, again, are sometimes forced in pots, the sizes used ranging from 8 inches to 15 inches in diameter, but they make a lot of work and seldom give other than a poor return. For several years in succession I grew a quantity both in pots and boxes. The crops from the boxes were generally heavier than those obtained from pots; but I was glad to be able to grow the earliest Potatoes in heated pits and have clearer Peach borders. Pit and frame culture with or without either glazed lights or fire-heat is by far the most satisfactory, and really excellent crops can be had with these aids, always provided bottom-heat and rough protection are afforded. Even Cauliflowers are sometimes grown in pots, the small early forcing forms answering fairly well under this method of culture. Single plants, well rooted in 3-inch pots and from these shifted into 9-inch pots, a rich loamy compost being used and firmly packed about the roots, soon attain a fairly large size, though there must be no hard forcing. Cauliflowers once well established in pots require a tremendous lot of water, and when once the heart has commenced to form, they should have liquid manure daily. Where ours have succeeded the best has been along the light fronts of successional Peach houses, the plants being allowed to root out into a little rich soil placed under the pots. When there are no serious or wholesale losses of late Broccoli to deplore, there is little or no need to grow Cauliflowers in pots or under glass at all, but they were wanted badly last spring. Even in all such instances frame or pit culture, the plants having the benefit of a firm and fairly rich root-run and not being subjected to high temperatures, is by far the least trouble, and therefore to be preferred to pot culture.

It is not often that Lettuces are grown in pots or boxes, but I have met with instances where one or both plans have been tried, boxes naturally answering the best. Frames on mild hotbeds, with the soil well raised to the light, are the best positions for early Lettuces, and they well repay for any such trouble taken with them. Cucumbers and Tomatoes both succeed well under pot culture, though those who adopt that plan of growing them must remember that they require to be very closely attended, ne-

glecting to keep the plants well supplied with water and liquid manure soon ending badly. Vegetable Marrows are but rarely fruited in large pots and boxes, but I have grown them up the roof of a moderately warm house somewhat after the style Melons are grown in pots. Under glass the flowers remain open less than an hour, and I have been obliged to fertilise the female flowers before 6 a.m., or otherwise no fruit would have been had. They do not pay for the trouble unless wanted very particularly. I. M. H.

POTATOES.

"A. Y. A." asks what I have to say as to how many Potatoes have gone out of cultivation since the international Potato shows ceased. I was looking over a Potato list the other day of about 100 varieties, and as so many of the varieties were included which figured prominently on the international show tables, I concluded that so many were not entirely out of cultivation as is commonly imagined. It does not at all follow that because A grows only twelve varieties, that B or C grows only so many and the same. In hardly two gardens in the kingdom is just the same selection found, so that no one can say what varieties have gone out of cultivation and what have not. Still further, Potatoes are in precisely the same category as other vegetables or plants are. New sorts are so very easily raised, that if some show improved form, others must be displaced to make room for them; or if the new ones be not improved, neither better nor worse, in fact, than older ones, yet some will purchase and grow them, and thus older sorts are gradually elbowed out. It represents no demerit in scores of Potatoes now little heard of that other sorts have largely taken their places. Those varieties were of the best of their day, and rendered good service in their time. Out of all the chief varieties in cultivation now, perhaps ten years hence hardly three will be generally grown, and yet we have a great wealth of fine varieties. It is very probable that lack of quality in Potatoes is mostly due to lack of proper constituents in soils. It is very interesting to note how some soils are naturally good Potato producers, the same sorts turning out indifferently in other soils. Kitchen garden soils rich in ammonia, but lacking phosphates, turn out tremendous plant growth and enormous root produce, but the Potatoes are of wretched quality. Such tubers invariably decay in disease-raging seasons rapidly. If anyone would select a piece of soil devoid of ordinary manures and plant rows of Potatoes of the same sort and same weight of seed in each row, giving to each row diverse manures, it will invariably be found that the compound in which phosphates preponderate will give the best crop and best quality. Experiments of this kind are valueless if conducted on ordinarily well-enriched soils, as the plant growth need not be specially encouraged, the chief aim being to secure tuber-production. With respect to the particular application of artificial manures to Potatoes, I have always found the best plan to be to sow or sprinkle in the compounds with the tubers at the time of planting. Very convenient methods to do this naturally suggest themselves to all gardeners. Having employed special Potato manures largely for trial at various times, I found the best plan invariably to be to throw up the soil into sharp ridges, so as to leave furrows at 3 feet apart, deeply forking up the furrows just before planting time, drawing shallow drills along the furrows, planting the tubers and sowing the manures. I then forked in the sides of the furrows, covered the sets some

4 inches deep, and left them until later the tops showed through the soil, then by forking and levelling the soil between the rows it was in excellent condition for earthing later. When the manures are so sown with the sets the little rootlets soon feel its effects, and the first growth is strong. It is a great gain thus to secure precocious, stout growth, because the future character of the Potato plants depends upon the foundation thus laid. With respect to ensuring clean, healthy tubers from stiff soil, I have tried various ways, and have found none better than placing a layer of long stable manure beneath the sets before planted. In stiff, retentive soils, especially in wet seasons, some sort of drainage is most valuable. Could we foresee the nature of the seasons, we should then be enabled fully to prepare for all contingencies. It is very well known to all Potato cultivators that, however carefully earthed, there is a natural tendency on the part of the plants to form a kind of basin about the stems, and water is thus in rainy times attracted into and about the tubers. Then these tubers as they swell, being invariably in a cluster, press out the surrounding soil, so that this serves appreciably to retain the water about the roots for a time and much harm is done to the quality of the tubers, whilst disease is all the more rapidly propagated if the *Peronospora* spores abound. But when there is a layer of a few inches deep just beneath the tubers or roots, drainage is formed, which prevents the collection of moisture about the tubers, and they are always clean and dry. I have never lifted so clean and handsome a crop of tubers from the stiff clay of Bedford as I did in one more than usually damp season, when a bed of long stable manure had thus been furnished for each row. It was lack of time and labour only which prevented the constant adoption of this plan. Many who grow large breadths of Potatoes in fields, ploughing in both sets and manure, plant direct on to the firm base the plough has left, and lay the manure over the sets. The result is indeed rarely satisfactory. Were the conditions reversed, great benefit would result, especially if over the tubers a dressing of phosphate manure was added. Generally there are no better Potatoes than those raised in fields if the cultivation be of the best. A. DEAN.

Brussels Sprouts.—These are a welcome and dainty addition to our list of winter greens—early Kale, Savoy Cabbage and Spinach. If they were more generally grown than they are, our seedsmen might be interested in getting better strains of seed, for it is not so much a case of variety as of a carefully selected strain. I grow a large patch of Brussels Sprouts every year, both tall and dwarf varieties and some fancy English strains, and I must admit the best returns are from the fancy strains; Paragon is one of the best. It is not a matter of what plants grow the most quickly, but of which ones produce the greatest number of hard, solid sprouts. Many plants produce a lot of open flabby sprouts and a few hard ones, but these hardly pay for cultivating, and are of little use. A good few may not produce any hard sprouts, and these are still more worthless. Market gardeners are very particular to save their own Lettuce and Cabbage seed, preserving only the very best hearting plants for this purpose. In this way, too, really first-class Brussels Sprouts can be secured. Brussels Sprouts require a long season of growth, longer than any other variety of the Cabbage race. I get the best sprouts from April-sown plants, that is, plants sown a month ahead of the time when we make our general sowing of winter Cabbage. No fear of them bursting their sprouts, as too early Cabbage heads are apt to do. Brussels Sprouts are pretty hardy, more so than Cabbage, and they are the last vege-

table we house in winter. We strip off the rough leaves, pull up the plants, keeping a little earth to their roots, cart them home, and plant them (heel them in would be a better way of stating it) quite close together and standing straight up in a well-ventilated building, where hard frost can be kept out. As the sprouts—like all Cabbages in confinement in winter—smell badly, the place must be kept well ventilated. A shed, stable-stall, or airy cellar will do, only keep it cool and open in favourable weather. WM. FALCONER, in *The Cultivator*.

EARLY PEAS.

The first gatherings of Peas are always anxiously looked forward to, and whatever other vegetables are in season, the earliest Peas are relished. In days gone by the sowing of the earliest Peas in November was more practised than at the present time, although when soil and local conditions are favourable, this old method is more conducive to earliness than sowing during the present month either under glass or on warm borders. The past season was not very favourable for November sowing, the ground being in such a wet state. Such being the case, the majority of the earliest Peas will be sown during this month. It is an open question as to what are the best varieties, some growers favouring one variety and others another, although, as is very often the case, there is but little difference in the earliness. I think that we have become so imbued with the belief that the higher quality Peas are not adapted for early sowing, that the inferior rounds are brought more prominently into notice than their merits deserve. Certainly, there can be no harm nor mistake made by making a sowing of a good stock of an early round to get Peas at the earliest date possible. When sown in the open air, I consider the new early type of Marrow Peas much the best, and there need not be the slightest fear of committing the seed to the ground during the month of February, that is, if the soil is in condition for sowing, for, whatever the kind, getting the seed in at a particular date should not be countenanced when the soil is in an unfavourable state. The dwarf kinds are valuable introductions for garden use, especially for sowing on borders. The tall kinds are ill adapted for this purpose, especially where the walls are covered with fruit trees, as not unfrequently these latter are seriously injured by having direct light excluded from the lower branches unless sown at long distances apart. William Hurst is a capital early dwarf Pea, the quality being first-rate. I grew this variety largely last season and was well pleased with it. I think the reason why some people do not hold these early dwarf varieties in favour is because they may only have used them for forwarding in pots under glass preparatory to being planted out in the open borders. By sowing direct into the open the haulm grows more strongly. The above excellent variety, which I think is the best, with Chelsea Gem and a good stock of American Wonder I consider good types of early Peas. William I. is a well-known reliable variety, and others now forthcoming will drive the other small rounds out of cultivation. For a long time hybridisers have been working for better quality with a hardy constitution in the earlier Peas, and their hopes are now likely to be realised.

In forwarding the earliest Peas under glass any attempt at coddling will surely end in failure, heat at any stage not being at all necessary, and it is with these glass-forwarded Peas that failure is likely to ensue. The seed may be forwarded either in boxes, on strips of turf or in

pots, the last for preference, if the mistake is not made of sowing in too small pots; 5-inch ones are the best, the seed being sown thinly in these and covered with an inch of soil, when if placed in a cold Peach house or frame the seeds will not be long in germinating. By drawing off the lights on all fine days the haulm will be sturdy and of a good colour. Plant out before they become pot-bound, selecting a warm border, or, failing this, an open sunny spot where the young Peas will have the full benefit of every gleam of sun, and where they are also protected from cold, cutting winds. The soil being in a fertile condition, plant out carefully with a trowel, the dwarf varieties being disposed 6 inches apart and the taller kinds a foot. Lumpy ground not being conducive to an after free growth, some finer soil, into which the young roots will quickly penetrate, should be drawn about the balls. Immediately after planting, earth up the rows and stake at the same time, although with the dwarf kinds short sprays are only necessary. Some people, I know, do not take the trouble to stake these dwarf kinds either when planted out after being raised under glass or even when sown direct, but this, I think, is a mistake, as on good ground and under good cultivation the haulm grows strong enough to need support, better crops also resulting.

Where sowing on strips of turf is adopted, this should be cut into pieces about 4 inches in width and afterwards laid in a frame, grass side downwards to facilitate the sowing of the seeds, as any after-disturbance before the seeds germinate would have the effect of displacing them. The seed having been sown on the strips of turf, should be covered with fine soil, when by keeping the frame rather close, the young growing points will soon be visible, when air must be abundantly provided. The turfs are planted direct into shallow drawn drills, and afterwards earthed up and staked. By the above methods young Peas may be brought forward at a time when the elements are not favourable for early sowing in the open air, although the best advice is to sow direct into the open as soon as circumstances will admit, these latter following on quickly and so proving more productive.

Although the practice is not generally adopted of heavily manuring the soil for early Peas, yet good results cannot be expected from poor ground; in fact, the soil must be in a highly fertile state, or the Peas will collapse at a time when support is most needed. I should not hesitate to manure soil for early Peas if this should be thought necessary, a good dressing of burnt garden refuse also being added. Fine bone-meal is also an excellent addition to soils where Peas do not generally thrive well, the bone-meal and burnt refuse adding the elements needed by Peas. A dressing of fresh slaked lime forked into the surface will also be of great assistance, more especially on those soils rich in humus or those of a boggy nature. If the ground is in good heart, the Peas will not be subject to gangrene, which on some soils is troublesome, particularly on those manured with pleasure-ground refuse which has not gone through the fire.

In drawing drills for Peas, draw them with a flat hoe so that the bottom is flat. The drills ought to be drawn deep enough to allow of the seeds being covered with 2 inches of soil, this ensuring a more regular germination. Arranging the rows far enough apart, so as to allow of the light reaching direct, and also drawing the rows from north to south, thereby exposing each side of the rows equally to sunlight, are the modes to adopt in the cultivation of Peas. The

taller varieties should be arranged far enough apart to allow of an intermediate crop, such as early Potatoes, &c. —A. Y. A.

— Most gardeners pride themselves on obtaining early Peas, and few are content unless they can gather outside by the end of May, but it has been a difficult matter during the last few seasons to get them forward enough to do this, as the springs have been so ungenial and cold, and it is only those having sunny borders and with facilities for nursing the Peas who can accomplish the task. At one time I used to sow in the open ground in the autumn, but I have now abandoned that practice, as the Peas had to run the gauntlet with birds, mice and slugs, and when winter was over they generally looked in very poor plight. The mice, of course, were the first enemies to contend with, as they soon found out the rows and burrowed for the Peas as soon as germination commenced. The mice were bad enough, but the slugs were worse. To trap slugs seems out of the question, and the better way is to treat them to some lime-dust and soot, either mixed or separate, the time to apply the two, or either, being when the Pea-tops are moist with dew; and if rain comes and washes the lime or soot off, the dustings should be repeated, but never heavily, as if so, the leaves would get clogged up and the health of the Peas be injured. The best remedy I ever tried against birds was black cotton, which is more effective than that of any other colour, as sparrows do not appear to see it, and when they alight and approach the rows to take a meal and find the cotton touching them, they are greatly alarmed and fly off at once. The way to apply it is to run three lines, the middle one just above the centre of the row of Peas and the others on each side, all strained and supported from and by the aid of small sticks to keep the cotton tight. With regard to obtaining early Peas without sowing in the autumn, the better way is to sow now, some who do this going to much trouble by getting narrow turfs on which to sow the Peas, and afterwards putting them entire into the drills. Where time and labour can be spared, and room under glass, the practice is a good one and answers well, as there is no check, for the Peas may be transferred without any disturbance, and they start off at once. Drain tiles that are in halves are sometimes filled with soil and Peas sown therein. The tiles are good for the purpose and preferable to pots, as being 9 inches or a foot long a row may quickly be planted out from them. If Peas are sown in pots, those 3 inches wide are the handiest, and in planting out from pots the balls may be split or pulled open, and thus be made to reach out in the lines. The way I like best in raising a first lot of Peas is to have shallow boxes of about 3 inches deep, and have either slips of glass or thin board to make a lot of divisions, each some 2 inches wide. If the box is first loosely three parts filled with soil, the strips of board or glass may easily and quickly be thrust into position, and the Peas sown between. Sifted leaf-mould is the best soil for sowing in, as the roots mat in it and hold well together, but it should never be used very wet, neither ought the Peas to have water, as in either case the chances are they would rot.

When sown the seed should be covered about an inch deep, and the boxes be placed in a pit, frame, or house where there is a little heat, which will aid germination. As soon as the seedlings appear, they should at once be moved out and stood in a cold frame close up to or quite near the glass, and have air on all favourable occasions to keep them from becoming drawn. The time to plant out must depend on the weather, but if this is favourable, the earlier in March the better, provided the ground they are to go into is in good order. The best situation for them is a sunny border under a wall or fence or other warm sheltered position, where the land should be dug and drills drawn at certain distances apart, according to the height of the Peas. A good rule for this is, if they are 3 feet, to have the rows 4 feet apart, as there is only loss by crowding. The dwarf and other sorts should be put in on the same plan. If drills can-

not be drawn deep enough for the roots of the Peas to go in straight, a spade will open them out easily, and the Peas may then be planted quickly and the soil pressed or drawn to them, so as to cover them up, leaving only an inch or so of the tops out. The next thing is to place the cotton, and then all is safe till ready to stick. This should be done early, as the sticks break the wind and shelter the Peas. As to sorts, I still like Kentish Invicta and Veitch's Earliest of All for the first crop among the taller kinds, and William I. to succeed quickly after. Among the dwarfs, none is better than Chelsea Gem, which grows from a foot to 18 inches high, and bears freely good-sized pods well filled with Peas. These are large and of the Marrow type, and therefore of superior flavour. American Wonder is a dwarf Pea and very good for early work, especially for pots and frames, but, of course, the dwarf the sorts, the less pods they bear.

S. D.

Rhubarb forcing in tubs.—Needing this by the new year, I some two years ago lifted two or three large roots and placed them in tubs. I cut three old paraffin casks in two, placing a root in each. The roots were put into these tubs in the middle of November. One tub at a time is set in an intermediate house, some sticks and a mat being put over the top to keep the Rhubarb crowns moist. By the new year I was able to pull nice strong Rhubarb. This I find a simple method of obtaining a supply up to the middle of March.—J. C. F.

Potatoes early and late.—We grow here $1\frac{1}{2}$ acres of Potatoes every season, some in the garden, others in a field. When I took charge here I found upwards of thirty kinds. I have reduced the number greatly. This year I grew fourteen sorts, and should not like to confine myself to less than twelve sorts, as in some seasons one kind is good and not so the next. In proof of this last year Schoolmaster was poor in crop and in flavour also, but this year it is good in every way. Magnum Bonum, Scotch Champion, Chiswick Favourite, Abundance, and Reading Hero were all good this year and not much diseased. Old Ashleaf, Veitch's Ashleaf, Sharpe's Victor, and Red Kidney were badly diseased. Although planted early and dug early, more than half of them were worthless. It is worthy of note that in most places these early kinds are of good quality. Change of seed works wonders in many places. In proof of this, this autumn when looking over a field of Potatoes on the light soil of North Hants, the farmer dug up a root of Magnum Bonum, and the produce from this one root was 8 lbs. He assured me that in the previous two years he could not obtain 4 lbs. from a root.—J. C. F.

Vegetable notes.—In this garden many of the green crops will suffer severely. On looking over the Broccoli breadths I noted some kinds have suffered severely already. Such kinds as Penzance Early White are killed. Wilcove White appears to suffer almost as badly. This does not arise from planting them closely together, as this year I resolved to give them more room both in the rows and otherwise. The old Cabbage stumps are all destroyed, and when this happens it is a great loss, seeing they provide a good supply of greens for a long time. What a contrast to these is a patch of young Cabbages, planted after Potatoes came off early in August. Growing close to the old stumps the young ones are not injured in the least, although they are planted close together (a foot apart each way). These young Cabbages I find most useful. From a large patch of Veitch's Self-protecting Broccoli I have been able to keep up a constant supply almost daily since the early part of November, and now (Jan. 18) I have several dozen in a garden frame. Leeks, I observe, where not earthed up or protected in some way are much damaged. I sow the Leeks in two ways—in heat in boxes early in the year, planting these out afterwards in trenches. The other way, and the one I prefer, is to sow the seed in rows in well-manured soil. Early in the autumn I draw for use every other row, and before the weather becomes severe I earth these up as high as possible. In this way

I obtain better results than by growing them in trenches, as they receive no check in planting out. Evidently autumn-sown Onions will suffer, the same applying to autumn Lettuces. It may be as well to call attention to the advisability of sowing at once under glass a little Lettuce, Cauliflower, and a pinch of a small quick-growing Cabbage, pricking the seedlings off into a cold frame and afterwards planting in the open ground. Last year I obtained an early supply from plants treated in this way. Had I not sown Cabbage in this way last year I should have been badly off, as the greater portion of the autumn-sown plants was killed. So far Spinach has not suffered, as there has been snow enough to protect this crop. Seakale should be well attended to, as this can be forced well in any warm house. This vegetable should receive far better cultivation than it often does in gardens, seeing how useful it is and how easily a constant supply can be kept up.—DORSET.

TREES AND SHRUBS.

NOTES ON SHRUBS.

We scarcely look in the winter season for a profusion of bloom in the outside garden, but several interesting shrubs expand their flowers in the sunshine of a January day. A group of importance is the Hamamelis, and of this select small family one only is strictly worth a place

—*H. arborea*, the Tree Wych, or Witch Hazel, so called in allusion to the large Hazel-like leaves that are put forth after the golden wreaths of flowers have faded. It is a small tree, growing about 8 feet in height, not gainly, but yet no eyesore, and in the middle of January each of the twiggy shoots is covered with flowers, which are of very distinct character. The flowers are in clusters, the petals narrow, twisted, and deep yellow; the sepals small, but yet conspicuous by reason of their rich crimson colour. Japan is its native country, but even in low-lying situations near London this dwarf tree is perfectly hardy, caring little for the kind of soil it is planted in, relishing, however, plenty of light. Sunshine is essential not only for the growth of the tree, but to show off the rich beauty of the multitude of golden flowers. The visitor to the Royal Gardens, Kew, will find a specimen in full bloom in the arboretum, near the temperate house, and close by is the less attractive *H. virginica*, a poor shrub or tree in comparison, more spreading in growth, but not worth a place in the garden. *H. Zuccariniana* resembles more closely *H. arborea*, and when in full health and bloom possesses much interest, owing to the distinct and agreeable pale lemon colour of the twisted florets. A very unusual, but pleasant feature at Kew now consists of a bed on the turf composed of the little dwarf *Gaultheria procumbens*, with plants of *H. arborea* as a relief. It was a happy thought to associate the two things. The *Gaultheria* is a study in colour, the growth forming a perfect mat, and the leaves various shades of chocolate colour and green, against which the golden flowers on the leafless twigs of the *Hamamelis* are in strong, but agreeable contrast. We commend the *Gaultheria*, now bright with crimson fruit and beautiful leafage, to the notice of gardeners for such a use, as the season of winter may be considered as much as spring, summer, or autumn. Winter is depicted as a period of dulness—a season in which the garden is as a closed book, bringing forth nothing that appeals to the lover of flowers, but on a fine winter's day the air is fragrant with the scent of the *Mezerion*, and the *Witch Hazels* put forth

their blossom, not forgetting the many pretty bulbs that dare to open their flowers to the wintry sky.

We get all these pleasant features, of course, in the garden that is properly planted. Take the *Daphnes*, for example, now bursting into full bloom. They are a perfect host in themselves, though we may look in vain for the common *Daphne Mezereum*, except in some cottage garden where many time-honoured herbaceous plants hold sway. We well remember some years ago seeing in an old cottage garden in Egham three glorious bushes of the *Mezereon* smothered with flowers, each twig displaying a shimmering of purple colour. Strange to relate, it seldom occurs to the manager of the large garden to form a group of this shrub on the lawn or hard by the house, but not cutting up the turf, where it would provide a feature of much interest. In the Royal Gardens, Kew, it is thus used, and two very large beds have been formed on either side of the walk leading to the wilderness from the great Palm house. Each bed contains about thirty plants, now bristling with opening buds, and for groundwork to hide the bare surface of the ground, the Butcher's Broom, or *Ruscus*, has been used. Lilies also are planted between the *Mezereon* to provide an autumnal display; hence we have three distinct subjects in this arrangement, all beautiful and interesting. It would be well if the idea of grouping so well represented were extended to other shrubs and plants to make gayer masses of the several things. If the taste for *Daphnes* is increased by using freely the common species, the list may be extended to some of its varieties, all of distinct character. One is known as *autumnalis* or *grandiflora*. There is a pink-flowered form, a white, and also a double white, which is a beautiful dwarf shrub, the flowers quite double, creamy white, and studding closely the erect leafless branches. A group of this variety would form a pretty winter picture, especially if associated with the type, that seems to bloom a little earlier. The *Daphnes* have no great preference for any particular soil, enjoying an ordinary compost, but sun is necessary; therefore plant well in the open.

The winter-flowering *Chimonanthus fragrans* is one of the most precious shrubs that bloom in December and January, sometimes being in full flower even in a time of hard frost if it has a snug corner away from biting winds and the sharpest cold. We noticed the other day a large specimen covered with flowers, which if not very conspicuous in colour, are sweetly scented—as sweet as any flowers of summer or winter. The *Chimonanthus* must be thoroughly well established before it gives much bloom, and is increased by layers or suckers. The Honeysuckles (*Lonicera Standishi* and *L. fragrans*) also flower at this season and are pleasing on a wall, but not of the same value as the shrubs enumerated above; they are scarcely bold or showy enough for the garden, although it is pleasant to have the fragrance of the flowers on a winter's day. For this reason it is best to plant them against the house and near the windows.

Interesting notes occur in THE GARDEN of January 23 (p. 78) upon various shrubs certificated during the year 1891, but the list shows that many things are certificated that have been long introduced into English gardens. It seems absurd to give an award to such a shrub as *Indigofera floribunda alba*, although thoroughly deserving of any distinction bestowed, but it is not new, and it would be as reasonable to commence honouring every shrub that finds

a place in English gardens. The case is different with *Hypericum Moserianum* and *Spiræa Bumalda* (Knap Hill Crimson)—both shrubs new to gardens and of conspicuous merit. A few more acquisitions of the same fine character would tend to give still further interest to the cultivation of shrubs than exists even now, though they are not neglected to the same extent as in former years. *H. Moserianum* will prove, we think, a dwarf shrub of much value, especially to use as advised in the case of the *Mezereon*, that is, as a group on the Grass. It is low in stature and carries large flowers, very deep yellow in colour, and distinctly handsome, showing its parentage—*H. patulum* and *H. calycinum*. The *Spiræa* belongs to the dwarf section of shrubby *Spiræas*, of which the type *S. Bumalda* is a good example. We know few prettier *Spiræas* than this for massing in front of taller shrubs or devoting to a distinct bed, where its bushy, spreading growth crowned with clusters of pink flowers provides an interesting picture over a long season. It commences to bloom in summer and keeps up a scattered succession until winter. We get all the best traits of the type in the variety Knap Hill Crimson, which originated as a sport in the Knap Hill Nursery of Messrs. Anthony Waterer and Son, Woking, but an important item is the colour of the flowers, which deepens to an intense, but bright crimson—a set off against the weaker colour of the parent. We should think this form of great use for massing on the turf by reason of this effective colour in the flowers.

The Lilacs figure conspicuously in the new shrubs of the past year, but though we must thank M. Lemoine for raising such double varieties, as mentioned on p. 78, it is necessary to guard against the very dingy purples. This colour is intolerable in any flower, and in the course of time spoils other colours by imparting to them a dead shading peculiarly objectionable. We want nothing better than the lovely lilac colour of the common *Syringa*; it is clear, distinct, bright, yet refined. Whilst writing of shrubs, we may allude to the beauty of *Spiræa Thunbergi* in the autumn, when its leafage changes to the deepest crimson colour, a perfect b'aze, even amongst the dying foliage of countless trees and shrubs grouped with it or in association. As this is the planting season, an allusion to it for its leaf-colouring is appropriate, especially as we see it praised always for its usefulness for forcing or its white flowers in summer.

The old idea of a common shrubbery for anything and everything in the shrub way is being gradually exploded, and we see more of the freer, more graceful way of massing the shrubs on the surroundings of the lawn, or preserving the beauty of the individual by allowing it to display its own habit. *Spiræa arizæfolia* is a beautiful shrub when, as a single specimen, bending with the weight of a profusion of flowers, it rises gracefully and vigorously from the turf. A very beautiful dwarf shrub, still uncommon, although becoming less rare, is *Viburnum plicatum*, which presents a contrast to the common Guelder Rose. *V. plicatum* is exactly the kind of shrub that makes a fine feature when planted in a bed on the turf, the growth spreading, the leaves deep green, wrinkled, and each branch covered with balls of creamy-white flowers, often so thickly crammed together as to almost hide the leaves. We have counted as many as ten of the flowery balls on one shoot. It is quite hardy, but tenderness of constitution was urged as one reason for its guarded use in gardens. It has,

however, already gone through recent severe winters without harm, but prefers a light soil and not too exposed a situation.

HARDY HEATHS.

PROBABLY none of our smaller growing shrubs are more beautiful and at the same time more neglected than the various species and well marked varieties of hardy Heaths. Few persons, other than those who have made a speciality of the culture of these plants, have the remotest idea that about seventy kinds (distinct kinds) of Heaths are quite hardy and well suited for planting in any part of the British Isles. Then what tribe of plants are of so neat habit, so free flowering, and so easily managed as the Heaths! Unfortunately, a wrong impression, and one that is hard to root out, has got hold of the minds of many persons as to the soil that is absolutely necessary for the growth of these denizens of the commons and waste lands of almost every part of Great Britain and Ireland. If I recommend the planting of Heaths, in nine cases out of ten I get the reply, "Oh! I should like to, but they must have peat, and that is frightfully expensive." It cannot be too well known that Heaths do not require peat, they growing and flowering quite as well in any sandy loam—in fact, in almost every soil that does not contain either chalk or lime. Even in very poor gravelly soils where hardly an inch of decayed vegetable matter tops the sand and pebbles, Heaths flourish amazingly, and no better examples in favour of this statement need be adduced than our commons and public recreation grounds, and where, as a rule, these plants are the only covering. It is surprising, too, how well the Heaths thrive on cold unctuous clay if only the top spit is fairly free and loamy or covered over with less than half a foot of decayed herbage. Some time ago I had a mound of stiff clayey soil that could not well be otherwise disposed of covered over for fully 6 inches with leaf-soil of fairly good quality and planted with as many distinct species and varieties of hardy Heaths as I could procure—some sixty-six in number.

The barren mounds of clay, which for many years were an eyesore, are now very beautiful, the Heaths, which, however, were very fine plants to start with, rooting freely, and though planted at fully 2 feet apart have now met each other, and covered the whole with the most pleasing greenery of the most diversified shades. Some kinds are silvery-tinted, some a light, and some an almost Yew green colour, while others are suffused with golden or purple markings. Again, in habit they are pleasingly diversified from the pigmy gem, Foxi, through the upright-habited to those of rambling, easy outline. By having a large collection, flowers may be had for fully half the year, beginning in early spring with the well-known *carnea* and finishing up in autumn with some well-marked varieties of our common Heather.

For beauty of flowers and the quantities in which they are produced, probably no member of the whole family, certainly none of the hardy kinds can compare with that brightest of spring gems, *Erica carnea*. Plant it as you like, as single specimens, in clumps or masses, or as an edging, it never fails in February and March to attract attention and to produce the most pleasing results. Then it is of such simple growth, so hardy, blooming even with the snow upon it, and so free flowering, for every branchlet is wreathed in the brightest vermilion, that it may well occupy the exalted position that it does in spring gardening.

There is a white-flowered form, but it is of no great value, at least when compared with the typical species. Some of the most desirable kinds are as follows: *E. cinerea* and its full half a dozen varieties, including pink, purple, white and rose-coloured flowers, are well worthy of attention, and, what is more, the varieties are very marked and distinct from each other. Of the Mediterranean Heath there are white and red-flowered forms; the typical colour is white, one with glaucous foliage and a pigmy variety, all of which are well worthy of culture. The green-flowered *E. scoparia* and the upright-habited *E. stricta*, too, are worthy of culture, and afford variety to the others. In the cross-leaved Heath, *E. tetralix*, we have an interesting and pretty plant, and one that has sported into several worthy kinds, the best of which may be said to be Mackay's crimson (*E. tetralix Mackiana*), a very distinct and desirable kind.

Fully twenty varieties of our common *E. vulgaris* are now in cultivation, and it is certainly surprising how distinct in form, colour and other characteristics many of these are. The well-known dwarf *E. v. Foxi* belongs to the same parentage, while *Alporti* and *Hammondi* may be included amongst the best kinds. There is a golden variety, *aurea*, that I am much pleased with, the bright tints of golden yellow shining out conspicuously amongst the dark green or normal colouring. The above are only a few of the many beautiful kinds of hardy Heaths, and which, it is much to be regretted, are not half appreciated for their value as decorative plants. Anyone making a collection of these plants under fairly satisfactory conditions will, I am sure, not be disappointed with the results. A. D. W.

ORCHARD AND FRUIT GARDEN.

PROFITABLE GRAPES.

ON all sides we hear of fresh additions to the already much-swollen ranks of growers of fruit for sale, and the inevitable result of so much competition and open markets, viz., a great depreciation of prices, is already becoming only too apparent. Grape growers in particular have much cause to be depressed with the state of the markets, and in all probability the lowest point is not yet reached. In very many cases the start was made with Tomatoes, and as long as these continued to prove very remunerative Grape Vines were thought less of. Then came a gradual lowering of the prices obtained for Tomatoes, and the turn of the Grapes had come. Thousands of Vines planted three or four years ago are now at nearly or quite full-bearing size, (market growers following very different practices to private gardeners), and there being large numbers subsequently planted, it is no stretch of imagination to assert that there is every prospect of great gluts of fruit resulting during this and the next few years. Where only a comparatively short time ago 2s. 6d. and frequently more per pound could be had for moderately good samples of Grapes, this being say during June, July, October, and November, less than half that sum is very frequently all that can be obtained now-a-days, while during August and September the prices are about 1s. per pound. Poorly grown Grapes, or say small red Hamburgs and green Foster's Seedling, can scarcely be sold, or at any rate they fetch very little more than ordinary imported bunches. It may be 1s. per pound all round would prove fairly remunerative to those large growers who have gone the cheapest way to work in con-

structing houses, borders, and such like, but the owners of either small or expensively built and not economically worked houses cannot successfully compete against such odds. It is quite useless for them to continue the culture in a small way of what so many are now turning out on a very large scale, and what they have to determine is how best to change the character of their Vines, so as to have something either better or at a different time of year to what the great majority are sending to the markets.

It is almost needless to point out that the markets are already well supplied with forced Grapes, the bulk of these coming in during May and June. Following closely upon these are immense quantities of Black Hamburg, with perhaps a sprinkling of Buckland Sweet-water and Foster's Seedling grown with the aid of little or no fire-heat, these realising the lowest prices of the season. Gros Maroc, being more easily coloured and more attractive in appearance, is fast superseding Black Hamburg, but the Madresfield Court, though a very superior variety, cannot be said to be making much progress in the estimation of market growers. Common white Grapes never realise such good prices as the black varieties, and I would not recommend anyone to plant either these or the three black sorts just named. Not till November arrives is there anything like a decided advance in prices, and it is then when Gros Colman is ready for the markets. Unfortunately for those who early realised what a good thing this great berried sort was likely to prove, their monopoly of high prices is likely, in fact has already proved of short duration. The Channel Island growers have contrived, in spite of strict laws prohibiting the introduction of Vines or cuttings, to procure good stocks of Gros Colman, these being grafted or inarched on to the now "played-out" Black Hamburg. Immense quantities of fine bunches are also produced by several noted growers on this side of the Channel, and only those who ripen their crops sufficiently to keep well can get more than 2s. 6d. per pound for their Gros Colman. At that price the variety pays well, but this season most probably many growers had to be satisfied with much poorer returns, red Grapes, no matter how large the berries may be, not selling so well as better coloured samples of the same variety. During January and probably well through February Gros Colman will be seen in very fine condition in the principal fruiterers' shops of this country, these being consigned by growers who have wisely bottled the greater portion of their crops. If, therefore, Gros Colman is planted by beginners or is substituted for other varieties, the grower's aim should be to well ripen the crops (being niggardly with the fire-heat proving the reverse of economical), and to store these in a cool, dark structure specially designed and fitted up for the purpose. There is sure to be a loss of a certain amount of weight by this keeping, but this is not of so marked an extent as may be observable in other Grapes that could be named. Alicante, a showy and easily grown Grape, is in season at much the same time as the Gros Colman, and though at one time a profitable Grape, it cannot be said to be such now. It has been repeatedly proved by some of our best trade growers that the Alicante cannot be made to produce, Vine for Vine, anything like the weight of fruit that the Gros Colman will do under ordinarily good treatment, while the latter has greatly the advantage in the important matter of price per pound. The Alicante keeps fairly well, but loses rather too much in weight by being kept, and all things considered, it is not

surprising that this handsome variety should be discarded by market growers.

At one time Lady Downe's was extensively grown for the markets, but this again had to make way for the then more profitable Gros Colman. As before stated, there is every likelihood of the latter soon becoming too plentiful, and the question will then arise, Have those who previously found it such a good servant done well to totally discard it? Lady Downe's is really at its best during February, March, and April, and can easily be kept well into May, and it is my firm belief that this is the variety that ought now to be planted by those anxious to steer clear of gluts of fruit and low prices. In private gardens single rods of about 16 feet in length are capable of producing twenty or more well finished bunches, some of them good enough for exhibition if need be, averaging 1½ lbs. in one season, that, too, without any injurious strain on the Vine, and these could be kept with little or no loss of weight till they were worth not less than 3s. per lb. wholesale. Market growers, not being under the necessity of long keeping their Vines in a healthy productive state, might work their Vines still harder, and should find them most remunerative, especially seeing that Lady Downe's does not require a very great amount of fire-heat to bring it to perfection. I readily admit it is not so easily grown as the Alicante or Gros Colman, but there is nothing to prevent an ordinarily intelligent market grower from doing well with it.

There is yet another variety that it pays anyone well to grow to a presentable state, this being the Muscat of Alexandria. According to what I have seen, there is always a demand for good Muscats, but it is surprising how few really good samples find their way into the markets. Why so many fail cannot be discussed in this paper, but that very many do fail with it there is no disputing. Not a few of the recent additions to the list of market growers were previously private gardeners, and should, therefore, have had some experience in the cultivation of the Muscat of Alexandria. Let them bring this knowledge to bear upon the production of really good bunches, and they will have no reason to regret having devoted one or several houses to their production. Even in August Muscats realise from 2s. 6d. to 3s. per lb.—at any rate, such is the case in the provinces—and there is a gradual rise in prices, till at last, or say at midwinter, from 4s. 6d. to 6s. is given by wholesale buyers. It is true this shows a considerable reduction in prices as compared with what was obtained say ten years ago, but they pay well all the same. None of the late white Grapes are in favour with the trade.

W. IGGULDEN.

Market value of colour in Apples.—At p. 43, "Y. A. H." throws doubt on the market value of colour in fruits, especially Apples. Those fully conversant with the requirements of the London markets know full well that colour is in fruits a very important factor, and specially so in Apples. Any richly coloured sample, let the variety be what it may, always secures a better price than do green samples. It does not matter whether the colour be red or yellow, it is of value. The best priced Canadian Apples now are those showing the richest colour. A fine golden sample of the Yellow Ingestre always secures a readier sale than do those wanting colour, let the sample be otherwise ever so good. A very large London dealer told me not so long since that it was possible to clear out in his numerous shops ten bushels of richly coloured Apples to two of green or russetty hue. I am not pleading that colour means quality, or that those who prefer the red to the green or brown Apples are wise; I am simply stating a fact. For early autumn marketing

we have no more popular fruits than Mr. Glostons, Duchess, Favorite, and Worcester Pearmain, as these colour well naturally and almost anywhere. That some soils or situations create colour more readily than others there is ample proof, and whilst something may be directly due to greater sunshine or warm subsoil, much is indirectly due to chemical changes or developments produced in fruits through these agencies. Why colour should exhibit itself so freely in one Apple, for instance, and not on another growing close beside it is as hard to comprehend as is the production of red or purple-skinned Potatoes with white ones from the same seed ball. The London dealer, or consumer likes colour in Apples or Pears just as he prefers his purchased Grapes to be black as sloes or golden as amber. In the case of Apples and Pears we never have done much to instruct the ordinary consumer respecting the diverse merits of colour and flavour. The dealer has found a good market in colour and the grower has done the same; hence it is that highly-coloured fruits are always in demand.—A. D.

APPLE BLENHEIM ORANGE.

THE high merits of Blenheim Orange, here illustrated, fully entitle it to the foremost position amongst our British Apples. What other Apple combines the properties of being equally adapted for cooking or dessert? and I daresay at Christmas-time no other Apple is hailed with greater satisfaction by our market salesmen, as good samples always command the highest prices in the market. Yet this Apple some people say we are not to plant because it is slow in coming into bearing; a plausible excuse to a certain extent, I must admit, but what other Apple is there that bears with the same freedom when it has reached that state? The range of country over which old trees are scattered shows the esteem in which it is held. The fact is, the Blenheim, properly speaking, is not a garden, but an orchard tree. Cultivated as a pyramid or open bush it will not succeed, not even when worked on the dwarfing stocks, for it will not withstand restriction in the true sense of the word, this probably being the reason why the Blenheim is considered by some people not a desirable variety to plant. The Blenheim Orange is an orchard standard tree pure and simple. This, then, is the style in which to cultivate it, and even if there should be years of waiting, the waiting will not be in vain. In the strong loam of Herefordshire this variety grows wonderfully well, many of the trees being of huge dimensions, and the prodigious crops such trees will produce are also wonderfully good both in size and colour. In gathering this variety the mistake must not be made of gathering the fruits too early, for it is astonishing what size and colour will be taken on during the last ten days. At the time the Woolhope Society held their exhibitions at Hereford it was marvellous the fine fruits which used to be sent in from the surrounding district, many of the specimens reaching quite 1 lb. in weight. I am sure a score of acres planted with healthy standards would prove a profitable investment to landowners who may have the land to spare. If planted on Grass land the cost of protecting from ground game and cattle would only have to be studied, and this only for the first few years. The Blenheim must not be considered a market grower's or tenant's tree where immediate returns are expected from the outlay incurred, but when owners of the land plant, or those who are responsible for garden orchards, then ought the merits of this fine old Apple to be considered. An earlier return may be secured by grafting, for in three or four years by adopting the method as practised in the western counties, fine trees capable of producing a lot of fruit would soon be forth-

coming. Old trees of inferior kinds, but of good shape are selected, and instead of sawing off the branches to within a foot or two of the fork of the main trunk, almost every branch over an inch in diameter is left. On to this the grafts are put, often as many as fifty or more being placed on one tree. By this method large trees are very quickly formed. It is certainly the best method to adopt with the Blenheim, as with other varieties. I have had several trees under observation for the past four years at which time they were grafted, and a casual observer would think that they were large bearing trees of many years' growth, the long healthy shoots being studded with fruit buds.

Y. A. H.

PEARS UNDER GLASS.

IN this country when we hear so much of its adaptability for fruit culture, and when on all sides tens of thousands of trees of various kinds are being planted, it may appear strange to some people to recommend the cultivation of the Pear under glass. Certainly in many districts and on kindly soils Pear culture under glass is quite unnecessary, but there are places where the climate is so uncertain and the

roofed structure would be perhaps the best, as in this the trees would have free exposure to light. Ventilation would also have to be abundantly provided, as without this the results would not be at all satisfactory. It must be remembered that although Pears are perfectly hardy and the flowers will also withstand a fair amount of cold, yet in the open air they are not subjected to cold cutting draughts, which will be found to have quite as bad effects on the bloom as even frost. Neither must coddling be encouraged, this weakening the fructifying organs, so much so, that the flowers would fall without setting. The structure could not be too freely provided with ventilators, and these during the winter would have to be kept open unless the trees happened to be all in pots and could be wintered in the open air so as to keep the flowers from opening unduly early, as it must be understood that although Pears may be cultivated under glass, they will not stand forcing, this very quickly causing the fruit to drop off, even if already set.

If the structure was to be wholly given up to the culture of Pears, I should grow some planted-out trees and some in pots. Of these latter a fair quantity might be grown, as all these need not be kept under glass throughout the growing season, only just sufficiently long enough to get the fruit nicely set and swelling, when they could be removed to the open air, the space so provided being utilised for the remainder of the trees, which could be thinned out so as to expose them to the full influence of light and sun. I have seen wonderfully nice crops on these pot trees.

To cultivate Pear trees successfully in pots resolves itself into close attention to watering and feeding, for let these be neglected, then all hopes of securing good fruit would have to be abandoned, and Pear culture in pots had better be dispensed with. Good trees should be secured for a start; if established in pots all the better; but if not, trees could be prepared at home. In selecting trees for home preparation, I prefer those two years old or not more than three years, these being provided with four or five branches, as with these a foundation will have been laid. A good compost for pitting will be found in four parts good loam, a



Apple Blenheim Orange.

soil quite unsuitable for bringing out the high qualities of Pears, that such means as glass protection may be adopted with advantage, especially for the later kinds. Until the past season when Pears were generally abundant, it was thought that Pear cultivation under glass would have to be adopted in even favourable districts owing to the general failures which we were then experiencing. Some even went so far as to say that Pears would prove more remunerative than late Grapes. Certainly this might be, but I do not think that Pear culture under glass will ever be adopted for this purpose alone, badly even as the markets are supplied with Pears from Christmas onwards. To see the varieties of Pears which are often recommended for market culture almost makes one believe that good Pears in the markets are quite unknown even long before Christmas, and anyone who might care to make the venture would find glass structures cheaper to build than walls, and certainly more reliable. Pear culture for market, however, is not now the question, but for private consumption in unreliable districts or even in smaller gardens where wall space is limited.

From the above observations it must not be surmised that elaborately heated structures are needed; not at all, for artificial heat is quite unnecessary, in fact an evil. Any plain, but light, freely ventilated erection would be suitable. A light span-

part of rotten manure, with some wood ashes and old lime rubbish broken up finely. Drain efficiently and pot firmly, afterwards plunging the pots in the open air in a border well exposed to the sun. To ensure good drainage, place some broken bricks or even an empty flower-pot under each pot. The shoots having been pruned well in, a satisfactory growth will follow. Never mind about the roots entering the border, for this will be rather beneficial than otherwise; in fact, perforated pots are sometimes used, so as to allow the roots to work through into the fertile soil of the border, this being of great assistance to trees carrying crops of fruit, and assisting the Pears to swell up to their fullest extent. Placing such recently potted and non-established trees under glass the first season is not at all necessary, for the trees will become better prepared in the open air, the aim being to get the pots fairly filled with roots. The after-pruning would be a simple affair, this resolving itself into shortening a shoot here and there to balance the growth where necessary.

When the trees come into bloom the flowers should be freely thinned out, selecting the strongest and most prominent for the future crop. If the trees are well supplied with moisture a good set should ensue. At this stage any attempt at hurrying would end disastrously, by perhaps the whole

crop dropping off. Keeping the soil regularly moistened and drenching the trees overhead will maintain a healthy growth. By the middle of June those trees which are to be grown in the open air should be removed, plunging them to the rims of the pots in a fertile border well exposed to the sun, and if possible where they may have the benefit of a wall. By closely attending to watering and feeding the crop would swell off. The midseason varieties are the best for the open air, the later kinds being left in the house. If the pot trees inside the structure could be plunged, it would be of great advantage, this lessening watering, and the roots would be benefited by working into the border. The time for repotting any of the trees is when the leaves change for ripening and before they fall. Small trees might require repotting into larger pots, and others which might be in sufficiently large enough pots are best managed by turning them out, shortening any strong roots which may have worked into the border, and with an iron spike pricking off about 2 inches all around the ball. With these trees care must be taken to well ram the new compost, afterwards flooding it well home with water. By damping overhead twice a day the foliage will not suffer, neither will the wood shrivel, as it might do if at all neglected. By this early potting root action quickly recommences, and the trees are in a condition to start into growth another season. Feeding and top-dressing with rich compost to assist in swelling off the crop will have to be guided by circumstances. I mentioned trees being planted out under glass. For this purpose cordons are well adapted, these being trained to a trellis along the front or sides of the structure, according to its construction. The leaders should not be trained right over the roof, but sufficiently low down to admit light to the pot trees. Y. A. H.

FRUIT TREES ON PERGOLAS.

YOUR graphic illustration of the beautiful fruit-tree arches at Heckfield Place, and the remarks of Mr. G. F. Wilson and of "D. T. F." in a recent issue, induce me to suggest that fruit-tree-covered pergolas would form a slightly and profitable addition to many of the fertile and sunny gardens in the south of England. In many well-wooded country places costly wire arches would not be necessary. It is quite true, as Mr. G. F. Wilson says, that a long walk may be arched with wire for £10, but I am not at all convinced that iron or wire in any form is necessary, and I would rather advocate the pergola plan of growing fruit trees over suitable sunshiny garden walks something after the method recommended for flowering creepers at p. 107, and illustrated in THE GARDEN, January 30, at p. 110. Very fine dessert fruits were grown in kitchen gardens a century or more ago long before the epoch of iron arches and the often injurious use in gardens of the so-called "galvanised wire." The old espalier trees with their wooden supports often yielded the finest of Apples, Pears, Cherries and Plums, but a more free and beautiful way would be to form arches or pergolas of wood on which fruit trees might be trained without the often too restricted culture and pruning of the espalier—a system which more than anything else led to the plan being abandoned in favour of the bushes and pyramids of to-day.

Any cottager may arch a long walk for fruit trees if he cares to do so on the wooden-supported or pergola plan at a much less cost than £10, simply by utilising a little waste underwood, or the prunings of a copse or plantation, or even by a few bits of scantling to be had cheaply from a builder or timber merchant's yard. Anyone interested who will glance at the creeper-laden pergola figured on page 110 will at once grasp the simple idea of its construction, and also see that it is as applic-

able to fruit tree culture as to flowering plants. Iron or wire supports for fruit trees are not an unmixed blessing. Apart from durability, wood is better in many ways. Given a few Larch poles with the bark on and a handy man with a saw and hammer and nails, he would cover a walk of 50 feet in length in a few hours, and there are thousands of cottage gardens in England that would be the better and more enjoyable, and more profitable to boot, for the addition of such simple, cheap, and beautiful structures. As to the kinds of fruit trees that are most suitable and profitable to cottagers and small private growers, they cannot do better than select the same kinds that they see are fruitful and thriving in other gardens around them year after year. F. W. BURBIDGE.

LATE APPLES FOR MARKET.

WE constantly hear the remark that everything is overdone, and as far as market supplies are concerned, this is more or less true, for the prices obtainable for the majority of garden crops show conclusively that our markets are very abundantly, if not over-supplied. There is, however, one crop, and that a very important one, on the list of hardy fruits that cannot be said to be at all up to the requirements, much less overdone. I allude to really late-keeping Apples, which every year, no matter whether the home-grown crop is small or large, appear to come to an end soon after Christmas. Although the Apple crop was abundant in this locality last year, it is almost impossible to get any dessert or cooking fruits of home growth; consequently the importers of Apples are again reaping a golden harvest. Although the public are ready and willing to pay an extra price for home-grown fruit, they cannot do so, as the invariable reply of the fruiterer is, "We get no home-grown Apples brought in now, so we are compelled to fall back on the imported fruit." This is rather strange in a country so well suited to Apple culture, and where we are constantly being told that landlords are being ruined because the land does not pay for cultivation. The plain answer to this is, the people who could and would grow plenty of Apples will not invest their capital in the present state of the land laws and the uncertainty of getting any compensation for improvements in the way of planting; consequently they go in for crops which they can clear off within the current year. If ever our markets are properly supplied, it must be by tenants, for the number of landowners is so small in this country that the small percentage of them that take up fruit-growing does not affect the rapidly increasing demand for fruit in our large towns; but if tenants felt secure of their holdings and could claim full compensation if evicted, the fruit supply would at once become an important item with the market grower, and I have no doubt but that thousands of acres would be planted with really late-keeping varieties of Apples. It is not only the land question that demands attention, but the railway rates must be regulated by Parliament, for at present, if we were over-abundantly supplied with Apples of home growth, it would not pay to send them less than seventy miles to London, because the rail charges would swallow up more than half the returns. As an illustration of railway charges, I may mention that the rail charges for Romsey gravel within the limits of this county of Hants are considerably more than the cost of the article itself at the pit.

Gosport.

JAMES GROOM.

Bouillie Bordelaise and Potato disease.

—With the object of testing the merits of Bouillie Bordelaise as a remedy for Potato disease, the Highland and Agricultural Society instituted experiments last season upon farms situated respectively in Haddingtonshire, Forfarshire, and Renfrewshire. Two mixtures were tested—the one consisting of 20 lbs. of sulphate of copper, 10 lbs. of burnt lime, and 80 gallons of water, and the

other of 15 lbs. of sulphate of copper, 5 lbs. of burnt lime, and again 80 gallons of water. These quantities were applied per acre, and also in half doses per acre. Repeated observations were made during the growing season, but in no case was any distinction visible among the plots. The drills that were sprayed, as well as the unsprayed drills between them, grew quite uniformly; and when disease appeared on the leaves it seemed to be fairly distributed over the whole area. The report states that the general and quite evident conclusion to be drawn from these experiments is that the Bordeaux spray has entirely failed to have any restraining effect whatever on the progress of the Potato disease. The opinion is further expressed that, if the mixture is a protective against the Potato disease, it can only be so when the disease attacks the plants while they are still young and their entire surface is capable of being reached by successive sprayings. At the same time, it is considered possible that such complete drenching of the young plant with the Bouillie Bordelaise might seriously impair its vitality, and thus prove worse even than the disease itself. The general result of these experiments is such as to afford growers little if any confidence in the efficacy of this mode of treatment. On the whole, it may be said that the results of the Scottish trials are decidedly confirmatory of the negative issue of the extensive series of field experiments upon Potatoes conducted by Messrs. Sutton and Sons at their trial grounds near Reading.—*Morning Post*.

RAINFALL IN 1891.

THE fields around here were covered with snow from Dec. 18, 1890, to Jan. 20, 1891. The lowest readings of the thermometer were 3° on Jan. 19 and 8° on Dec. 22, and on Nov. 11 the barometer fell to 28.5.

Month.	Total depth. Inches.	Greatest fall in 24 hours.		Number of days on which '01 or more fell.
		Depth.	Date.	
Jan.	1.62	.54	31	14
Feb.	.12	.06	8	6
March	1.54	.20	7	24
April	1.66	.57	4	17
May	2.70	.59	25	22
June	2.53	.95	4	14
July	2.34	.41	7	18
Aug.	3.83	.40	4	25
Sept.	1.20	.33	21	14
Oct.	4.74	.94	6	27
Nov.	2.55	.55	15	22
Dec.	2.94	.46	30	21
Total ...	27.77			224

Rotherby Hall, Leicester.

JOSEPH HAMES.

Death of Mr. Stephen Ross.—It is with regret we announce the sudden death of Mr. Stephen Ross, who died at Hammersmith from syncope, at the age of 60, on the morning of January 27. Mr. Ross was a native of Banffshire. In 1859 he was appointed gardener to the Earl of Carnarvon at Highclere. Here he remained for 25 years, during which time he carried out many improvements and raised several seedling Azaleas and Rhododendrons. On his retirement his lordship granted him a pension with the option of taking another situation where the duties were less onerous. During the last eight years he had been in the service of the Hammersmith Board of Works, superintending the planting, &c., of the street trees. He has left a wife and five children to mourn his loss.

Names of plants.—*Ellen Kemp*.—1, *Asplenium cicutarium*; 2, *Adiantum Flemingi*; 3, *Polypodium vulgare omilacerum*; 4, *Diplazium Franconis*.—*J. T. Barker*.—*Lælia anceps Williamsi*.—*J. S. W.*.—A good form of *Cattleya Trianae*.—*J. M. S.*.—*Tillandsia* sp.; send when in flower.—*Gyp*.—Cannot name plants without numbers.—*G. P.*.—1, *Acacia Riciana*; 2, *Acacia grandis*.—*J. H.*.—*Schomburgkia undulata*.—*B. M.*.—1, *Stenosmia aurita*; 2, *Aglaiomorphia Meyeniana*; 3, *Aspidium ebenum*.—*Mrs. Dunford*.—1, *Blechnum glandulosum*; 2, *Asplenium præmorsum*; 3, *Cyclopeltis semicordata*.—*J. R.*.—1, *Epiphyllum* var.; 2, *Rhipsalis penduliflora*.

No. 1056. SATURDAY, February 13, 1882. Vol. XL.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ORCHIDS.

LÆLIA HARPOPHYLLA.

THE sword-leaved *Lælia*, a native of Brazil, has been imported in considerable quantities of late, but, in spite of this fact, nothing appears to be known of the precise spot where it is found. This would appear to be necessary in order to give some idea how to grow it. A gentleman signing himself "B." sends me a plant, asking the locality in which it is found and what is the matter with the plant he sends. It would appear that we know nothing of its whereabouts more than that it comes from Brazil. The plant sent is dead, which I should think has been brought about either by bad drainage or by keeping it too dry, both of which tend to destroy many of the orchidaceous plants which are now imported in such vast quantities. The plant in question long ago existed in the collection of Mr. Rucker, of Wandsworth, but he did not flower it. The plant was afterwards flowered by Mr. Day, of Tottenham. It was rare for a long time, but at the present day it is one of the showiest of our spring bloomers and one of the most frequently to be met with. It was figured in THE GARDEN, August 11, 1883 (p. 116). Another excellent figure is to be found in the "Orchid Album," t. 117. There it is spoken of as doing well in the Cattleya house. About three or four years ago I was shown, in excellent health and flowering freely, some plants in the collection of Mr. Measures, of Camberwell, which had been subjected to several degrees of frost during the winter. It was suggested by Reichenbach that *L. harpophylla* was a natural hybrid between a *Brassavola* and *Lælia cinnabarina* on account of its slender stem, but it has been imported in too great a quantity to warrant any belief in its hybrid origin. *L. harpophylla* has a very slender stem, 1 foot in length, bearing a single dark green leaf, which is about 8 inches in length by about 1 inch in breadth, and from the base of this leaf, or more properly, perhaps, from the top of the stem, the spike is produced from between a longish sheath, bearing from four to seven flowers, which individually measure about 3 inches across. The sepals and petals are thick and fleshy in texture, of a uniform bright cinnabar or orange-vermilion; lip three-lobed, the side lobes of the same colour as the sepals and petals; middle lobe narrow, recurved, with crisped margins, white, with four orange-coloured streaks on the disc. The rich and striking colour of the flowers, which last a long time in full beauty, renders this plant very effective. There is some slight variation in the depth of colour in the different examples, but not so much as in many other species. This plant requires extra good drainage and plenty of light and heat during the growing season, with a moist atmosphere and plenty of water to its roots. After the growing season is over, those I have seen flower the plant best remove it to the *Odontoglossum* house and keep it moist through the winter, because its slender stems cannot withstand any drying, and in this respect "B." has done his plants a great injustice. The plants should not be overloaded with soil, which should consist of good brown peat fibre and a little chopped *Sphagnum* mixed with

some small nodules of charcoal, the whole pressed down firmly. It blooms through the months of March and April, some plants continuing even into May. A somewhat similar plant, but of quite a different size, is a hybrid called *L. flammea*, raised by Mr. Seden in the Messrs. Veitch's establishment at Chelsea. It is much stouter in its growth and the flowers are larger; the sepals and petals rich cinnabar-orange; the three-lobed lip is yellow at the sides, streaked with purple; the front lobe has a bright crimson border and paler margin, veined with crimson. I am told this plant bears nine or ten flowers upon one spike. It has always appeared to me to have the lip too much closed. This may have occurred through the flowers I have seen being upon weak plants. *L. flammea* is the result of crossing *L. cinnabarina* and *L. Pilcheri*, the latter itself a cross obtained by Mr. Dominy. It flowers about the same time as *L. harpophylla*.

WILLIAM HUGH GOWER.

Phalænopsis intermedia Portei.—This clearly shows its relationship to *P. Aphrodite* and *P. rosea*, the foliage being unmarked, as is the case with *P. intermedia Brymeriana*. The shape of the flower is the same, but its colour is different. The sepals and petals are pure white suffused with light rose at the base; the three-lobed lip has the side lobes erect, white, tinged with rose, and spotted with purple at the base, front lobe orange-yellow at the back part, the front part bright rosy purple.—H. G.

Lælia anceps Stella.—"G. R." sends me a fine flower for name, and I have no hesitation in saying it is the variety named *Stella* by the German professor. The flower sent measures upwards of $4\frac{1}{2}$ inches across, the sepals and petals broad, of good substance, and of the purest white; lip also white on the exterior, side lobes stained with yellow, and marked with numerous radiating lines of deep purple; front lobe white, having the usual yellow disc. The bloom sent is from a plant bearing seventeen large flowers.—W.

Lælia anceps Dawsoni.—"W." sends me a spike of this superb variety, which is yet rare in spite of the vast number of white varieties of this species which have been brought to this country. This variety was first introduced by the Messrs. Low, of Clapton, through their collector Tucker, and I do not think anyone else has been fortunate enough to find it. The flowers are large, of good shape and substance, the sepals and petals pure white, the lip also white, the front lobe having the greater portion stained with rich purplish magenta with a narrow marginal border of white; the side lobes also white, streaked with numerous lines of bright purple.—G.

Phalænopsis intermedia Brymeriana.—This rare variety is now in bloom at Clapton amongst a lot of plants imported by the Messrs. Low, by whom it was first introduced. It first flowered with Mr. Brymer, of Dorchester, to whom it is dedicated. *P. intermedia* of Lindley is a natural hybrid between *P. amabilis* and *P. rosea*. This was proved by Mr. Seden recently when he flowered a plant from the same cross. In *P. intermedia Brymeriana* the sepals and petals are white, veined with purplish-mauve and flushed with lilac near the base; the three-lobed lip is tinged with purplish-violet, passing into white, the base dotted with purple, the front lobe bright crimson-purple, paler at the margins.—W.

Phalænopsis Sanderiana.—"W. P. H." sends me flowers of this which was dedicated to Mr. Sander. It is certainly a lovely variety of the plant long known as *P. amabilis*, but now called *P. Aphrodite*. The flowers before me are of good size, but I do not think them unusually large; they are round and full, the sepals and petals bright rose; the lip three-lobed, the side lobes deep rose, having the lower edge narrowly bordered with yellow and spotted near the base with deep rose; front lobe

white, streaked and lined with rosy-purple. This lovely plant appears to confirm the statement made by Rumph that there did exist a form with the sepals and petals tinged with purple. I have to thank "W. P. H." for sending me such a lovely variety of this charming species, which I consider it. It is found a very long way from its supposed parents, and it has been imported in great quantity, two features which oppose the supposition of its hybrid origin.—G.

Lælia furfuracea.—"W." sends a nice flower of this very little understood species, although it has been known in our gardens upwards of fifty years. It most nearly resembles *Lælia autumnalis*, from which it is at once distinguished by the black farinaceous powder which covers the ovary, and which gives the name to the species. Some slight differences also exist in its habit of growth. The flower is some 4 inches or 5 inches across, of a deep clear rose colour. It is considered a somewhat difficult plant to manage successfully, but this, perhaps, comes about by the grower forgetting that the plant comes from a good elevation, about 8000 feet, and, like other Mexican species, requires abundance of air and plenty of sun.—W. H. G.

CÆLOGYNE CRISTATA.

THOSE people who say that Orchids are very uncertain in producing sufficient flowers annually to merit their general cultivation for cutting from must have had but little experience of the varieties of *Cælogyne cristata*. It does not matter of what size the plants are, they are equally capable of producing their quota of bloom. That lovely variety *C. hololeuca* is a chaste and beautiful flower, and if it were as plentiful as the type, *C. cristata*, it would prove one of the most valuable plants in cultivation for cutting. Unlike many other Orchids, the *Cælogyne*s increase at a comparatively rapid rate, small pieces forming good-sized plants in a few years. Certainly large plants are the most showy, and a well-flowered specimen is one of the loveliest floral pictures imaginable. I have several plants, so can speak with confidence as to their worth.

The *Cælogyne* is often termed a cool house Orchid and recommended for cultivation as such, and although plants may keep in health when grown under such conditions, yet the results, as far as blooming is concerned, are most disappointing. What else could be expected, for under this treatment the pseudo-bulbs do not grow to nearly the same size as when subjected to warmer treatment? It must not be surmised that very warm treatment is necessary. I grow the *Cælogyne*s during the greater part of the season in the Cattleya house, this being similar to an intermediate structure, and where they succeed well. Occasionally one comes across large plants almost destitute of flowers, but this, I think, is due to the pseudo-bulbs being so crowded as to prevent the fresh growths from rooting as they should do; consequently they lack strength. There is one thing that *Cælogyne*s resent, and that is disturbance at the roots, so the error must not be made of frequently repotting. Last season I had occasion to repot two of our largest specimens, and although I was most careful, the plants suffered for a time, but the colour of the young growths now plainly shows that they have become established again, and I confidently look forward to their making good flowering pseudo-bulbs during the coming season. For a change I also added a little fibrous loam to the ordinary potting compost of peat and *Sphagnum*, and I think they are better for the addition. The blooms would last fully six weeks in perfection, but I do not leave them so long on the plants, as after ten days or a fortnight I use them as cut flowers, thus preventing over-exhaustion. Leaving the flowers on any Orchid as long as they would remain fresh is not at all advisable. The plants (as the blooms are cut) are kept on the dry side until fresh growth commences, when water must be given sparingly. When in more active growth the plants will take a good supply, also being greatly benefited by overhead sprinklings through-

out the warm summer months. The plants are also partial to a light shade, as bright direct sun injures the foliage; in fact, I have seen almost the whole of the foliage drop off through neglecting shading. The amount of shade required greatly depends upon the position of the house the plants are growing in, so no hard and fast rule can be applied. Towards the early autumn months the plants are certainly benefited by being removed to a warmer structure, this assisting in swelling up the pseudo-bulbs. I am certain the extra heat afforded is of benefit to the plants at this stage of their growth, so that the pseudo-bulbs are freely developed before the dull days of winter. Directly the pseudo-bulbs have finished up, the plants are taken back to their old quarters and are now kept on the dry side, this preventing young growths from forming in place of flower-spikes, as they are apt to if kept too wet. As in the case of other Orchids, potting must take place when the young growths commence to form. In the case of old plants crowded up with leafless pseudo-bulbs, some of these are best removed by cutting them out with a sharp knife, the space so provided being filled up with fresh compost packed in firmly. The extra room now afforded will enable the younger growths to have room to become developed, and the plants consequently will be capable of producing a greater amount of bloom. These old pseudo-bulbs, if carefully detached, need not be thrown away, but may be retained for increase of stock. They should be packed two or three together into a small pot. A. W.

NOTES OF THE WEEK.

The fragrant Honeysuckle.—We have some of this welcome February flower from Glasnevin, where, with the always delightful *Chimonanthus*, it is now full of flower.

Ionocera Standishi is a white-flowered variety and very sweet-scented. It does well in any aspect on a wall, blooming after the style of *Chimonanthus* fragrans, but probably not effective enough to become a general favourite.

Amygdalus Davidiana alba and **A. D. rubra**.—These exhibited by Messrs. Veitch at the Drill Hall on Tuesday last are early-flowering Almonds of recent introduction, valuable at this time of the year for their effectiveness if weather is favourable.

Apple d'Arcy Spice (Baddow Pippin).—We have received from Mr. F. H. Deaves, St. Leonard's Gardens, West Malling, Kent, some very fine samples of this Apple. This excellent Apple, when ripe, has a yellowish green skin, almost obscured by brownish russet, especially on the sunny side, where it is also tinted with orange-scarlet strewn with dark russet dots. The flesh of the sample sent was rich and crisp and had a delicious perfume.

Royal Horticultural Society.—We have at present at Chiswick one of the largest (if not the largest) collection of Apple trees in the world. There are, however, a number of good sorts scattered throughout the country and but very little known. The council of the society invite the owners of such comparatively unknown sorts to send grafts of them with name, locality, age of tree (if known) and any other particulars to Chiswick for trial alongside of the standard collection. Gratts, &c., should be addressed to the Superintendent, R. H. S. Gardens, Chiswick. W. WILKS, Sec. R. H. S.

Seedling Lachenalias.—I herewith send you a couple of spikes of my seedling *Lachenalia* Garnet, mentioned in THE GARDEN, October 24, 1891. It was raised from *superba*, crossed by *Nelsoni*, and seems to be exactly intermediate between the two. It is a very early variety, and is now blooming freely without heat. I hope later on to send you a few more of my seedlings, such as *Ruby* and *Cawston Gem*, for examination. They are more robust in habit in *Garnet*, and have inherited the excellent constitution of their parent *Nelsoni*, possessing also the bright crimson tips of *superba*.—THEODORE H. MARSH, *Cawston Rectory*.

Inula Hookeri.—I had a plant of this in 1890; it was a small one, but pushed up well in 1891, only to be completely blackened and apparently destroyed by the unwonted and most destructive frost of May 17 and 18, 1891. It started into growth again, however, in June, and in August, when only about 6 inches high, became covered with buds. Its very

handsome flowers continued to expand during the wet months of September and October, even into November, to the admiration of all who saw them. This shows the valuable properties of *I. Hookeri* as a border flower.—R. MILNE-REDHEAD, *Holden Clough, Clitheroe*.

G. lanthus caucasicus appears to be the common Snowdrop of the Caucasus, and although frequently confused with *G. plicatus*, it seems to us abundantly distinct when both are growing side by side. The leaf is quite as broad, but has not the folded or reduplicate edges of the true *G. plicatus*. It is beginning to flower now, and appears better suited to light soils than some of the species we grow.

Viburnum plicatum.—In your last number you speak of this as a hardy shrub. It proved to be so with me against a wall for several winters, including the severe one of 1890-91, and in May of the last year it was covered with young foliage and flower-buds. The severe frost on May 17 and 18, 1891, however, killed it. On the same wall, only a few feet distant, were *Choisya ternata* and *Carpenteria californica*, neither of which was at all hurt, their growth not having commenced. In another part of the same garden *Ceanothus azureus* was killed, whilst *Azara microphylla* entirely escaped.—R. MILNE-REDHEAD, *Holden Clough, Clitheroe*.

Iris alata (the old *Xiphium planifolium* of Miller) is a very beautiful early spring-flowering species, and well worth the trouble of a little protection. It usually begins to bloom before or soon after Christmas. Its delicate lilac-blue flowers, with bright blotches of clear yellow and deep lilac-purple, are very effective peeping from amongst the ample foliage so characteristic of this section of the bulbous species. There is little doubt about its hardiness, but owing to its flowering so early, it is much safer to protect the flowers. It may be planted on a warm dry border, protecting its blooms from splashing rains, &c., by a handlight or other covering. Native of the Mediterranean region.

Galanthus Fosteri is a recent addition to our Snowdrops, having been introduced by Dr. M. Foster, of Cambridge, from Asia, in the province of Sirwas, North Central Asia Minor. The leaves, as in the case of *G. Alleni*, are like those of *G. latifolius*, broad, strap-shaped, and bright green, and the flowers resemble the larger globe-flowered forms of *G. Elwesi*. It differs from *G. latifolius*, if we mistake not, in having a distinct apiculus to the anthers, and from *G. Elwesi* by the broad, not glaucous leaves. It is a charming species, and is sure to become a general favourite, more especially as it blooms later than the common Snowdrop (*G. nivalis*), *G. Elwesi*, and *G. plicatus* (the Crimean Snowdrop).

The Japanese Euonymus in fruit.—When staying at Worthing last Saturday, February 6, I was surprised at seeing a specimen of this shrub in fruit. I have seen it flowering very freely in the south of France, but I cannot remember having seen it do so in this country before. The shrub in question, a strong-growing variety, was trained against the wall of a house with a southern aspect, and the upper branches were fruiting freely. The capsule itself is not so handsome as that of our native Spindle Tree, but when it debiscs, showing the brilliant orange-red arillus of the seed, it has a very pleasing effect. It would greatly enhance the value of this useful shrub if we could obtain a race that would fruit well in this climate.—W. E. NICHOLSON, *Lewes*.

Acacia retinodes—Although this *Acacia* blooms more freely during the spring months than at any other season, it has the unusual habit of flowering more or less throughout the year. I am not acquainted with any other Australian *Acacia* of which so much can be said. In foliage it is one of the handsomest of the genus. The phyllodes are of a bright glaucous colour, each being from 3 inches to 5 inches long, narrowly lanceolate, and slightly falcate or sickle-shaped. The racemes are produced from the axils of the phyllodes of the young growing shoots, each one consisting of from

ten to twenty bright yellow globular flower-heads. If given a light sunny position in the conservatory and planted out, this *Acacia* will soon grow into a large specimen. For pot culture it is not of much value, but for quickly covering pillars it would be difficult to find a species better adapted than it is. In order to secure the bright colour in the foliage and continuous bloom, it is necessary to allow it full exposure to sunlight. It is found throughout the greater part of Victoria and South Australia, usually in valleys where continuous moisture prevails.—L.

Saxifraga Burseriana major.—One of the finest and most attractive of plants at the present moment on the rockery is *Saxifraga Burseriana major*. The first bud opened in the end of December, and now the plant is literally covered with its creamy-white flowers, some of which are as large as a shilling. Some appear to experience great difficulty in the management of this improved variety of the type; they complain of the tufts presenting a miserable, half-dead appearance after growing it for a short time. With me it grows quite as well as the ordinary form planted in a light soil in a well-drained situation fully exposed to the sun, with broken bricks placed round the neck.—J. D., *Summerville, near Dumfries, N.B.*

Allen's Snowdrop (*Galanthus Alleni*), described as a new species by Mr. Baker, was introduced by Mr. Allen, of Shepton Mallet, a couple of years ago. It was received, I believe, from a nurseryman on the Continent among an importation of *G. caucasicus*, and may be shortly described as intermediate between that species and *G. latifolius*. It has the habit and leaves of *G. latifolius* with the large flowers of *G. caucasicus*, and as it is a very robust plant, it will doubtless prove a great acquisition to our spring flowers. It gives us the fine, broad, bold, shining green foliage so much admired in *G. latifolius*, but instead of the small flowers which characterise that species, we have bold open blooms almost as large as those of *G. Elwesi*. Its native habitat will doubtless be found in the Caucasus.—K.

Shortia galacifolia, besides being one of the most beautiful flowering alpine we possess, is also one of the most charming winter fine-foliaged plants. The cultural directions given in catalogues to keep the plant in a shady situation and grow it in sphagnum and peat deprive the grower of its chief charm, i.e., the handsome coloured leaves, during the winter and spring months. Instead of choosing a shady spot, I selected a fully exposed one, and here two plants have been for over a year, one in peat, and the other in sandy loam. Both are vigorous, and the numerous almost circular leaves make up at present one of the most beautiful bits of colour I have ever seen. The tints are very bright, and quite as highly coloured as those of some leaves I had from America, where those of an allied plant, *Galax aphylla*, are used for winter decoration.—K.

Anoiganthus breviflorus.—This plant has already been made known to the readers of THE GARDEN by a coloured plate which appeared in the issue for July 18, 1891, and which gives an admirable idea of its appearance when in bloom. It is now in flower at Kew, and each season may be said to give additional evidence of its usefulness as a garden plant, for in the plate referred to the flowers on the scape number seven or eight, but on the plant now flowering there are at least a dozen. Since its introduction a few years ago it has flowered at various times between midwinter and July, but it now appears that February may be considered its normal season when treated as a greenhouse plant. There is no doubt, however, that with a frame covering in winter it may be grown without heat. The flowers, which are about 2 inches long, are of a clear bright yellow, and the petals expanding but little, they present a somewhat tubular form. It belongs to the natural order Amaryllidaceæ, and is very nearly allied to the *Cyrtanthus*. It is a native of the eastern side of South Africa, occurring at elevations of 5000 feet to 6000 feet.

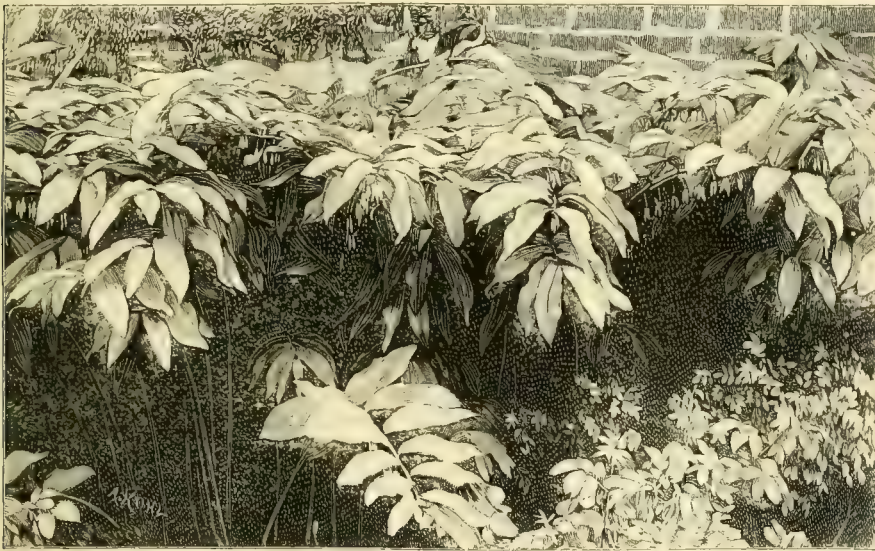
FLOWER GARDEN.

SOLOMON'S SEAL.

THE genus *Polygonatum*, according to Baker, comprises about twenty species, scattered about the cooler parts of the world, from Britain through N. Europe, N. America, and Siberia to Japan and the Himalayas, but, so far as I have seen, none surpass in grace of habit our native *P. multiflorum*. The name *Polygonatum* is in allusion to the zigzag angles, or knee-joint like rhizomes or stems, and the popular names, such as Lady's Signet and Solomon's Seal, are given from a fancied resemblance of the scars on the rhizomes to an impression made in wax by a thimble or a seal. The fleshy rhizomes were formerly in great repute in the making of cutaneous or skin-cleansing unguents, and the fresh stems bruised formed a very popular application to bruised heads and black eyes, or, as Gerard

It would be interesting to know if the plant still exists in these localities. He further states that a third species (*P. verticillatum*) also grew in his garden (then in Holborn) along with the two kinds above named. Gerard mentions a large-leaved kind as having been sent from beyond the Danube by Clusius to a Mr. Garth, of London, in his time.

The engraving shows how graceful *Polygonatum multiflorum* really is as grouped or massed at the foot of a wall. It is, moreover, a good plant for a shady place, and grows very vigorously in open places in woods or beside woodland walks and drives where the soil is deep and moist, and the ground becomes enriched every winter by falling leaves. There are several varieties, the stems in some cases being green, and in others purplish with a delicate grey bloom upon them. Again, there are larger and smaller varieties; one sent out some years ago attains fully 5 feet in



Group of Solomon's Seal at the foot of a wall.

very quaintly has it (ed. 1597, p. 578), "The route of Salomon's Seale, stamp'd while it is fresh and greene and applied, taketh away in one night, or two at the most, any bruise, blacke or blew spots gotten by fals or such like."

The plant is well figured by Turner ("Herbal," 1568), and Gerard tells us that it is a native of Britain. "The first sort (*P. multiflorum*) of Salomon's Seale groweth naturally wilde in Somersetshire, upon the north side of a place called Mendip, in the parish of Shepton Mallet; also in Kent by a village called Crayforde, upon rough or rowe hill; also in Odiam Parke, in Hampshire; in Bradford's Wood, neere to a towne in Wiltshire, fower miles from Bathe; in a wood neere to a village called Horsley, five miles from Guildford, in Surrey, and divers other places. That sort of Salomon's Seale with broad leaves (*P. vulgare*) groweth in certaine woods in Yorkshire called Clapdale Woods, three miles from a village named Settle."

neight in deep well-manured soil. Some varieties also exhale much sweeter perfume than others, and may be accordingly more or less valued. It is a splendid plant to group in partially shaded places on a broad carpet of Lily of the Valley, belted in front by the exquisite little *Convallaria* (*Smilacina*) *bifolia*. Here we have a group of hardy Bamboos carpeted with Solomon's Seal and *Tellima grandiflora rubra*, and the effect is good alike in spring, summer and winter. One experiment has suggested itself to me, but I have not as yet carried the idea into practice. It is to form a bold group of Solomon's Seal, not too thickly planted, in a bed of peat and leaf-mould, and then to fill in the group with bulbs of *Lilium auratum* and add a background of the dark-leaved *Bambusa Metake*, one of the freshest and hardiest of all the kinds.

Not only are this and several other species of *Polygonatum* admirably adapted for wild gardening, but *P. multiflorum* is a most

valuable plant for large pots or round wicker-baskets, as gently forced now, so as to bloom during March and April, or even earlier if need be. At South Kensington some years ago, visitors to one of the Royal Horticultural Society's meetings were surprised and delighted by some round baskets of this fine old plant, shown by Mr. George Paul in front of a splendid bank of forced Roses in pots. The effect was unique and not easily forgotten. Good strong roots may now be dug and packed pretty tightly into suitable receptacles and well watered; they then soon begin to grow, even in a cool greenhouse or pit, and, as seen in flower, no plant can possibly be more elegant in its quiet beauty. The flowers are not showy, but show like pendulous "green-tipped lamps of light" beneath the arching canopy of leaves. As grown in the open ground, the flowers are usually succeeded by rounded fruits the size of Peas and of a greenish black hue covered with a delicate translucent bloom, which causes them to look like black pearls, and still later in the year the leaves die away of a rich orange-yellow tint and quite light up dark corners with their glowing autumnal colour, just as does Siebold's great Plantain Lily of Japan.

F. W. B.

SERVICEABLE ANNUALS.

WHAT I consider serviceable are those that can be raised from seed without much trouble, and which are very effective in beds and borders as well as useful for cutting from. The list is not a particularly long one, but it comprises several species that have been greatly improved of late years and which may almost be considered indispensable. Several that will be named may not come up to an artist's ideal—very few double flowers do in fact, but then single flowers, though very beautiful in many instances, are rarely serviceable in a cut state. Taken somewhat in alphabetical order, the first to be noted are Asters, and these also merit pre-eminence as being among the most showy as also the most serviceable of annuals. Of late years they have been largely used as bedding plants, but in masses they present a too formal appearance, being also liable to fail early in either a very wet or very dry season. Where they are most at home is in mixed borders, and either in lines or, better still, in patches of three or four plants, arranged in either case according to the height of the respective varieties. For real utility there are none to surpass the pure white strains, the giant French and Peony-flowered whites being particularly good. The White Comet and Snowball are two other beautiful forms, while of coloured varieties, such strains as *Victoria* (*Chrysanthemum*-flowered) and *Globe* in various colours are all excellent. To succeed well with Asters, the start must be made with sturdy healthy plants, these being put out on well-prepared and not poor ground by the end of May. Too often the plants are raised so early as to be quite forward enough for the borders by the beginning of May, and as a consequence are well-nigh spoilt before it is safe to plant them out. The middle of April is quite soon enough to sow the seed, and it must not be crowded into pots, but ought to have good room in pans or boxes, these being placed in gentle heat. Vineries being gently forced are capital places for raising Asters, but the seed comes up equally well if sown or placed over mild hotbeds, with or without a frame over them, always provided some kind of protection from saturating rains and spring frosts is afforded. If the plants come up rather thickly, they must be pricked out into boxes or shallow beds of light and fairly good soil, and from these they can be transplanted readily. Cornflowers (*Centaurea cy:nis*

minor), of which there are now double as well as single forms, and also a very dwarf variety (the Victoria), can be grown without much trouble and produce abundance of flowers, the old blue being perhaps the most appreciated. If wanted early, the seed ought to be sown in the autumn where the plants are to flower, and several weeks would also be gained by raising a batch of plants in gentle heat, early hardening off, and planting out in mixed borders. Most growers are content to sow the seed in the open borders about the first week in April, and if the seedlings where crowded are duly thinned out, blanks being made good by transplanting with a trowel, abundance of flowers should be available during the summer. The annual *Chrysanthemum* are well worthy of being included in the smallest collections of annuals. There are both single and double forms, the former being the most beautiful, while all are profuse and continuous flowerers. All the single varieties of *C. tricolor* are good, and there are several new double forms of the same race. *Chrysanthemum segetum*, or Corn Marigold, is a very beautiful yellow native variety, really more effective than any of the yellow French Daisies or Marguerites, and room ought also to be found for the double white *C. inodorum plenissimum*. All succeed best when sown thinly where they are to flower not later than the first fortnight into April, though they transplant fairly well from pans and boxes. *Dianthus* or Indian Pinks, though classed as biennials, are usually treated as annuals. The seed should be sown in gentle heat late in March and the seedlings duly pricked out into larger boxes or pans, being eventually hardened off and planted out by the end of May. Thus treated, they will flower well during the summer and till crippled by severe frosts. There are both single and double forms of *D. Heddergigi*, and the double *chinesis* varieties are also very pretty and serviceable. *Gaillardia picta* and *picta Lorenziana* are among the showiest of border flowers, and both may be treated as annuals. The plants ought to be raised in gentle heat rather early, or not later than March, and if duly pricked out into pans or boxes, should be strong stuff by the end of May. Being of somewhat straggling or trailing habit, these *Gaillardias* ought to be located near the fronts of borders, where they will be found very attractive and serviceable for cutting from.

Godetias are very showy annuals, and in some few cases also serviceable in a cut state. The best I consider are Lady Albemarle, Duchess of Albany, rosea alba, The Bride and Whitneyi. Marigolds, both African and French, are very showy, the first-named in its two colours, orange and lemon, being among the very best flowers that can be grown in quantity for harvest-festival church decoration. It is most unwise to sow the seed before the end of April, as it germinates very quickly, and the plants are soon large enough for the open borders. Sow rather thinly in pans or boxes, placing these in gentle heat, and the plants if duly hardened off will transplant readily. Slugs are very fond of the young plants and must be kept under. *Mignonette* is generally popular, and may be sown where the plants are to grow. There are now a considerable number of varieties, but the old large-flowering and Garaway's White are hard to surpass for general utility. None of them will do much good if crowded, well-isolated plants succeeding much the best in every way. For an early display, sow seed at once very thinly in 3-inch pots and place in heat to germinate, early thinning out the seedlings and planting out before they become badly root-bound. The Sweet-scented Tobacco (*Nicotiana affinis*), though not very serviceable in a cut state, is a good border plant, quite scenting the garden all round. Sow at once in heat, and either pot off or prick out the seedlings in pans or boxes of fine soil. They will make good plants by bedding-out time, and quickly push up strong branching flower-stems. Sweet Peas are simply indispensable. No other annuals will, under ordinarily good treatment, produce such an abundance and long succession of beautiful and serviceable flowers, and the more they are cut from the more likely are they to hold out till severe frosts

intervene. The old or commoner varieties may well be sown at once either in patches or rows where the plants are to flower, but if an early supply of bloom is required, then raise a few potfuls of plants and early turn out into the open ground. The choice named sorts, most of which are very fine, are with me all sown thinly in 3-inch pots and duly planted out in fairly rich, deeply-worked ground. Thus treated, no seed nor plants is lost, and an early and continuous supply of bloom results. Poppies are rather popular just now; but though most showy, they cannot lay claim to usefulness. An early display can be had by sowing seed in small pots at once, transplanting to a bed or border before the plants become starved and stunted. A long succession can be had by sowing seed soon where the plants are to flower and again in May. Stocks in variety, raised and treated much as advised in the case of *Asters*, are both beautiful and serviceable, and so also are *Zinnias*. The last are very fine in masses, the colours being most brilliant, and they are also very effective in mixed borders as well as in a cut state. *Zinnia robusta grandiflora* is a very fine strain, and the yellow and very free-flowering *Haageana imbricata flore-pleno* is admirably adapted for the centres of moderately large beds.

I. M. H.

THE HARDINESS OF FLAME FLOWERS.

IN all probability Haarlem is a much colder place than Newry, and many plants would need to be covered there which would pass safely through our ordinary or extraordinary winters without any special precautions being taken. The only kinds which suffered here during the extreme cold of the winter of 1890-91 were *natalensis* and *recurvata*, the former being killed off. As it is, however, a worthless plant, the loss is not of any moment; *recurvata* had its leaves only injured. I should here mention that my usual practice is to plant all Flame Flowers so that their crowns (collars) are from 7 inches to 8 inches below the surface. None of the forms of *Leichtlini* were in any way injured, and it may interest M. Krelage to learn that *comosa* is not at all likely to become extinct just at present. The forms of *K. Leichtlini* as well as all the deciduous set are, I think, better for being kept dry during the winter. Perhaps the best way to bring about that condition is to plant them on raised mounds, and in the autumn to either thatch them or cover with some waterproof material. Although *Kniphofia Leichtlini* and several of its varieties came safely through last winter—growing in a bog and flowered freely enough last summer, still, I have noticed that any of these which had been kept in dry soil under cover during the winter started away in spring greener and healthier-looking. About seventy kinds of *Tritomas* are grown here, so I have plenty of opportunity of observing their behaviour. A good many kinds, I notice, have lost the tips of their leaves. We had an unusual snowfall for this neighbourhood (about 1 foot), and those leaves which remained outside its welcome covering and were no doubt exposed to severe cold are browned and dead, but the plants themselves have not suffered in the least.—T. SMITH, Newry.

—The contribution upon the above named subject from M. Krelage in *THE GARDEN* of Jan 23, p. 88, is very interesting, but it would have been additionally valuable if a few details had been supplied. In what way were the plants in question covered up, and what amount of frost had they to endure? These are two important questions. Judging from my own experience, it will be necessary to afford these plants some slight protection when severe weather is prolonged. Last winter I did not protect, because the soil is warm, comparatively

light, and well drained—in fact a soil in which plants of doubtful hardiness in some gardens would pass through the severest weather safely. The result was that the entire groups of some species were killed outright, the kinds being *grandis*, *nobilis*, *Saundersi*, *maxima globosa*, *Rooperi*, *sarmentosa*, *præcox*, &c. A large group of the common kind had all the leaves killed, but the plants grew again, although they did not flower so abundantly as usual. Two kinds, *Macowani* and *corallina*, which we have regarded as tender, suffered least. I imagine, however, that the injury would not have been so great merely from severe frost. A quantity of snow was about the plants, and once or twice a partial thaw melted this into water, which could not soak into the ground owing to its hardness, but it found its way into the crowns of the plants, and succeeding frosts did the mischief. Apparently, however, some species are more tender than others, and the experience of this present winter, in so far as it is yet possible to judge, confirms the supposition. A new plantation was made last year and the plants grew strongly. When the severe weather set in the plants were protected with Bracken. They were not covered entirely, the foliage being left with the protective material around the base of the plant. Most of the plants look all right, but the exceptions are *Leichtlini*, the variety *distachya*, and a species named *mutabilis*. The leaves of these are dead, but whether the plants are injured beyond recovery time must prove. I have never tried any of the newer hybrids, but if, as M. Krelage's remarks and observations would lead us to suppose, they are quite as hardy as the hardest types, they are valuable indeed. It might have been thought, indeed I had imagined, that their development and improvement would be attended with increasing tenderness, and doubtless many need only to be assured to the contrary and they will try them extensively. Every endeavour should be made to obtain hardy varieties, for although the kinds we now have richly merit the little care and attention necessary to bring them through the winter, it is just these plants that are not quite hardy that will be most neglected. The varieties become annually more numerous, their season of blooming is prolonged, and it would be a great pity if so fine a family of flowering plants did not receive the recognition to which its merits amply entitle it.—A. H., Suffolk.

—It is a great pity that the question raised by M. Krelage (p. 88) cannot be answered in the way most people would desire, yet one must admit that the hardness of *Kniphofias* in this country is only relative, and that they can only be kept from injury in the colder low-lying districts even in an ordinary winter by protection. In such a winter as that of 1890-91 the usual protective measures were with us insufficient to save the strongest crowns, though, happily, few plants were killed outright, the loss being confined to the crop of flowers due last autumn. When one remembers the grand show these plants make when seen at their best in the southern and western parts of the country, the wish is strong that such effects could be more general. The common *K. aloides* (*Uvaria*) is apparently the hardest, and *K. Macowani* the most tender kind we have; *K. grandis*, too, suffered severely. With the hybrids mentioned by M. Krelage I have had no experience, but probably none of them are harder than *K. aloides*, so that they will require thorough protection from any continuous frost exceeding 20° Fahr.—J. C. TALLACK, *Livermere Park, Bury St. Edmunds*.

Lobelia fulgens.—The young growths of plants lifted and wintered in cold frames are very liable to damp off at this time of the year, but if

they are removed to a house where they get a gentle heat, such as may be found in ainery just started, this will stop the damping and give them a start forward. They need not remain long in heat, as they simply want a slight impetus to the roots, and after this has been given they may be taken out again, giving them cooler quarters for a day or two before putting them back into the frame. The plants want watching and care for a few weeks from now if a given number of plants is required for beds or groups, as they may be easily spoiled by damping on the one hand, or becoming drawn by heat on the other.—J. C. T.

HARDY PLANTS IN POTS AND TUBS.

THERE are many hardy and half hardy plants that would repay culture in pots or tubs and look more ornamental than some of the things that occupy our glass structures the whole year through. It is, however, quite the exception to meet with an instance of their culture in this way. If a plant is thoroughly hardy, it may perhaps be seen to advantage in the garden, but if beautiful and slightly tender the probability is that it will be entirely neglected. I do not wish to advocate anything in the nature of coddling, as, apart altogether from that, there are great possibilities, and we may have hardy plants in pots and tubs, not as miserable specimens, but vigorous and beautiful in leaf and blossom and fit to adorn any structure.

How much might be said in favour of cultivating lovely alpine plants in pots. Such culture popularised would induce hundreds to cultivate these plants, as it is possible and within the reach of all without great labour or costly appliances. Many gems that are not safe in the border among more vigorous plants, or that perish in the dusty pockets of ill-constructed rockeries, can be grown with the greatest ease in pots. We need only to pot them in suitable soil and plunge them in a bed of soil, or, better still, ashes, and give frame protection in winter to preserve the pots more than the plants. With frames, however, the pleasure is greater, because many things can be brought into flower earlier than when growing in the open air unprotected. Saxifraga Burseriana and others that bloom early are amongst the most delightful plants that we could have, flowering to perfection in a frame in the early months of the year. Later on there come the Primulas, and some of the most ornamental species, such as *P. rosea*, *japonica*, *floribunda*, *denticulata*, &c., are easily grown, and when in flower will compare favourably with the choicest occupants of glass houses. Some plants, such as *Iberis*, *Aubrietias*, *Saxifraga Camposi* and others, make splendid pot specimens with the smallest amount of trouble. If we fill a pot with good soil and dibble in three or four pieces of these, we can leave the pots plunged in any convenient place, and in the course of a year we shall have a plant hiding the pot that contains it and when in flower a sheet of bloom. If hardy plants were more frequently seen growing and flowering in this way, they would be still more popular, because, as before said, all can have them. How much more interesting and more instructive our spring and early summer flower shows might be if a special feature was made of hardy plants. What little we see of hardy flowers at shows is the display made by a few trade growers. This is very well, but societies might go further, and by offering liberal prizes encourage the growth of hardy plants in pots. Hardy plants in bloom in pots are most useful to those who have large glasshouses to keep gay, rooms to decorate, and porches or corridors

to brighten. Such need not be always grown in pots, as that would be detrimental to their welfare. It would be a decided gain to have a nursery where plants could be grown and otherwise prepared for pots, to be lifted when they were fit, and to be returned to the nursery quarters again after flowering. The shelter afforded by an ordinary greenhouse would suffice to bring forth the flowers of many plants several weeks before they would naturally appear in the open air, and what many desire is to prolong the blooming season of favourite plants.

Throughout such winters as this present one, or the previous one, no flower could be more deserving of glass shelter than the Christmas Rose. It is possible, as many do, to give the plants shelter as they stand in the bed or border, but all who love their flowers cannot go to them in winter, and possibly a careful system of pot culture of plants properly grown in nursery quarters would be a means of further rendering the Christmas Rose popular. The Megaseas or broad-leaved Saxifrages can be strongly recommended for flowering in pots from Christmas onwards till those in the open air are in bloom. Good kinds are now becoming numerous, and there are the older types which remain as some of the finest hardy-flowering plants we have in their season. A small amount of warmth suffices to bring them into flower weeks sooner than in the open air, and they develop their tall scapes and open their numerous blossoms unmarred (as the open-air flowers often are) by the cold storms which frequently prevail at the time they naturally appear. No plant is more easily grown, and large specimens with many crowns are suitable for large pots, or smaller plants with a strong crown, needing only a 6-inch pot, may be had as desired. The preparation of plants in the nursery is a simple matter, as the old stock may be divided up to any extent, each piece being almost sure to grow. The value of *Campanula pyramidalis* for pot culture is becoming more generally recognised, and during such a summer as that of last year, plants in pots appeared to better advantage than those outside. Those who grow this largely have their favourite methods of treatment, some preferring to grow the plants entirely in pots, while others plant them out and give them a season out of doors, lifting and potting them up either in the autumn or spring previous to blooming. There is certainly no statelier hardy plant than this for flowering in pots, its blooming extending over many weeks. Many other *Campanulas* might be similarly treated. The Plantain Lilies (*Funkias*), both green and variegated, are admirably adapted for pots. In the first place they will furnish lovely foliage to arrange as a foil to other flowering plants. Some kinds, too, are delightful in flower. In many gardens the flowers of *F. grandiflora* never come to perfection, as they appear so late and are invariably spoilt by a few early frosts. This, then, is just the kind for pot treatment. The fine-foliaged kinds are so amenable to pot culture, that if we keep them entirely in pots they may be brought into leaf at almost any desired time, as they readily respond to artificial warmth. The Day Lilies, too, most accommodating of hardy plants, flower freely in pots if generously treated, and there are variegated-leaved forms, so that a group of pot plants of these alone in variety would make a pretty feature in their season. We are now finding out, too, that some of the loveliest of the Torch Lilies or Flame Flowers (*Tritomas*) can hardly withstand the vicissitudes of our changeable winter weather, yet it would be a pity if such

fine flowering plants should be left in comparative obscurity when we might grow them in pots or tubs, and then with winter shelter have their summer and autumn beauty.

This leads up to the third suggestion I would make, viz., that with many of the bolder hardy plants we may go to the trouble, if it can be called such, of growing them in tubs and be well repaid. The Evergreen Bays and Portugal Laurels were a conspicuous accessory of formal methods of gardening. In many cases they have disappeared with the systems they characterised, but we might in part replace them with something in harmony with our present day ideas. The lovely African Lily (*Agapanthus*) in its blue and white forms, must be grown in tubs in order to flower it to perfection, and many already use this plant largely. The practice is worthy of extension. Especially in particular places and under certain conditions we might adorn the garden with bold and stately plants whose culture was otherwise not possible. Torch Lilies in tubs shooting up their spikes during the cool autumn days are surely quite as desirable and as meritorious as the charming African Lily. Cannas, too, so fine in leaf and blossom, are excellent plants in tubs. I have seen some of the older kinds looking very effective when so grown. They were standing along the margin of a broad gravel walk where little else of ornament but these was possible. If the older kinds were worthy, how much more so are those of recent years, which, in addition to fine leafage, give us glowing spikes of rich large flowers—a marked improvement upon those of the old kinds. Giant Grasses, such as the *Gyneriums*, and *Arundos*, too, if we had these under control in tubs, would doubtless figure more prominently in the garden landscape than they usually do now, and the hardy Bamboos, which cannot be grown in some places for lack of shelter from the cold cutting winds of spring, would be found well worthy of culture in this way. With hardy or half-hardy types of vegetation we might create striking features at an annual cost considerably less than is frequently expended in the production of a fleeting display of tender things. A. H.

ARCTOTISES.

THESE Cape plants number between forty and fifty species; they are, however, little known, and although many of them have been from time to time cultivated in our gardens, it would be difficult to find more than half a dozen distinct kinds in collections at the present time. Judging from coloured figures chiefly, the majority of them are of no inconsiderable beauty, and could they be reintroduced, they would form a collection of no small value, especially as most of them may be grown out of doors during the summer months. The management of Arctotises from year to year is much the same as that required for bedding Geraniums, *Calceolarias*, &c. The bright colours of many of the species are more intense with the light and exposure in the open air than when the plants are cramped in pots in a greenhouse. In addition to a brilliant mass of colouring, the greater rooting area gives a corresponding wealth of rich grey-green foliage peculiar to the genus *Arctotis*. Turning over the leaves of Jacquin's "*Hortus Schoenbrunnensis*," where no less than twenty-five species are enumerated and figured, one gets an idea of the great beauty of the Cape Arctotis, and can hardly help feeling that we are deprived of a very great deal in the almost entire absence of these beautiful flowers from our gardens. From stemless to quite arborescent species they vary

considerably both in habit and form. The few species at present in cultivation are rarely used to the best advantage in outdoor gardening, and it is only now and then that we see a really good display. Dry sunny banks which are often devoid of plant life might be readily and beautifully clothed with such species as *A. acaulis*, *A. aureola*, *A. grandiflora*, and *A. aspera*, all of which, as stated above, may be as easily managed as the bedding *Geranium*. Cuttings may be taken off and rooted at any time during the summer, the old plants being left to flower until cut off by the autumn frosts. Although true sun-loving plants, they may be very effectively used as a groundwork in subtropical and other bedding, where apparently, unmindful of the shade if not too dense, they grow more vigorously, and flower almost as freely as when fully exposed to the sun. In addition to the species of *Arctotis*, the *Venidium*s, *V. fugax* (better known under its old name of *V. calendulaceum*), *V. hirsutum* (a more robust species), *Sphenogyne speciosa*, a few of the *Gazania*s, *Haplocarpha Leichtlini* (the old name of which is *Gorteria acaulis*), *Arctotheca repens*, and other allied plants of equal interest and beauty are all subjects that may be managed in a way similar to that recommended for the *Arctotis* family. The annuals as a rule produce seed freely and give little trouble beyond sowing and harvesting. The following species of *Arctotis* are now in cultivation:—

A. ACAULIS, figured in *THE GARDEN*, November, 1889, is apparently a very variable species, and, according to the "*Cape Flora*," includes *A. scapigera*, *A. tricolor*, *A. undulata*, and *A. speciosa*. The form in cultivation is identical with the plant figured by Jacquin as *A. undulata*, and is undoubtedly the finest form of this species. It was first introduced about 1759, and was reintroduced from the Cape a few years ago through the Royal Gardens, Kew. As a rock plant it is by far the best of the species, easily managed, and an almost incessant flowerer throughout the summer and autumn months. As the name implies, it is almost stemless; the leaves, produced from short thick root-stocks, are variable in shape, bright green above, and woolly on the underside. The flowers are large, of a deep rich orange, and very attractive. It does not ripen seed freely, but is easily propagated by side shoots, plentifully produced on old plants.

A. ASPERA, figured in the *Botanical Register*, t. 34, is a weakly half-shrubby species, with deeply cut and wrinkled leaves and creamy flowers, purplish on the outside. The variety *arborescens* (figured in the *Botanical Magazine*, t. 6528) is better known and much more useful as a late autumn and winter greenhouse plant. In pots it requires support, the stems being too weak as a rule to stand alone. This enhances its value when planted in the open air, the long straggling shoots making a very effective groundwork for taller plants. It may also be used effectively in vases and hanging baskets, the exquisite pink buds being very pretty. Cuttings strike readily in heat.

A. AUREOLA.—This beautiful species, introduced as early as 1710, and figured in *Botanical Register*, t. 32, is well known in gardens as *A. grandiflora*. It grows from 1 foot to 2 feet in height, and is of a shrubby, somewhat straggling habit, producing its large handsome orange flowers towards the ends of the branches. Cuttings taken off towards the end of July and August root freely in a cold frame.

A. LEICHTLINIANA.—This is known in gardens as *A. speciosa*. The true *A. speciosa* belongs to *A. acaulis*, figured by Jacquin, 161, and *Botanical Magazine*, t. 2182. In habit it is similar to *A. aureola*, but more straggling, and the flowers, not quite so large, are golden-yellow. It strikes readily from cuttings.

A. LEPTORHIZA is one of the most striking annual plants we grow. The flowers, of a rich brilliant orange, are produced freely. The seeds may be sown in the open air, the plant being treated as a

hardy annual. A sunny spot should be chosen and the seedlings well thinned, so as to allow plenty of room for development.

K.

PLANTS FROM JAPAN.

WHEN a voyage from Japan necessitated a journey round the Cape, it was by no means so easy to bring plants therefrom in good condition as it is at the present day, for, thanks to the improved means of transit, many subjects, bulbs especially, reach this country very little, if any, the worse for their journey. Of Lilies, immense quantities are sent every year of *Lilium auratum*, *L. speciosum* Krätzeri, *L. speciosum rubrum*, and *L. longiflorum*, while lesser numbers make their appearance of the varieties of *L. auratum*, *L. elegans* in various forms, *L. Leichtlini*, *L. cordifolium*, *L. Krameri*, *L. Batemanniae*, *L. Maximowiczii*, *L. odorum*, some varieties of *L. speciosum* other than those mentioned above, *L. tigrinum* in variety, but generally consisting of *Fortunei*, and occasionally some quite unexpected kind is sent in quantity, as, for instance, over 2000 bulbs of *L. medeoloides* were disposed of a few weeks ago. The Lilies are all sent in the same way, each bulb being entirely covered with a coating of clay, in some cases half an inch thick, which being put on when wet forms an airtight mass. In packing them in boxes, the interstices between these rounded balls of clay are filled with soil of much the same consistency in a dry, powdered state, so that when the box is filled everything is held securely in its place. As a rule the bulbs reach this country in very good condition, though occasionally some unsatisfactory importations will arrive. A kind of dry rot which sometimes attacks the bulbs seems to be the most fatal to the different Lilies, but even then from the way they are isolated in the boxes it is often limited to a few. Some travel much better than others, one of the best of all being *L. longiflorum*, while such kinds as *L. odorum* and *L. Krameri* frequently suffer a good deal. In the case of *L. auratum* some magnificent bulbs are sent every year, but it is very seldom that any distinct forms are to be found among them now-a-days, the most marked varieties being kept distinct and disposed of as such. Thus we have *rubro-vittatum* or *cruentum*, for these two names seem to be used indiscriminately, *virginale* or *Wittii*, and *platyphyllum*, this latter a grand form of the Golden-rayed Lily, with massive blooms more saucer-shaped than in the ordinary kind. Half a dozen years ago or thereabouts *platyphyllum* made its appearance in large quantities, but since then it has been getting scarcer, and this season very few are at present to be had. Of *L. speciosum*, the bulbs of Krätzeri have occasionally mixed with them to a very limited extent a second white-flowered variety known as *album novum*, which differs principally in the colour of the pollen, that of Krätzeri being dark brown, and *album novum* yellow. This last is apparently a white-flowered form of *L. speciosum punctatum*. The bulbs disposed of as *L. speciosum rubrum* are generally somewhat mixed, the bulk consisting of a good form of *rubrum*, much superior to those sent here by the Dutch, while interspersed with them to a greater or lesser extent occurs that beautiful rich-coloured variety whose petals are edged with white, known generally under the name of *Melpomene*. In one or two of the latter sales, however, that variety is, I see, offered separate from the ordinary *rubrum*, being presumably selected therefrom when in bloom. Of *L. elegans* and its varieties, as with *L. speciosum*, one of the forms at least is much superior to those generally grown in Holland. It has a very bright crimson flower and is usually disposed of without any varietal name, though a good deal in the way of Van Houttei, of which, in conjunction with another variety (*Alice Wilson*), a coloured plate was given in *THE GARDEN*, November 8, 1890. The deep blackish red variety (*cruentum*, or *hæmatochrom*) occasionally, though very seldom, crops up among these Japanese importations, and so does a very distinct form of *L. elegans* known as *robustum* or *guttatum*, whose rich orange-coloured flowers are

copiously spotted with brown. I have heard this Lily spoken of as a hybrid between *L. elegans* and the European *L. davuricum*, but cannot say if such is its origin. The bulbs of *L. Leichtlini* and *L. Batemanniae* are, when this last is small, very much alike, but *L. Leichtlini* starts into growth earlier than the other; in fact, sometimes during the voyage. *L. Krameri* is not a good traveller, as frequently the bulbs reach this country in a decayed state; and much the same will apply in the case of the whitish bulbs of *L. odorum*, which are often affected just at the base, so that a bulb which at a first glance appears to be sound will fall to pieces when handled. Bulbs of *L. tigrinum Fortunei* from Japan are often very large; in fact, larger than any of the Tiger Lily group that I have seen grown in this country. They flower, as a rule, grandly the first season, but much weaker the next. The numerous varieties of *L. longiflorum* are very difficult to classify, as grown together and under similar conditions many of the points of difference vanish. At all events, the bulk of those sent here from Japan represent one of the best varieties—that usually known as *Wilsoni*—which is much superior to the typical *L. longiflorum*.

A couple of years ago two or three consignments of Tree or Moutan Pæonies were disposed of at high prices, and this season great numbers have already made their appearance. Most of them reach here in capital condition, the roots being tightly packed in Moss; while the tops are allowed sufficient space for a free circulation of air around, which is assisted by holes bored in the boxes opposite these air spaces. A great drawback in connection with these Moutan Pæonies is that they are all grafted on to the roots of one of the herbaceous section, the suckers from which (despite the removal of every bud previous to planting) are a most intolerable nuisance, and need constant attention.

Iris Kämpferi, or *lævigata*, is another plant grown largely by the Japanese, and as it stands carriage well, it is sent here in considerable numbers. They are grown in a stiff almost clayey soil, which is always very moist, and consequently adheres well together. The plants are simply lifted with a portion of the soil in which they have been grown; in fact it is of so tenacious a nature, that masses of it a good deal larger than a brick are chopped out each containing a tuft of *Iris* in the centre, the plant in this way preserved from any injury, while the mass of soil keeps it in an even state of moisture. These lumps of clay are simply packed in boxes with a little Moss to hold them in position, and travel well without further trouble. A number of distinct varieties are usually to be found among these Japanese importations, both single and double flowers being represented. In colour the blossoms vary from the purest white to the deepest purple, besides which in several of the varieties the blooms are flaked and splashed in different ways. These last are curious and admired by many, but I much prefer the self-coloured forms, especially those of rich decided shades. In planting this *Iris* the fact that it is a waterside plant must be borne in mind. Variegated *Acers* from Japan are occasionally to be found in the London sale rooms, but as a rule they do not attract any very great share of attention.

While the above constitute the bulk of the plants sent here in quantity from Japan, lesser numbers of *Chrysanthemums*, *Camellias*, and other things find their way to England. In estimating the number of bulbs that are exported from Japan, it must be borne in mind that large consignments are also sent to the United States of America.

H. P.

Centaurea candidissima = ragusina.—This plant is most useful in the flower garden, giving an effect not easily matched and toning down some of the gay colours. Stock raised from slips or cuttings are more satisfactory than seedlings, as the leaves are more effective and the plants more uniform in size. It often happens, however, that they do not strike freely, as to do this they want quite different treatment to that given to most cuttings of soft-wooded stuff, they being im-

patient of heat or a moist and close atmosphere. I find, too, that the later the cuttings are put in the better they root. Our present batch was put in on November 27, after having had 10° of frost on them. The cuttings were put singly into 2½-inch pots, and stood on a disused flue at the back of a Fig house. So far I have not had a single loss, and most of them are rooting nicely. The soil used for them is loam and leaf-mould in about equal proportions mixed with a good sprinkling of sand. Treated in this way, there is no need for the very excessive care in watering that is so often advised. —J. C. T.

Borago laxiflora.—One hardly knows how to speak of this plant, because, as a plant, it is one of the ugliest weeds imaginable, and yet I know nothing more beautiful than its flowers (which are produced almost solitary) when collected into small bouquets, like the shop bunches of Violets. The flowers vary slightly in colour in different soils, but they are always of those pleasing blues that range between the Nemophila and sky-blue. I have heard it called the "Fairy Borage," and certainly no name can be too pretty for the flowers seen plucked from the plant. The plant has several big, coarse, flat, wrinkled radical leaves. From these spring long, untidy, sprawling, rope-like stems, which in the case of strong plants will constitute a tangled mass of coarse herbage for a diameter of 3 feet or more. Obviously this is not a plant for the dressed part of the garden, and yet it would not only be allowable, but a distinct and desirable flower for the wild garden, or for planting in the hedgerows and by woodland walks, where the flowers might be picked conveniently and made the most of. And there can be no fear but that this strong-growing Borage-wort will be capable of holding its own among other herbage of a wild nature. —J. W.

ROSE GARDEN.

ROSE GLOIRE DE DIJON.

ROSARIANS of the present day are in no danger of being off with this old love to have on with such novelties as L'Idéal or any other. We have no Tea nor other Rose that will clothe a wall, climb a church tower, run up a tall tree, or cover arch or arbour so quickly, nor furnish either with so much or such a rich succession of beauty as Gloire de Dijon Rose. On a warm wall or in a sheltered spot Gloire de Dijon Rose yields the first Rose of summer and the latest bloom in winter. It partakes more of the Monthly Rose than any other of our Teas, and by growing a good many plants of it in different forms, sizes, and sites, no one need be without a bloom of it from May to December, and with a dozen or a score of well-established plants in pots, Gloire de Dijon under shelter will yield Roses from January to May. These blooms under shelter have a grace of form and delicate tint of colouring seldom found in the open air, unless, perhaps, on a north wall. No one can realise the beauty and usefulness stored up in this Rose unless he has grown it in the deep shadow of a north wall as well as in every aspect. Gather bouquets of Gloire de Dijon Roses from walls facing the four cardinal points on the same day, and it is hardly too much to say that you have four bouquets of different Roses. Of course the difference is greatest between Roses from the north and the south. But it is not only as a nimble cloth of large vacant spaces on churches, houses, stables, warehouses, or other buildings, nor for the climbing up trees or the clothing of arches and arbours, or the formation of pyramids or huge rambling bushes that this Rose is pre-eminently valuable, but also for the filling of beds and borders in the garden and the formation of bold masses in pleasure grounds.

Perhaps the last is the boldest and most strikingly effective mode of using the Gloire de Dijon Rose. A mass of twenty, thirty, fifty, or a hundred plants on their own roots growing in rich soil 6 feet or 9 feet apart, and let alone to bloom as they list, with the least possible amount of pruning or interference, would lighten up many a sombre landscape with a glow of colour and beauty that could hardly be accomplished through any other means. Contrast with such bold masses the prim Roses so often seen perched on the top of Briers, or cruelly pruned into uniform-sized dwarfs in beds and borders, and resolve to give this Rose its head in the future. This fine Rose continues (take it for all in all) the best of the Teas, and head and shoulders above all the members of its own family reputed to be descended from it, so that I shall not mention them here, nor place them in competition with the Gloire de Dijon, which still holds its own as the



Rose Gloire de Dijon on a wall. Engraved for THE GARDEN from a photograph sent by Mr. R. V. Harcourt, Malwood.

best of all Tea Roses, taking all things, such as hardiness, vigour, profusion and succession of bloom, form and colour and fragrance of bud, and enormous capacity of growth, into account. —D. T. F.

— There can be no doubt that this is the best all-round Rose that we have. Whether used for pillars, arches, walls or trellises, it is equally suitable. It also grows well upon any stock or upon its own roots. This Rose is very hardy and has such a large amount of vitality, that it will thrive in almost any situation or soil. One of the prettiest effects obtainable with Roses can be had by planting dwarfs of this variety and pegging down the long growths. In this way you secure a mass of flowers at one time, and the plants will continue to throw a fairly large quantity all through the season. Gloire de Dijon was raised by Henri Jacotot in 1853, and has been in commerce nearly forty

years. It says much for this grand variety that it should still be considered the best all-round Rose, notwithstanding the many hundreds of good kinds introduced since then. Roses have made vast improvement since Gloire de Dijon was introduced, and what were then considered good Roses would scarcely be looked at by the Rose fanciers of to-day. This variety is one of the first to open and the last to go out of flower. It is this quality that helps to make it such a favourite, as it is one of the most perpetual bloomers we have. The flowers take a much deeper shade of rosy fawn colour towards the autumn; in fact, at that time of the year it is often difficult to distinguish between this variety and Bouquet d'Or. During a fine and late autumn the long growths made early in the season will often break into lateral growths and carry flowers at the points of each of these shoots until long after the first frosts. There is no Rose that will clothe a wall so quickly as this, and certainly none that will give more general satisfaction. The main thing is not to cut away the long growths when pruning, but to lay these in and remove sufficient of the older wood to make room for them. Under glass it is excellent, and requires the same treatment as Maréchal Niel and other strong growers. From an amateur's point of view, it is a good one to grow under glass, but growers for market do not often plant this variety, because Maréchal Niel, Reine Marie Henriette, Wm. Allen Richardson, and others give more decided colours and sell better. Some of the finest plants of this kind that I have ever seen were planted in an old vinery and grown up the supports similar to Vines. The roots had access to the inside and outside borders, and with the protection of rough stable manure and straw, flowers were easily obtained at the end of March with the use of very little artificial heat. The different manures used for the Vines and the old, well-drained border of good turfy soil caused the plants to do admirably and throw the heaviest crop of good flowers I have ever seen. —RIDGEWOOD.

Planting Roses from pots.—There is a great advantage gained by this, especially among the more tender and delicate-constituted Roses, such as Comtesse de Nadaillac, &c. Plants in pots are very little dearer. One of the chief advantages derived from this way of planting is that you can be sure of your Roses having a whole summer in which to grow and get established before the winter comes upon them. Plants may be had in 5-inch pots that were grafted the previous spring, and if they have been kept in a cool place and simply protected from severe frost, they may be planted out at the end of April, and will then be sure to do well and make nice bushes during the ensuing summer. Even if the plants are small in comparison with those from the open ground, they will have what little wood there is well matured, and this is much better than stronger plants from the open air with a great deal of their wood in a half or semi-ripened state. One of the main drawbacks in obtaining nice plants of the more tender varieties lies in the difficulty of transplanting them without their being injured by severe weather. It is not only severe frost that must be avoided; there are the keen, drying winds of February and March to be taken into consideration. I often think these are much worse than any frost, unless it be a phenomenally hard one. Roses of weak constitution are very much affected by these keen winds, and often have the whole of their sap dried out of them, especially when recently transplanted. After they have got established they are able to withstand wind and weather much better. Pot Roses are

generally grafted, and when turned out are much more likely to grow on their own roots than budded Roses. Attached large quantities of Tea-scented varieties are grafted on the Manetti stock, and do very well when worked in this way, it is better to secure them on the Brier when possible. But I would not hesitate to plant them when worked on the Manetti in preference to unripened plants from the open ground. It is strange how very much better the Tea-scented and Noisette Roses thrive when grafted on the Manetti than when budded on this stock.—R.

Rose Lamarque under glass.—I agree with "A. D." and others in expressing surprise that Lamarque should be recommended for growing under glass, and yet in cool houses or verandahs this Rose very often gives a good account of itself. It is showy whilst it lasts, and its trusses of blooms and buds are useful for the furnishing of vases and tall glasses. By cutting the strong flowering shoots back so soon as they have flowered, or rather show good trusses of buds, and liberal treatment of the roots, Lamarque may be forced into flower several times, thus prolonging the season; but for marketing or button-holes, Lamarque is of no use, though for hand bouquets small buds about quarter open make a striking and very pure white addition. But the most useful place for this fine old Rose, which is, however, more tender than the Teas, is a south or west wall in the open air. Give it head-room in such a position and it will generally take very high honours, being extremely showy and valuable for cutting in bunches. Though also specially tender and losing many of its strongest branches, when protected during very severe winters it is seldom killed, the writer having had the same plants under his care for thirty years or more.—D. T. F.

AMONG THE ROSES IN FEBRUARY.

THANKS to the better maturation of their growth during the latter part of last autumn, our Rose have come through the winter much better than was the case in 1890-91, when many of the climbing Teas and Noisettes had the bulk of their wood killed by frost, or at any rate so severely crippled as to be of very little service. I believe they would have been able to stand it had the growth been better matured, but unfortunately the autumn of 1890 was not a very good one for Roses. This year they have fared much better, and even such tender kinds as Lamarque are carrying good, healthy, and sound wood. Usually this variety is among the first to show signs of injury from a hard winter, unless in a very favourable and sheltered situation. Dwarf maiden plants of Maréchal Niel, Céline Forestier, &c., that are often very much crippled are perfectly sound this season, and yet we have had several frosts of over 20°. It is well to look over all Roses that were planted in the autumn and to see that they have not been lifted by the frost. The soil requires to be made firm around them, but this should not be done directly after a thaw, or the wet soil will clog and cake too closely. See that all standards are made secure and free from swaying about. Roses will soon be making new roots, and it is very injurious to standards when they are allowed to sway about in the wind; it breaks and wrenches off the young roots as fast as they form. All litter, such as hay, Bracken, Fern, &c., that may have been strewn over and among the tops of the plants to afford protection to the wood, must now be removed. If left on any longer, it will be apt to cause the plants to come on too fast for their good, and the young growth will very likely receive a severe check. Such litter also clogs about the base of the plant and retains the moisture so much that any sharp frost does a great deal more harm than would be the case if the plants were quite unprotected from now onwards. Towards the end of the month and during March it will be well to mulch with well-decayed manure: but I would not place this into too direct contact with the base of the plants, for the same reason as I advise removing the wet and

half-rotten litter. The feeding roots are not close to the base of the plant, and I am not an advocate for using well-decayed manure as a protection to Roses; nor do I believe in letting the manure lie on the surface for any length of time. Rain will wash the juices of the manure down to the roots quite as well when slightly covered by being forked in, and you are more certain to secure the whole of its strength, to say nothing of appearance. R.

SHORT NOTE.—ROSES.

Roses Lamarque and Niphetos. In a recent number of THE GARDEN some remarks were made about these two Roses. I have Lamarque planted out in a cold house, and Niphetos growing in large pots beside it. For quantity of bloom (except just for a month in spring), Niphetos is by far superior. From Lamarque I shall get but one crop of bloom, while from Niphetos flowers may be had till very late in the autumn. Many of the flowers of Lamarque are useless unless they are well thinned or cut in big trusses, which this Rose freely produces.—J. C. F.

KITCHEN GARDEN.

COLEWORTS.

IN ordinary winters the value of good breadths of green vegetables need scarcely be pointed out. Those who have a large demand will find Borecole invaluable, as it will stand very severe weather, and in smaller gardens it should always find a place. In private gardens Coleworts are not grown so largely as by growers for market. Why so I cannot tell, as the hardy green Colewort is one of our best, and though not giving a large bulk of blanched leaves, like the London Rosette, it is much hardier and more useful for late winter and spring use. Some may object to it for spring use on account of its bolting as soon as the days begin to lengthen, and often before the early spring Cabbage comes in. I generally check bolting of the last lot by sowing at the middle of July, and planting out very thickly on a north cold border from which a crop has been cleared. The ground is only lightly hoed over, and the plants when ready are dibbled into the hard ground, and thus make a sturdy growth. They will resist the severest frost, and do not start running so early in the spring as when grown under more favourable conditions. These small green Coleworts the market gardener would hardly look at, as he prefers the blanched Rosette. The latter would not stand the severe weather, and in a blanched condition is excellent for early winter use, but not for late or spring cutting. The hardy green, on the other hand, fills up the void between the other winter vegetables and the spring Cabbage. To keep Coleworts till the Cabbage comes in on a warm border is out of the question. On a north border Coleworts are much later, and may often be kept back by slightly lifting them out of the ground. I have also tried later sowing, but it does not do, as the plants must be strong sturdy stuff to plant out at the end of September, or they do not survive the winter. The dwarf habit of the Colewort is its great protection, as winds rarely hurt it. Snow covers and protects it, and when planted in good time, using strong plants, frost does little harm. Sowing for the winter supply at three or four dates from June to September is the chief point of success. St. John's Day Drumhead Cabbage is a valuable kind. It is broad and flat with scarcely any stem, the head resting on the ground, this latter peculiarity being of great importance in a winter Cabbage, as it is better provided against frosts. As a market variety it is less suitable, as the leaves are very brittle. I find it most valuable for winter use. G. W.

Dwarf White Incomparable Celery.—I do not know whether "A. Y. A.," in his strong observations respecting Sandringham Dwarf White Celery, regards the variety in commerce under

that name as being the same as the old Incomparable Dwarf White, but it certainly has long been in commerce under both titles, that of Sandringham being an alias, as the Incomparable was in cultivation long before the Sandringham was heard of. I refer to the variety chiefly to ask whether "A. Y. A." has the true stock. The Dwarf White Incomparable Celery is compact, solid both in plant and in stalk, of good flavour and crisp, very hardy, and stands longer before bolting than any other Celery I have ever grown. These are all features it is very difficult to excel in any novelty, although I will not for one moment contest the fact that, good as they are, they may be excelled. I ventured not so long since to mention that there were numerous complaints of Celery being injured by such continuous heavy rains as fell in the late autumn, and was by one correspondent sharply taken to task for the statement. It would be interesting to learn now not only how far Celeries have withstood those heavy autumn rains, but also the frosts, especially those intense hoar-frosts just prior to Christmas last. I have seen and heard of great harm to Celery having been done by these frosts, and it would be equally interesting to learn how far one sort may generally have proved to have been hardier than another. Mere single or isolated examples are not sufficient. Very general results are needed to enable us fully to understand which after all are really the hardiest Celeries.—A. D.

Chinese Artichoke.—I hear nothing but praise of this new vegetable from a consumer's point of view, and the more it is used the better it is liked. This being so, it has undoubtedly come to stay and its cultivation is sure to become general. With me it has proved fairly productive, for from a single row 20 yards long I have obtained over two bushels of tubers, and I anticipate even better results this year, for the tubers planted last spring were very small, not nearly as large as those which will be saved for planting this year. No doubt we shall hear after a while of a selected strain which will produce finer tubers, and then the only objection to it will be removed, for at present the smallness of the tubers makes them somewhat difficult to prepare for table.—J. C. TALLACK.

BROCCOLI SNOW'S WINTER WHITE.

VERY severe and most searching white frosts were experienced at midwinter and subsequently, and much harm was done to Brussels Sprouts, Savoy, and ordinary Cabbages, and I should not have been surprised if the best portion of Snow's Broccoli had also been spoilt. Luckily, they have escaped, and in the course of about ten days from now (February 3) I hope to commence cutting from plants in the open in close succession to those lifted and forwarded under glass. As a rule this well-known variety is not very hardy, but the bulk of our plants are located on a south-west border, and were put out in close succession to Strawberries, the ground being only cleared of rubbish and not dug, while the seed not being sown before the first week in May, the plants put out were not at all leggy. From the first they grew steadily, and formed a very sturdy lot of plants, or such as will best withstand severe frosts. It is a well-known fact that the stems of Broccoli are the most susceptible of injury from severe frosts, but these may be of the sturdiest description and well protected and yet the plants be rendered useless by extra severe cold, the hearts or tops suffering the most in this case. Luckily, our plants were all slightly drawn or leaning away from the walls, and the outer leaves, instead of dropping down all round, partly hung over the hearts, this most probably saving the latter. It may be thought I am somewhat premature in announcing the safety of this particular breadth of Broccoli, but such is not the case, for the simple reason that they are being fast boarded in and covered with old lights, lengths of corrugated iron and mats being also in readiness for affording protection if need be to any not covered with lights. A few more plants will also be lifted and replanted in rich soil under glass,

and a very serviceable lot of hearts will be had. It is just now when Broccoli is very highly valued, and our 200 plants will more than repay for what trouble is taken with them. At one time I thought Snow's a much over-rated variety, and if sown in March or early in April, the plants being liberally treated, they certainly do behave badly, the greater part becoming worthless monstrosities. By sowing later there is far less likelihood of the crop turning out badly. A few of the plants may prove to be mongrels, or neither Broccoli nor Cabbage, but even these produce very acceptable hearts in most instances, closely resembling Chou de Burghley. It is only right to add that all other reputedly hardy Broccoli are standing well this winter, or better than expected. I.

Somerset.

Winter Spinach.—Last year with many weeks' frost I had better Spinach than I have now. It is the sudden changes in the weather and cold cutting winds just as a thaw occurs that cause the mischief. In field culture, of course, shelter is out of the question, and here I believe the open exposed position from the time of sowing tends to create a sturdy growth, and thus it is able to withstand the weather. It is possible to have the ground too good for a winter crop. I find it does best on soil matured for the previous crop. In fields the ground may not have been occupied for years with Spinach, which therefore does better on that account, as when it is often grown in the same place it rarely succeeds. Another cause of failure is growing in too light soil neither trodden nor made firm. I find the harder the ground the sturdier the plants, and more likely to resist frost. Market growers roll their ground after sowing and get good crops. I like a late sowing in the last week in August, sowing very thinly. This last sowing will continue to bear till the spring-sown comes in, as it does not run to seed so soon as that sown early in August.—G. WYTHES.

Horseradish.—The note on the above in THE GARDEN (p. 55) did not go to the root of the matter, as the writer should have explained that the salesmen ignore home-grown produce. I once tried growing Horseradish on an extensive scale, and could not get half the price in Covent Garden I did in the Birmingham and Liverpool markets. In the two latter it paid much better than Potatoes. I have not got the exact figures by me at the moment, but in the Shude Hill Market at Manchester from £8 to £12 per acre was cleared, and at that date home-grown stuff was preferred. I never saw better Horseradish than that produced on light soil heavily manured. Around Manchester, much of the Horseradish is grown on sewage farms, a rapid growth and sticks of large size being secured. When Horseradish is planted in poor soil and choked up with weeds and weak growths, it will never pay. Like everything else, the best results are secured from the highest cultivation.—S. B.

Borecoles.—In Scotland these Kales are more used than in the south. Of late years we have had some choice additions to the list of hardy Kales by the northern growers, Dobbie's Selected, Culzean Castle, and Hanan's Dwarf Scotch being good varieties for general use and very finely curled. On the other hand, the curled varieties are not quite so hardy as those less curled, so that in growing for a late supply it is necessary to plant Cottager's Kale, also Buda and Asparagus, as these are hardier and give a lot of greens of a mild and nice flavour. The last named can often be planted in rows between Raspberries, Gooseberries or Currants, as being tall growers they require plenty of space. I have grown Veitch's Dwarf Late Curled; it is of excellent flavour and hardier than many of the curled varieties. Last season I had this very good after the long spell of severe weather, being on a cold exposed border. The German Dwarf Kale is very similar to the above and very hardy. All the Borecoles require planting in good time, sowing during April and May. If sown too early and allowed to remain in the seed-beds they get checked and never make a dwarf growth. If ground

cannot be spared when the plants are large enough, it will well repay the cultivator to dibble into rows and replant later when ground is vacant. A late batch sown early in May and grown on a north border, using warmer borders for the first and second lots, will greatly prolong the supply. The Buda, Asparagus and Cottager's Kale require to be sown early in May or end of April for late use. The variegated or garnishing Kale, though highly decorative, is more susceptible to severe weather, therefore cannot be recommended for late use.—G. W.

NOVELTIES IN VEGETABLES.

"A. Y. A." says he should have thought that "S. D." would have observed that the tenor of his article on "Novelties in Vegetables" was not to particularise any special kinds. That is the very part I did notice and took exception to, as I failed to see the utility of remarks on this and that kind of vegetable being improved or superseded unless we had the names of the varieties of those that were supposed to be better.

Some people may, as "A. Y. A." asserts, put such faith in the older kinds as to think them not capable of any improvement, but I am not one of those, as I am of opinion that most vegetables may be improved by selecting the best to seed from, and in most it is necessary to be particular to keep a stock pure. This, however, was not the point, as sterling things, like Ne Plus Ultra Pea, were condemned, or spoken of as being superseded, and I thought many more besides myself would like to know the kinds that surpass them. With reference to Dilliston's Pea, it is in most lists, and may be obtained from any large seed firm, but most likely it has been many times re-christened. Kentish Invicta I always grow, as it is good in colour, but the best, if one does not mind waiting, is William I. Except for their earliness, early Peas are of little value, as they lack richness and flavour. "A. Y. A." makes it appear that I stated Chelsea Gem and American Wonder were unfit for early sowing, instead of which my remarks relating to them were just the reverse, as they were as follows: The dwarf varieties are a gain, and some of them, one of which is Chelsea Gem, seem to have a little of the Marrow blood in them, and we must, I think, be content with that little, as Marrow Peas will never do for early sowing outdoors. This statement as then made by me, none acquainted with shrivelled seed or Marrow Peas will controvert, as every gardener knows, or ought to know, that they decay in the ground if put in much before the end of February or March. Sandringham Dwarf Celery may have had its day with "A. Y. A." but not so with me, and I know that it is still valued in some gardens. The tall sorts are a mistake, and this every winter conclusively proves. Veitch's is a fine Celery, and a compromise between the tall and dwarf, as it is of medium height. S. D.

Raising Broad Beans under glass.—In a general way Broad or Longpod Beans are sown in the open, but for the earliest gathering it is quite worth while raising them under glass, as the trouble and labour are very little, neither is much space occupied, as quite a moderate-sized shallow box will hold sufficient to plant a large piece of ground. The way I always treat them is to have some sifted leaf soil or other very light, fine mould, and sown on that and then cover without watering, for if made wet the seed is apt to rot as soon as it swells. To aid germination a little warmth is necessary, and that may be afforded by standing the box in a close pit or frame or any house at work, but as soon as the Beans show through, the box should be stood up close to the glass to prevent them from becoming drawn. Unless the weather is quite fine and warm, the middle of March is soon enough for planting out, and this is easily done by drawing a wide, deep drill, or setting them out by the side of a line by the aid of a trowel, as they lift with good balls and plenty of soil adhering to the many roots they form. The Mazagan used to

be considered the first early, but the Seville Longpod comes in before it. My favourite, however, for first picking is Beck's Green Gem, which is well adapted for sowing and rearing under glass, and planting out on a border, as it is so very dwarf and compact, growing only about a foot or 15 inches high, and bearing profusely all up the stem. The colour, too, of the Beans is good when cooked, and they are by some considered quite large enough for table.—J. SHEPPARD.

Early Cauliflowers.—The winter has been such that very few Cauliflower plants out in the open will have escaped, and unless good provision has been made by potting a stock up or pricking out a lot into cold frames, most gardens will have a short supply. If seed be sown at once in heat there need be but little loss of time, as by carefully attending to plants that are so raised they turn in very quickly, and afford nice early heads for cutting. The way to manage is to have a shallow box and fill it with fine rich mould, which should be pressed quite firm and smooth, and the seed be then sown and just covered with soil. If the box is then placed in a warm house the seedlings will soon be up, and directly the plants are large enough to handle, they should be pricked out on a little fermenting material in a prepared frame and kept close for a few days to give them a start.—S. D.

Early Brussels Sprouts.—I was glad to see Mr. Iggulden object to the large, coarse Brussels Sprouts so much grown for sale. This vegetable of late has received several notices in THE GARDEN. At p. 75 "S. D." strikes the right note when he states he hopes that the moderately sized, firm sprout will not be crossed with the large or coarser type. I am afraid that has been done to a great extent, as some are very large and open with only a small percentage of the thickly set, firm, hard sprouts that were more plentiful years ago. Size in most things is now preferred to quality, but we have no one to blame but ourselves, as in judging vegetables how seldom do we hear a complaint as to size when quality is often overlooked—indeed quite secondary. The greatest difficulty exists in getting a small, compact, hard sprout early in the season, there are now so many of the coarser kinds in the market; indeed it is the fashion to grow the large, loose, and very much inferior flavoured kinds. The old imported is one of the best, but I have found even this of late years so deteriorated, that I begin to question if it has not got some of the new-fashioned strain in it. I still rely on this for the main crop, but not for early work, the best kind for that purpose being Paris Market, a dwarf early kind, the stems thickly covered with small bullet-like sprouts. I like it better than any other variety for early sowing, as the sprouts never run large. The great advantage of the Paris Market Sprout is its dwarf habit, as in most gardens there is a difficulty in finding room at planting time for the numerous vegetables requiring attention. I give it 2 feet each way and it does well, or rows may be planted between Potatoes. I never attempt to keep the early grown lot raised in heat after the new year; sometimes when wanted in quantity they are used much earlier. Good ground deeply cultivated is necessary to secure good sprouts, and the seed should be sown as early in February as possible; those who only want a few rows may sow in boxes in a frame or pit, but the best plan is to sow broadcast on a bed made of leaves and stable litter where a gentle heat can be maintained, sowing thinly. As soon as the rough leaf is made the seedlings should be transplanted into lines 6 inches apart and 3 inches from plant to plant. This should be done in the frames they occupy or in an old hotbed. The soil of the bed should be made firm, so that the plants can be lifted with good balls of soil. A trowel should be used for planting them out.—S. H. B.

SHORT NOTE.—KITCHEN.

Sprouting Broccoli.—It is only in very severe weather that this succumbs to frost. I have not lost a plant this season, and it is grown in single rows between fruit trees, the Purple Early Sprouting now

producing plenty of sprouts. The late Purple Sprouting will continue the supply through March and April. The White Sprouting is less hardy, though of a better colour. I sow in May, giving much the same treatment as for Broccoli. By planting on hard ground not manured, the plants are smaller and better able to resist frost.—G. WATKES.

CHRYSANTHEMUMS.

PROPAGATING CHRYSANTHEMUMS.

IN an article which appeared recently in THE GARDEN the writer advised that Chrysanthemum cuttings be put into warmth in order to induce the quick formation of roots. In the case of cuttings inserted from the middle of March onwards, I admit that artificial heat is beneficial and indeed necessary, as the season being so far advanced, the gain of a week only in getting them rooted is important. But except in the case of pompons, very few Chrysanthemum growers would think of deferring propagation to so late a period. Those who grow for the production of large blooms, especially for exhibition, I am aware, make a point of getting young plants as soon as possible, but it is significant that the most successful exhibitors recommend quite cool treatment. If they can get blooms of the highest quality by this method, it is evident that Chrysanthemum growers generally do not need to pursue any other. A noted grower once remarked in THE GARDEN that the advantage in time apparently gained by the formation of roots was lost in the slight check which the rooted cuttings must necessarily sustain in hardening them off as well as through the slight weakening effect produced by the application of artificial warmth. Be this as it may, striking Chrysanthemums in warmth I consider only justifiable when, through unforeseen circumstances perhaps, they cannot be got in at the time which the grower fixes for so doing. It not unfrequently happens that cuttings of some kinds are not ready when the accustomed date arrives for inserting them. Not a few varieties are shy in throwing up suckers, and one cannot take them until perhaps a fortnight later than he would wish to. In such a case putting the cuttings into warmth would be excusable and might be of service. I confess that I should be tempted to do so myself. For the production of big blooms it is of course indispensable that the cuttings be put in towards the close of the year at the latest, but in a general way I consider that the first week in February is quite early enough. A very good cultivator in this neighbourhood tells me that although he makes a practice of putting in cuttings at the latter end of December and early in January, he gets in a general way quite as good blooms from plants that are struck about the middle of February. The earlier the cuttings are rooted, the longer the season for the plants to grow in, and as they have to be repotted when needful, they of course come into their blooming pots at the commencement of the summer. The consequence is that they become root-bound just at the most trying time of year for Chrysanthemums. Unless plants in this condition get the best of care during hot spells of weather they are sure to receive a check, losing, perhaps, a good portion of their lower leaves, the blooms also being deficient in quality. With later propagation the final shift is deferred, so that the plants are just working into the new soil as the days reach their maximum length. For ordinary decoration, where the exhibition standard of quality is not aimed at, I think the latter date for propagating is preferable. In a cool house or frame Chrysanthemum cuttings will make roots and be ready for potting off in six weeks, that is, if they get good attention. It is surprising what a difference a little neglect or indiscretion in watering makes in the time required for the cuttings to make roots. From the moment they are inserted the soil must never become in the slightest degree dry, and yet it should at no time be heavily watered. If just the right amount of moisture can be maintained, roots will be formed in much less time, and this quick rooting will make itself felt in the health

and progress of the young plants. For striking Chrysanthemums nothing can equal handlights placed on ashes or cocoa fibre in a light house. During dull days the cuttings get more light than in any other way, and they are consequently more easily kept in a sturdy condition than when cases or frames are employed.

The best cuttings are undoubtedly those that push through the soil at a little distance from the stem, but I often take those that come from the old wood, and although I am aware that many have an aversion to using this kind of growth, I cannot say that I have ever remarked any difference in the quality of bloom they produce. Stem cuttings are not usually as strong as those that push from the crown of the plant, and that, I think, is the only valid objection to using them. If I had sufficient space I should never put more than one cutting in a pot, for it stands to reason that in this way the young plants make more rapid progress than when they have to be separated before repotting. There is, moreover, much less care needed, as root-disturbance involves much attention in the

often done. The foliage is made very wet, and the chances are that a considerable amount of moisture remains on it through the night, and I know of nothing that enfeebles the cuttings so much as this. I always use a small can, and placing the forefinger over the spout, can thus dribble the water in where needful without wetting the foliage to any great extent. This may seem a very small matter, but plant culture is composed of such, and I have more than once experienced the ill effects of overhead watering under such circumstances. For a day or two after putting in the cuttings I keep them quite close, as this fills them up with sap, but from that time until roots are formed they get air every morning, just as the atmosphere is more or less charged with moisture. This is absolutely necessary both as a means of keeping the cuttings healthy and dwarf and warding off mildew, which invariably attacks them in an atmosphere that is overcharged with moisture. J. C. B.

GARDEN FLORA.

PLATE 844.

MARIPOSA LILIES.

(WITH A COLOURED PLATE OF CALOCHORTUS FLAVUS.*)



Calochortus fuscus.

The Mariposa Lilies have long been favourites in the hardy and half-hardy bulb garden, and although one does not see them quite so often in small gardens as could be desired, they are making steady headway, and, with the re-introduction of old and the addition of new species, may soon become almost as popular as the Tulip or the Daffodil. There are something like thirty-six species known to botanists at the present time, including, of course, the section Cyclobothra. These are widely distributed in the warmer parts of the New World, California being the chief centre. As a whole, they form one of the most exquisite groups of hardy bulbous plants. The colours are so varied and so beautifully blended, and yet withal so rich and distinct, as to make them very effective. Could the fallacy regarding their cultivation be removed, they would be more popular. Excepting the Mexican species, which are, fortunately, few, Calochorti may be described as hardy bulbs, and if treated with ordinary care will continue to flower with great freedom for many years. An ordinarily warm border facing south will suit them admirably. The soil should be light and rich and at a good angle, so as to drain off superfluous moisture. The bulbs should be planted early in autumn after having been dried, and I would recommend if possible lifting annually as soon as the bulbs are ripe, keeping out of the ground for a few weeks and again replanting.

C. ALBUS.—A charming species belonging to the Cyclobothra section, and more amenable to ordinary cultivation than most of the species grown in gardens. It resembles C. pulchellus of the same section, but the flowers of C. albus are larger, the petals both longer and broader, the nodding flowers of a whitish colour, with a purplish base, and marked towards the centre with a shallow pit, covered with hairs. The flowers, I believe, last longer than those of any other species. This may be planted in the open border without much fear of failure, unless the soil be of a particularly stiff nature. It is a native of California, ranging from Los Angeles to Sonoma County and the foothills of Sierra Nevada, flowering in May and June. It increases fairly rapidly by offsets and seeds, which ripen freely and produce good flowering bulbs in three years. These require careful handling and light rich soil during the first two years, after which they may be planted in the general collection.

* Drawn for THE GARDEN by Miss Low in Messrs. Krelage's nursery, at Haarlem, September 5, 1891. Lithographed and printed by Guillaume Severeijns.

matter of watering, shading, and ventilating until the rooted cuttings have got well hold of the fresh soil. Where considerable quantities of plants are required, economy of space is generally a consideration, and 2½-inch pots must then be used. I put four cuttings into a pot, just allowing enough space to admit of each one standing free of its neighbour, and in this way only admitting as much air as is consistent with keeping the foliage from flagging. I keep the cuttings as sturdy as it is possible to do under the circumstances. I may observe that if once a leaf flags either from want of moisture, exposure to sunshine, or currents of air, so surely will that leaf decay prematurely. It is, therefore, of importance that even in the cutting stage the foliage should never lose its freshness. The soil must be light, and it is better that it should have been dried before using, as there is then less liability of its becoming close and sour. I see but little use in employing a rich compost, as the young plants do not remain in it, and the primary object is, of course, the free production of roots. As regards watering, this should always be done at the beginning of the day and in dull weather. I am much against sprinkling with a fine rose, as is



CALLIOPHYLLUM NIVALE

C. BENTHAMII.—A somewhat rare, but pretty dwarf species from the Sierra Nevada and Marinosa to Butte Counties, California. It is the *Cyclobothra elegans* var. *luteus* of Bentham Pl. Hartw., p. 338. It grows from 4 inches to 8 inches high, the leaves long and narrow. The flowers, of a rich citron-yellow, often deep brown at the base, and densely covered with yellow hairs, are erect, from three to six in an umbel, and produced in June and July.

C. CÆRULEUS.—A dwarf species, rarely exceeding 6 inches in height, producing umbels of three to five large flowers of a bright lilac, dotted and lined with dark blue, the gland at the base being

sery of J. C. Tate in July, 1837. Mr. Tate received the bulbs from Mexico. It represents a form of the genus *Calochortus*, in which the flowers are upright, and the petals have an outward curve instead of an inward curve. It is in consequence of this more nearly allied to *Fritillaria* than most of the other members of the genus. If this difference, says Dr. Lindley, were always accompanied by the presence of bulbs in the axils of the leaves and bracts, it might make a new genus. *C. fuscus* does not appear to produce these bulbils, although in other ways agreeing with *C. flavus*. When first introduced, it was supposed to be *Fritillaria barbata* of Kunth. It is perhaps not quite so hardy as

C. LILACINUS.—This species, although not perhaps as showy as most of the others, is well worth growing on account of its distinct habit and curious hairy flowers. It is figured in the *Botanical Magazine*, tab. 5804, but from a weak specimen producing only one flower, and not at all characteristic of *C. lilacinus*. The stem, from 6 inches to 8 inches high, is bulbiferous near the base, has a long conspicuous bract about half way up, and bears from four to ten pale lilac flowers, purplish near the base. It is a native of hillsides about San Francisco and northward at the Geysers, flowering in June and July.

C. LONGIBARBATUS.—A curious species from Oregon and Washington Territory. It grows about a foot in height, the stem bearing one to three pale purple-lilac flowers each 1 inch to 1½ inches in diameter, with a dark purple stripe across the base of each petal, and a long beard just above it. Flowers in July.

C. LUTEUS.—This is a very handsome and variable species, growing from 1 foot to 2 feet in height, but faulty as a garden plant in producing such weakly flower-stems, that a support is necessary even in the most sheltered gardens. The leaves, much shorter than the stems, are usually



Calochortus venustus.

covered with a pretty fringed scale. It flowers in July. The leaves are very narrow, rarely more than one to each bulb. Native of California. This is believed to be the *C. glaucus* of Regel.

C. ELEGANS.—A fine dwarf species, found by David Douglas in 1826 on the sub-alpine regions of the dividing ridge of the American Continent. It seems to be extremely variable. In the valleys, he tells us, it ranged in height from 4 inches to 8 inches, while on the mountains, near the verge of perpetual snow, it did not exceed 1 inch or 2 inches. It has a solid sub-globose bulb, the stem simple, bearing three to five drooping flowers, white or greenish white with a purplish base, bearded, but not ciliate. The gland is covered by a fringed scale. The narrow leaf is longer than the flower-stem, smooth, and nerved. It flowers in June.

C. FLAVUS.—The beautiful species figured on the accompanying coloured plate has again been reintroduced, we are glad to be able to state. It first flowered, we are told, in the Sloane Street nur-

most of the *Calochorti*, but it will be found to do well at the base of a south wall. It is also known as *C. pallidus* and *C. luteus* (*Botanical Register*, tab. 1663).

C. GREENI.—A fine bold species of recent introduction growing a foot or more in height, and producing from three to five large clear lilac flowers, barred below with yellow and purple, and often loosely covered with long hairs. The leaves are an inch long, broad, glaucous green, pointed. A very free flowerer, opening early in June. Native of Siskiyou County, California.

C. GUNNISONI somewhat resembles *C. Nuttalli*, but has larger flowers, of a bright lilac, yellowish-green below the middle, where they are banded and lined with purple. This species is easily managed, and is one of the most effective in small groups; the flower-stems being pretty stout, they are not so liable to damage from winds, &c. A native of the Rocky Mountains from Wyoming to New Mexico, flowering with us in July.



Calochortus flavus.

very narrow and pointed and of a rich glaucous green. The flowers vary from one to six to a stem, and from 2 inches to 4 inches in diameter; the petals fan-shaped, varying from yellow to deep rich orange and lined with brownish-purple below the middle, where it is usually hairy. It was introduced in 1831, and is widely distributed in California. It is very variable in colour and markings, and may possibly be a form of *C. venustus*. In the variety *citrinus* the whole flower is rich lemon-yellow with a central circular brown or purple blotch, and in the variety *oculatus* the flowers vary from white and lilac to yellow with a dark brown spot. Flowers June and July.

C. MACROCARPUS.—A tall, very handsome large-flowered species, first discovered, we are told, by David Douglas in June, 1825, during an excursion to the undulating dry barren grounds around the great falls of the Columbia River and on the summits of the low hills between them and the Grand Rapids. He found it again the summer following growing in great luxuriance in the mountains near the sources of the Columbia in rich light soil. It grows from 1½ feet to 2 feet in height, rarely bearing more than one flower to each stem. The flowers, each 3 inches to 4 inches in diameter, are purplish lilac, somewhat paler at the base and with greenish

mid-vein. Anthers invariably deep purple. Stem leaves three to five, narrow, short and strongly nerved. Of peculiar habit, but a very showy plant and well deserving a place in the collection. It is quite as hardy as *C. albus*, which is considered to be one of the most easily managed of this genus.

C. MADRENSIS.—A handsome little species with bright orange-yellow flowers and a tuft of deep orange hairs at the base of each segment. It rarely exceeds a span in height, the stems bearing several flowers in a loose head. A native of the Pine plains of the Sierra Madre, Chihuahua, Mexico. It flowers in August and September. It was introduced by the Royal Gardens, Kew, in 1890.

C. MAWEANUS. Named by Herr Max Leichtlin in honour of Mr. Maw of Crocus fame. It is the *C. elegans* of the *Botanical Magazine*, t. 5976, but this name appears to have been previously adopted by Pursh for an entirely different plant. *C. Maweanus* is a low, usually much-branched plant, varying from 5 inches to 9 inches in height, and bearing from four to six bell-shaped flowers, each $1\frac{1}{2}$ inches to 2 inches in diameter. The petals are white, tinged with bright purple at the base, and densely clothed with purple hairs; the gland is covered by a semi-circular scale. California, from San Francisco to Humboldt County, and near Chico. It flowers in July.

C. PULCHELLUS.—A perfectly hardy bulbous plant, and one of the most reliable of the species in cultivation. It requires no particular care; the bulbs left in the open border flower with regularity and in the greatest profusion. It grows about a foot high, much branched, each branch terminating in an umbel of three to four bright orange-yellow pendulous flowers. The petals are bearded with glandular-tipped hairs, the gland being also covered with stiff reflexed hairs. The flowers are fragrant and last a considerable time. It begins to flower in June, and is a native of California. It was found by Douglas in 1831, and plants from seeds sent home flowered at the R.H.S. Gardens, Chiswick.

C. SPLENDENS.—A pretty species with very much the appearance of *C. macrocarpus*, but rather less branched and with shorter leaves. The flowers, not quite so large, are of a paler lilac, and have a dark blotch at the base of each of the petals. It flowers in June, and is a native of California, from Monterey to San Diego.

C. VENUSTUS.—One of the most common and variable of the Mariposa Lilies. It is an extremely handsome species, and does well at the base of a warm wall where the ground is never disturbed, and on the dry side during the winter months. It grows from 1 foot to 2 feet high, the flowers very large, white or pale lilac, with a prominent red blotch at the top of each petal, the centre brownish yellow, the base brown. It is most nearly allied to *C. luteus* of the cultivated species and flowers in July. The variety *purpurascens* has the flowers deep purplish or lilac, with markings similar to those of the type. Native of California from Alameda County, southwards.

C. WEEDI.—A handsome and very remarkable species in having the bulbs fibrous-coated. The stem grows about a foot in height, one to three-flowered large, deep yellow, dotted and frequently margined with purple. It is the *C. citrinus* of *Botanical Magazine*, tab. 6200, and is a native of California, the coast ranges, San Diego and northwards.

In addition to the above, some of which are in cultivation, may be noted *C. obispoensis*, *Catalinae*, *Ghiesbreghtii*, *spatulatus*, *fuscus*, *Bonplandianus*, *Hartwegi*, *Nuttalli*, *Palmeri*, *flexuosus*, *aureus*, *Kennedyi*, *clavatus*, *nitidus*, *uniflorus*, *nudus*, *Leichtlinii*, which is a form of *Nuttalli*, &c.—D. K.

— The genus *Calochortus* has now become more popular than for many years. *Calochorti* are of quite easy culture and may be grown almost everywhere. They now-a-days are arranged into three distinct groups, viz., the true *Calochorti*, forming Watson's sub-genus

Eucalochortus, the Mariposa Lilies (sub-genus *Mariposa*), and the group of *C. flavus* and its relatives, which were formerly named *Cyclobothra*, and now compose Baker's and Watson's sub-genus of the same name. The two first-named sections are more nearly related to each other than to *Cyclobothra*, which is geographically limited to Mexico, whilst both of the other sections are natives of California. Different cultural treatment corresponds with this difference in geographical distribution. The species of the *Eucalochortus* and *Mariposa* sections hitherto introduced have proved to be hardy, and of late years have been cultivated in the open air with much success. They flower in early summer, and therefore should be planted before winter. The few representatives of the *Cyclobothra* class, on the contrary, cannot resist our winters (unless perhaps under uncommonly favourable conditions), and therefore are now usually grown like *Tigridias*, *Sprekelias*, and other Mexican bulbs that are kept dry in winter and planted out in spring.

CALOCHORTUS FLAVUS was introduced in the first quarter of the present century, and was long ago figured in Sweet's "Flower Garden" (vol. iii., t. 273) as *Cyclobothra barbata*, and in the *Botanical Register*, t. 1663, under Lindley's name of *Cyclobothra lutea*, by which name it is still generally known in the trade. In those days it was cultivated, like all other similar plants, in pots or in frames, but gave little satisfaction. It soon disappeared from nearly all collections, until in 1859 it was re-introduced by Roezl, from whom Messrs. Krelage and Son purchased the whole stock. A very good coloured plate was then published in vol. v. of the "Flore des Jardins du Royaume des Pays-Bas." After this stock was sold out it was long before another importation was made. In 1880 several Mexican bulbs formerly known were re-introduced from their native country, and among them were *Milla biflora*, *Bessera elegans*, and *Calochortus flavus*. Meanwhile, several trials had been made in planting these and similar bulbs in the open ground, lifting them before winter where necessary, and planting them in spring. This treatment proved quite satisfactory. The plate herewith given renders it quite unnecessary to describe this *Calochortus*. Its gracefully drooping, golden-yellow flowers are beautiful during the autumn until the early frosts appear.

C. PURPUREUS (Baker) is the *Cyclobothra purpurea* of Sweet and the *Calochortus Bonplandianus* of Schultes. It has hairy, purplish petals tinged with yellow, and embraces several geographical forms known under the names of *C. fuscus* and *C. spatulatus*.

C. HARTWEGI, Bent. (*Cyclobothra Hartwegi*, Kunth), has flowers of a purplish colour, with darker veins, and long hairs on the margin and midvein of the petals.

C. MADRENSIS (S. Watson) is a quite distinct species of recent introduction. It was discovered by Mr. C. G. Pringle in 1887 at the base of the Sierra Madre Mountains, in Northern Mexico. Like its relatives, it has a slender stem and linear leaves. Its sepals are nearly as long as the orange-yellow petals, which have a very obscure glandular nectary, and a band of orange-coloured hairs above the base. Last year it was awarded a first-class certificate by the Royal Netherlands Horticultural and Botanic Society.

The Mexican *Calochorti*, like most other bulbs of the same country, like a light sandy soil and an open, sunny situation. If planted in May and lifted in November, they usually do very well.—ERNST H. KRELAGE, *Haarlem*.

Masdevallia macrura.—This species is probably the strongest growing and largest leaved of all the *Masdevallias*, and in regard to the size of its flowers also it is second only to some of the

chimaroid section of the genus. The blade of the leaf attains a length of nearly a foot, and measures 2 inches to 3 inches in width, the stalk on which it is borne being half as long. The scapes are one-flowered, the flower being remarkable rather for its size and grotesqueness of form than for any beauty of colour. The three sepals are united at the base, where they form a short tube, separating then (almost at right angles) into narrow-pointed tails 4 inches to 5 inches long, thus giving the whole flower a diameter of nearly a foot. The colour for the most part is a tawny yellow, the tube being shaded with brown outside and dotted inside with numerous black warts. The species was discovered in New Grenada by Roezl in 1871, but it was five years later when it was first received alive in England, Mr. Shuttleworth having sent it to Mr. Bull's nursery at Chelsea, where it flowered in 1877. A plant is now flowering at Kew.

THE WEEK'S WORK.

FRUIT HOUSES.

MUSCAT GRAPES.—If these are wanted in good condition towards the end of August, no time should be lost in starting the Vines. Moderately early ripening is also a preventive of premature shrivelling, those ripening in late-started houses being the most addicted to this. If the roots are solely or principally inside the house, see that the border is in a thoroughly moist state, and if the latter has been formed long enough for the roots to rob it of much of its fertility, a soaking of liquid manure will do more good now than at any time during the year. Not unfrequently the borders are already in a rich state, and in this case a surfacing of lime applied now and well washed in with tepid water would act most beneficially, its good effects being particularly noticeable during the stoning period. In not a few cases loosening and removing the surface soil, following by a watering and then a top-dressing of rich compost (bone-meal and wood ashes not being omitted from this), would be of the greatest assistance to the Vines. Muscats really require higher culture or more liberal treatment than any other class of Grapes, and it is the overlooking of this important fact that leads to so many partial failures. Should the roots be principally or solely in outside borders, give the latter a good surfacing of guano or some kind of special manure and top-dress with partially decayed leaves. Any exposed stems must be protected. Commence with rather low night temperatures, especially if the roots are in outside borders, or say at about 50°, increasing to 60° in the daytime, closing early whenever it is found necessary to open the top lights on bright days, and syringing three times a day. Vines invariably break more strongly and evenly when there is a hotbed of leaves and manure in the house, turning this occasionally keeping up the fermentation and evaporation of moisture and ammonia.

EARLIEST PEACHES.—Fruit that is to ripen in April or thereabouts ought now to be swelling rapidly and be quite large enough for thinning out freely wherever at all thick. The longer this thinning is deferred the worse it will be for the trees and the reserved fruit, and dropping before or during the stoning period is more likely to take place when the thinning out is long delayed than where it is early and judiciously carried out. It is not advisable to resort to wholesale thinning out, the better plan being to do it gradually, first removing all the worst placed fruits, till eventually only those so situated as to get the full benefit of all the sunshine and light going are left say about 9 inches apart each way all over the tree, thinning out even more severely if extra fine fruit is desired. Should the buds have dropped prematurely, then the fruit must be left more thickly where they set in order to compensate for blank spaces elsewhere. Continue to disbud the shoots where these are not required for furnishing, also reserving and stopping those shoots produced from the same joint as fruits are set, stopping them at about the fourth leaf. There

ought to be no fixed time for watering, but the borders should have a moderate soaking of tepid water or liquid manure whenever approaching dryness. The liquid manure or surfacings of pressurised soluble manure are most needed by trees in full bearing and which are not growing too rankly. The night temperature of a house in which the fruit is swelling may be kept at about 50°, increasing to 60° on dull days, and from 65° to 70° with a little air on sunny days, closing early and syringing freely.

SUCCESSIONAL PEACHES.—These ought also to be advancing moderately fast, or at any rate to be flowering freely. In order to effect a good set attend closely to the fertilising, this being done towards midday or when the pollen is dry. Frequently, all that is necessary is to smartly tap the trellises and so distribute the pollen grains, but in order to feel perfectly certain of a good set, transfer the pollen from the anthers to the pistils either with a camel's-hair brush or, better still, a rabbit's tail. The latter being affixed to a long stick can be used rapidly, and with it the pollen from the more free-setting or small-flowered varieties of Peaches and Nectarines can be transferred to the large-flowered sorts, and which are usually in want of it. When there is a superabundance of buds or flowers it is a good plan to freely thin out these, removing more especially those at the back of the shoots. Wood-buds are moving fast about the time the trees are well in flower, and disbudding should be proceeded with in a piecemeal fashion. Up to the flowering period the trees generally do well in a temperature ranging from 45° to 50° by night and from 55° to 60° in the daytime with a slight increase with sun heat; advance 5° when in flower.

PRACTICAL.

THE KITCHEN GARDEN.

FORCED TURNIPS.—Young and tender Turnips are highly appreciated, for, however suitable the older stored roots may be for flavouring, it is seldom they can be served up as a separate dish. As it is useless to sow in the open air at this season of the year, however warm the position, forwarding under glass on slight hotbeds must be resorted to. A strong heat is not needed, or failure will be the result, top-growth forming at the expense of the bulb. A shallow hotbed of leaves and stable litter about 2 feet in depth will answer, this being surfaced with about 8 inches of soil. The seeds, if sown thinly, will not be long in germinating. Ventilate carefully and on mild days freely, also taking the precaution to keep the soil fairly moist, or the roots will be hot and stringy. When growth has fairly started, the lights may be drawn off in the middle of fine days. Frames being scarce, serviceable Turnips may be obtained on hotbeds formed in the open air. Mark out a space about 4 feet in width, and take out the soil to the depth of a foot, placing it on the sides. This will provide a space of the depth of 2 feet, which should be filled up firmly with the fermenting material, and afterwards surfaced with soil, as under glass. On this sow the seeds and cover over with litter until the seedlings are through the soil. Mats kept off the surface by strips of wood answer better than the litter after the seedlings appear.

LARGE LEEKS.—Unless for exhibition, large Leeks are not often grown, although in the northern parts of the country they are considered a favourite dish. For ordinary winter use, when only medium-sized produce is required, sowing the seed need not be thought of yet, this taking place at the time the main crop of Onions is sown. To obtain big Leeks the seeds must now be sown, a gentle hotbed or vinery just started being very suitable. As soon as the seedlings appear through the soil, place them near the glass in the same temperature, when, by keeping the soil nicely moist, strong little plants will be obtained. Pot off singly as soon as large enough into 3-inch pots, using rich soil, and directly they are fairly rooted, repot again into 6-inch pots. To keep the plants growing freely is what is required, and the best means to promote such is to plunge the pots on a gentle

hotbed. When rooting freely feed the plants with liquid manure, and by the middle of May they will be ready for planting out into prepared trenches.

RHUBARB.—The crowns for following on the house-grown produce should now be covered, so as to draw up the stems, as lifting the roots need not now be resorted to unless specially desired. Where roots are scarce this is the best method to adopt, as, unlike the lifted roots, they need not be destroyed. The crowns should be covered with Seakale pots or bottomless tubs, and if cold weather should follow, these should be further protected with rough litter. For succeeding these the crowns of the earlier varieties should be covered with rough straw, or rather the long litter from the stables, the stems as they grow lifting this. By adopting this method Rhubarb may be pulled a fortnight earlier than when left exposed. The crowns of all the exposed stools should be surrounded with a dressing of rotten manure, into which the roots will quickly work. Rhubarb is too often left to itself, but it pays for good culture.

SUMMER CAULIFLOWERS.—Although during the heat of summer Cauliflowers may be dispensed with, there are times when they are often asked for, and to meet any such emergencies a variety should be selected that will withstand the heat, as the earlier kinds, if these are relied upon, are much given to bolting, unless the season should be a wet one. True, the Autumn Giant follows after the earlier kinds where plants have been prepared by autumn sowing, and wintered in the frames the same as the earlier varieties, but as the quality of this is often found fault with, and the heads under good cultivation grow to a prodigious size, this sort does not meet with favour in many quarters. The variety best adapted for the purpose is the old Walcheren, than which a better summer Cauliflower it would be impossible to find where high quality is looked for. To produce such, the seeds must now be sown, either thinly on a gentle hotbed or even in a box. By careful watering, so as to prevent the stems from damping, and growing near the light in a cool house or frame after germinating, sturdy plants will be forthcoming for pricking out and growing on in frames, so as to prepare them for planting out.

A. YOUNG.

ORCHIDS.

The choicest Orchids are imported and sold during the winter months as freely as they are in summer, and so well are the various details of the work conducted, that success seems to be assured even in severe weather. We have learned thereby that cool and even intermediate species are not so easily injured by being exposed to cold for a little time as we were once inclined to believe they were. "An entire importation," we are told, "of a new *Cattleya* was sold in London last week at a time when we may expect the weather to be really severe." Where the importers have no conveniences to keep their plants, one might expect that sudden frosts setting in might be injurious, and so they are; but the leading importers take such careful precautions, that no real injury may be expected from late frosts. This is not a bad time to purchase plants if they can be obtained in good condition, as the days are lengthening and the season of growth is all before them. If good Orchid peat and Sphagnum are available, it is just as well to plant such things as *Cattleyas* into it at once, placing them in a light position in the house. The *Cattleyas* sold last week—varieties of *C. labiata*—would succeed best in a mixture of rather more fibrous peat than Sphagnum Moss and a liberal allowance of potsherds. They seem to start best if well-drained shallow pans are used. By well-drained, I mean four holes, one in the bottom of the pan and three in the sides, quite at the base of it. Not a great depth of drainage is needed; in fact, there is not much room for such. Plant them in firmly, leaving the buds at the base of the bulbs well on the surface, and when water is applied, be careful at first not to wet the base of the growths. Teak baskets are also well adapted for growing the

plants in. Should potting material not be available when the plants are purchased, or it is not of good quality, the plants may be set in clean crocks until new roots are about to be formed, when they should be repotted in good soil. A temperature of 60° at night would be better for these newly-imported plants about to start into growth. There ought now to be a good display in the cool house. The varieties of *Odontoglossum crispum* will always hold a premier position from their easy culture and their freedom of bloom. Those who never saw an Orchid grown might manage these plants and a few of the other species found with them, of which the varieties of *O. hystrix* are much valued. These are just developing their spikes, and care is necessary to prevent any injury to them from the usual depredators to be found in the houses; slugs brought in with the Sphagnum are most to be dreaded. *O. gloriosum* is also now in flower, and although it is not of very great value, a few plants of it should be in every collection for the delicate perfume of its flowers. I need not say that if any plants of *Odontoglossum* need repotting, it may be seen to at any time between this and the end of March.

It has been thought by many growers that *Odontoglossums* should not be repotted during the hotter months of the year, because the strain upon them is as much as they can bear without the addition of a further check by repotting. I do not find that they get any check at all if the plants are well furnished with roots, so that the pots in which they are growing have become well filled with them. Such a plant, when repotted without breaking up the mass of roots, grows away at once with greater vigour. Sometimes, owing to the state of the roots, all the old potting material has to be removed; in that case the plants receive a very considerable check to their growth, and the bulbs will shrink a good deal. This they also do when large spikes of bloom have been left on until the flowers fade naturally, but this shrinkage is an evil to be avoided from whatever source it comes. If the leading bulb begins to shrink from the long continuance of the spike on a plant, my advice is, cut the spike and keep it in water. These flowers remain a long time in good condition in sweet clean water in a cool room. Healthy plants of *Odontoglossum crispum*, *O. Pescatorei*, *O. Halli*, *O. triumphans*, or *O. hystrix*, &c., can do with a good shift, but the pots should be at least half or two-thirds full of drainage. The drainage is of much importance in the case of all these cool house Orchids requiring much water, for indeed they all seem to succeed best when the Sphagnum is growing freely upon the surface of the potting compound. Clean sweet drainage should be used, large pieces put loosely first, or a smaller pot may be inverted over the hole in the bottom, larger pieces around it, finishing off with a surface of small pieces with the convex side undermost, and over all a layer of Sphagnum Moss; this precaution is necessary to keep the loose material from mixing with the drainage. The smaller-growing *Odontoglossums*, such as *O. Rossi*, *O. aspersum*, *O. Humeum*, *O. Cervantesi*, *O. Oerstedii*, the pretty little *O. roseum* (syn., *Cochlidia rosea*) and the more recent *C. Noezliana* do admirably in the small pans I have already alluded to, or they may be planted in teak baskets if the pans are not available. *Odontoglossum Edwadii* has proved to be a very free-growing species in the cool house, and requires exactly the same treatment as the strong-growing species enumerated above. Half-a-dozen strong plants of this species with spikes of its distinct violet-purple flowers, from 3 feet to 5 feet in length, arranged at equal distances along the centre of the stage, have an excellent effect. Some varieties are much better than others. *O. nebulosum* is decidedly a cool house Orchid, and though not so popular as some, deserves a place in all good collections. The variety *pardinum* is very prettily spotted. The plants have a tendency to rot off when the growths are in process of formation; to avoid this, place the plants near the glass and in a light position. I have found the young growths of *Masdevallias* rot off in this way when they have been in a part of

the house where they did not receive a fair allowance of fresh air. This they can have without being placed in a draught. I would urge the importance of seeing that cool house *Oncidium*s of the *O. macranthum* type are kept in a clean state and carefully attended to. No injury should accrue to the young roots; when these are healthy and vigorous and the leaves clean, these *Oncidium*s generally do well in a shady position near the glass in the cool house.

J. DOUGLAS.

PLANT HOUSES.

CAPE AND NEW HOLLAND HARD-WOODED PLANTS, &c.—There will now be some disposition in the earlier of these to make more signs of growth; this will chiefly be in the further development of the flower-buds. The watering of such as these should be looked to very carefully. If they suffer at the root through drought for a few times, the quality and size of the flowers will be impaired in most instances, whilst some will fade and die off prematurely. On the other hand, any excess of water is quite as detrimental. What is required is the happy medium, which when once attained goes a long way towards overcoming any obstacles in the growth of this fine class of plants. With milder weather and a more humid atmosphere a close watch against any inroads of mildew must be kept; it is just as well to have the sulphur duster always at hand, for it does not do to put off taking measures against this insidious parasite even for a single day. All of this class of plants should be kept well up to the light; if this cannot be attained without elevating the plants upon pots, by all means have recourse to this method. As long as the plants do not actually touch the glass, they cannot be too close to it. Do not let any be overshadowed by other plants, more particularly by those of dense growth. Autumn-flowering *Ericas*, such as the following varieties, *retorta* major, *Marnockiana*, *Jacksoni*, *Irbyana*, *Austiniana*, the vars. of *Aitoniana*, *Macnabiana*, and *cerinthoides coronata*, with others, should, if needing attention in the way of fresh potting, now have that work performed. I prefer to pot these late kinds in the spring rather than after they have flowered, which is somewhat too late in the year for them to become well established before the winter. *Lapagerias*, where grown in pots or tubs, might also be seen to if in need of either a shift into larger sizes or of a good surface-dressing of fresh soil. *Croweas* may also be repotted now for the same reason as that given in the case of the late-blooming *Heaths*. The soil for these should consist chiefly of good peat, but a little fibrous loam added to it will be an assistance in encouraging fresh root action. In all the foregoing cases of repotting avoid large shifts; 1 inch all round is ample in any case. Less than this it is awkward to give so as to render the soil firm; more is not needed when the object is to build up an enduring specimen.

SHOW AND FANCY PELARIONIUMS. The earliest of these should now receive a shift into their blooming pots. Such a stock would come in useful during May. When potted, the plants should for a time be kept moderately dry until it is seen by the growth that the roots are laying hold of the soil. When the house in which these plants are grown is at all lofty, I prefer to have the plants upon swing shelves near the glass. In this position the circulation of air going on around the plants is all in favour of a close stocky growth. The soil for these should chiefly consist of good fibrous loam with leaf mould of good quality and silver sand or old mortar rubble broken down fine. If any manure is added, that from the stable is preferable. Artificial stimulants I would only use when the soil is inferior, and then only to a moderate extent. Manures for these plants are far better employed when the pots are full of roots; if used in the potting the result is a too gross and sappy leaf growth, which may look all very well, but is not at the same time in any sense desirable, nor does it tend to greater freedom in flowering. The earliest or the forcing section if in need of shifting should first

be seen to; these will soon lay hold of the fresh soil, being chiefly free growers. These must not be again stopped or they will be thrown back in flowering, but the first-named will need a regular stopping all over when re-established.

HERBACEOUS CALCEOLARIAS.—These must be kept as cool as possible, with moisture also, as a humid atmosphere is to their liking. The shady side of a span roof house will suit them, or pits where they can be kept from being frozen; although they can put up with a few degrees of frost it is not desirable to venture quite so far. Those plants growing away kindly should be shifted before they get pot-bound; if this is not seen to the plants will suffer in fading foliage and weaker growth. By selecting the stronger plants it is thus possible to make two or three batches from one sowing of seed, hence forming a succession of bloom covering a longer period. When good leaf-mould is not to hand, some peat should be added to the loam for these plants, with plenty of sand or road scrapings. Firm potting is not advisable; anything firmer than that which can be accomplished with ease by the fingers and thumbs is not desirable. A sharp look-out should be kept against any symptoms of green-fly, and fumigation be resorted to in good time.

STOVE PLANTS.—Preparatory to the regular routine of spring potting being seen to, it is just as well to go over all the plants that require pruning. This has of a necessity to be done in many instances, not only to keep the plants well within their proper limits, but also to induce greater freedom of flowering in some instances. A case in point is *Rondeletia speciosa* major; this fine old autumn flowering stove plant never blooms so profusely as when cut well back into the old and firm wood a few eyes only in advance of that pruning made during the previous year. Another instance is that of the stove *Vincas*, plants that are not nearly enough grown now-a-days. *Allamandas* also when they have reached their due limits will bear hard pruning and thinning out with decided advantage, otherwise of a necessity the growth made during the ensuing year will be far too much crowded. *A. grandiflora* often makes a more satisfactory growth when by hard pruning it can be induced to break back well into the firm wood; strong shoots are thus obtained which soon make headway.

J. HUDSON.

ORCHARD AND FRUIT GARDEN.

EARLY MELONS IN POTS.

In some few large gardens that could be named pot culture of Melons is resorted to throughout the season, and with good results too, or the plan would not be adhered to. Where the roof area is somewhat limited, a restricted root-run is almost imperative, and this can be easily accomplished by the aid of large pots partially or wholly plunged in either fermenting or heat-conducting material, the bottom-heat in the latter case being supplied by hot-water pipes. Personally, I am much of the same way of thinking as "S. H. B." (p. 69), and resort to the use of pots for the earliest crops only. We are not in a position to enclose several bottom hot-water pipes, so as to concentrate the heat under a narrow ridge of soil enclosed by either narrow brick walls or stout boards, but where this is done, pots can very well be dispensed with for the earliest crops even. Melons at no time of the year ought to have the chance of rooting freely into a mass of decaying manure and leaves underneath, this being most conducive to a rank, unfruitful top-growth, and not unfrequently ending in an early collapse. A square ridge of soil 3 feet wide and 2 feet deep is ample to meet the requirements of a row of plants put out 3 feet more or less apart, always provided abundance of water

and liquid manure is given when the plants have arrived at a fruiting size. Instead of being perched on a rounded, much-rammed ridge of soil, and which, when once it becomes dry, cannot easily be re-moistened, Melons ought to be treated more like Cucumbers, and require nearly or quite as much moisture at the roots. When large pots or brick pits are used, cultivators are less likely to neglect watering the plants, and seeing that the water cannot run off the sides, there is no waste.

It is possible to grow good crops on plants with their roots confined to 15-inch pots, these being set either on high walls or strong back shelves in forcing houses. If they fail to set two or three fruits on the first breaks, let them swell off a single fruit rather than remove it with a view to get more from the later side shoots, or the chances are the failure will be complete. Pot plants cannot be expected to continue to grow strongly after the first strong break, and starvelings rarely swell off presentable fruit. Four fruits is a heavy crop for a pot plant, and seeing how little roof space they occupy, two (or even one good fruit) pay for the trouble taken. Side or fruiting shoots ought therefore to be early stopped, say, at the leaf beyond the embryo fruit, and there should be no neglect to fertilise the flowers as they open. The more of the latter there are fertilised at one time the better, but, as before hinted, I invariably take the first flowers.

"S. H. B." mentions several early varieties of Melons, but how came he to omit Blenheim Orange? I find this well-known sort particularly well adapted for pot culture. Planted out it is apt to grow rather too strongly to be early productive, but the pots give the requisite check and no difficulty is experienced in setting enough fruits. These attain a good size, net beautifully, and ripen well in advance of those of all other sorts I have yet tried. The colouring takes place suddenly, I might say unexpectedly, at times, and if the fruits are kept for about a week after they are cut, the quality is second to none, whether green or scarlet fleshed. Last season a variety I had under the name of Amberwood Beauty succeeded admirably under pot culture, the plants each swelling off four fruits averaging 2 lbs. in weight. These ripened fairly early, the skin being of a rich golden colour and beautifully netted. It bears a great resemblance to Hero of Lockinge, but I find it more oval in shape and the rind thinner. The quality is good. Golden Gem, Eastnor Castle, and another old favourite, Victory of Bath, are all favourites of mine, and will outlive some of the newer varieties, many of which are not sufficiently fixed to please me.

I. M. H.

Colour in Apples.—Although "Fruit Grower" does not agree with me in thinking that our own highly-coloured late Apples would find a profitable sale in Covent Garden Market, at least he does not contest my assertion that many of them are far more toothsome than are the drier, mealy-eating Canadian Apples. What he tells us as to the result of sending up good-coloured country samples to Covent Garden is in no sense a condemnation of the Apples, but rather of the market system of trade, which practically amounts to a boycott of home-raised fruits after the enormous importations of the Americans come in. The fact is, once these come to market, salesmen and dealers do not want home-grown fruits sent up to London, as is too often the case, imperfectly sampled and in ordinary baskets intended for return rather than in barrels, which go with the Canadian fruit all over the kingdom and never are returned. The discussion which has been raised respecting colour has certainly justified the assertion that colour has a distinct market value. The beauty of the fruits

is in all cases enhanced, and for the very same reason that judges at fruit shows always give the preference to well-coloured examples of any fruit; so also do the consumers, as well as dealers, give for such fruits the best price. I am not pleading that in all cases colour indicates flavour. The richest-coloured Apple in the world may not in any way excel a russety Ribston or Cox's Orange Pippin, but of these fine-flavoured varieties, as indeed of all others, the more richly coloured, the more fully matured and perfect are the fruits. Mr. Iggliden mentions an opinion of Mr. R. D. Blackmore's respecting the influence of wind in helping to colour fruits. I have no doubt whatever that the opinion, though embodied in a work of fiction, is one gathered from wide observation. I remember being told by an experienced market grower, when last summer I alluded to the very early putting on of colour on both Apples and Pears in his market orchard, that it was the frequent showers and winds which promoted it, thus showing that other causes besides sunshine operate to produce that beautiful effect we all so much desire to see in the autumn.—A. D.

PLANTING VINES.

THE planting of young Vines is not of very frequent occurrence in any garden, but, judging by the great quantities which are produced yearly in trade establishments, large numbers must certainly be planted annually. That Vines are often planted in a haphazard manner, the number of failures which occur show. That failures should occur with such a free-growing subject as the Vine may appear inexplicable. In years gone by it was a common practice to confine the roots solely to an outside border, the rod being taken through an aperture in the front wall into the structure, but this method is seldom resorted to now. The best results are to be had from planting inside, even if the roots have the run of outside borders as well. The formation of the borders need not be referred to here, the question being the planting of the young Vines and the means by which good results should follow. The borders where planting is about to take place will no doubt have been prepared ere this, so that the soil will have had time to settle, as a loose border is not very desirable. Large borders for starting the young Vines are not adopted to such an extent as formerly, a narrow width of 4 feet or 5 feet, if solely within the structure, being ample, or where the border is partially inside and out, 3 feet in width will be better than a larger amount. The roots in the smaller border branch out more freely, and so are encouraged to take possession of the whole mass. In the larger borders the roots are apt to become gross and to rush through them without forming the amount of surface feeders. Previous to planting, the precaution should be taken that the new border is sufficiently high to allow for shrinking, this being necessary where the borders are formed partially inside and out, it being no infrequent occurrence for the soil to shrink beneath the arches, and to such an extent as to cause a cutting draught.

The exact time for planting will depend upon the condition of the Vines. With dormant Vines this will take place just as the buds commence to swell and before they burst out. With the structure and border ready, I recommend the planting to take place during the present month, and the earlier the better with Vines other than the very latest varieties, but even with these planting should not be deferred after the first few days of March, as the earlier the growth the more likely is this to become well ripened. Late growing Vines form late roots in a corresponding manner, and instead of these becoming ripened they die back. For any Vine

to form a satisfactory growth, it is very essential that both the top and roots be in a sufficiently advanced state. In selecting dormant Vines for planting, it must not be surmised that the grossest looking are the best, nor is it any advantage in purchasing what are termed fruiting Vines for planting out, for they will not be any more satisfactory at the end of the season than those termed by the trade "planters." Better by far select a medium-sized Vine of this description which is well ripened than a Vine of larger growth. A Vine in an 8 inch or 9-inch pot, with a rod the thickness of a lead pencil, and hard, wiry roots, is what is required, this forming a good foundation. The rod itself is not wanted, as invariably this will be cut away, a good bud or two near the base being necessary. It is no infrequent occurrence for Vines to be planted intact just as they are received from the nursery, the rod being tied up to the trellis and all shoots encouraged to grow. To secure a good foundation from the bottom, this is a bad system, and the Vines will never be satisfactory. Even if the rods had been cut back, planting with the old ball intact is a very unwise proceeding, for the roots do not start away freely, and very often a fresh set has to be made. Again, the old ball of soil is apt to become dry if planted intact, the grower being misled by the appearance of the outer soil. Taking all things into consideration, divesting the roots of dormant Vines entirely of the old soil is the best method to pursue, and by disentangling the roots and arranging them carefully in the fresh soil, they take more quickly to it.

Previous to planting, the rods should be shortened back to 3 feet or so, the length left by some people being gauged by the height of the wall plate, but I prefer to take the buds from the base or as near this as possible, the upper buds being rubbed out. The canes should have been shortened back whilst in an entirely dormant state and dressed with styptic unless cut back very early. When once the buds commence to swell shortening will soon set them bleeding. If this cutting back has been neglected, then any shortening had better not be attempted, the buds being rubbed out as they start to grow down to the desired bud or buds which are to be retained for the future rod. To assist in disentangling the roots the balls should be soaked in water, this quickly clearing away the soil. The longer stronger roots may be shortened, if only for convenience in planting, but it also has the effect of starting fresh roots nearer home. Sufficient soil should be taken out to allow the roots to be laid out straight, these being arranged in tiers and covered with fine soil made fairly firm as the work proceeds, the top roots being about an inch below the surface. A neat stake should be tied securely to the collar of the Vine, this keeping it firm and coming in useful for training the young growing shoot. A mulching of horse droppings, succeeded by a gentle watering of tepid water, will complete the operation as far as planting is concerned. The structure must be kept rather close and fairly moist, a little warmth in the pipes also being necessary at night and during cold days. A better growth is thus built up than when fire heat is dispensed with, as sometimes advised.

Planting young growing Vines of the current season's eyes is also often adopted, but more care is needed. I am just now preparing a set for planting this season. The eyes are inserted in turf surfaced with finer soil, and are treated very similar to those in pots, only instead of being potted, they are grown on on portable trays, so as to prevent the roots coiling. Pieces

of turf about 4 inches square are sufficient to start the eyes, the turf being packed in a box and placed in a warm house, a well-prepared hotbed, where other means are absent, starting the young Vines quite as well as more elaborate methods. As soon as the young Vines have rooted nicely, each turf is cut round with a sharp knife, and in a few days they will have recovered from the check and fresh lateral roots be formed. When the canes are about 30 inches high, plant out in the prepared border. By shading and sprinkling with tepid water the Vines will soon become established and grow away freely. Y. A. H.

HARDY FRUITS FOR VILLA GARDENS.

A SUBJECT that has very much impressed me during the last few years is the wonderful paucity of fruit trees in the gardens of villa residences. Very few city men—and by these I do not allude merely to those who live near London, but to those who have to spend their days in other large towns and their nights in suburban residences—cultivate fruit trees in their gardens, perhaps because they do not take much interest in them and leave everything to the "jobbing gardener." I was visiting at the house of a manager of a large factory some time ago. He had a good house and quite a large garden attached, but there was nothing remarkable either for its utility or beauty in it. The gentleman had to purchase all his fruit and nearly all his vegetables, yet I was told that he left the whole thing with a jobbing gardener, who attended to it about twice in a week. My own back garden is not a fourth of the size, and when I took possession about eight years ago, I prepared a plot of ground (about half of it), 7 yards by 16 yards, and planted a dozen bush Apple trees on the dwarfing stock. They were Lane's Prince Albert, Lord Grosvenor, Lord Suffield, Wellington and Cox's Orange Pippin. I had four bushels of Apples from that piece of ground the fifth year after planting the trees, and the quality was so good, that 8s. per bushel was offered for them. I see plenty of gardens very much larger which might produce almost as much fruit and vegetables as the family would require. Even if it was not possible to do so much as this, fruit, and perhaps vegetables might be grown to supplement that necessarily obtained from the green-grocer. In most villa gardens sufficient care has not been taken to cultivate the soil. When the builder has finished, the garden ground is often left in a sorry condition, the barren subsoil being either mixed up with the fertile top soil or spread over it in places to the depth of a foot or more. A gardener who understands his business would set to work at once to remedy these errors. My experience is that if the ground is not well cultivated to the depth of about 18 inches, Apple trees, at least, will not succeed on it for any length of time. Another thing: they must be planted at the right depth, or some varieties will not be long before they show signs of canker. Where the soil is specially adapted for Apple culture, it may not require so much care in its preparation, but I fancy that with ordinary preparation any garden will grow good Apples. For planting in such small or medium-sized gardens, the dwarfing stocks are best, and good trees must be selected. They must be healthy to start with, and should be taken up with good roots. There is no reason why fruit trees should not grow quite as well in a small garden as in a large one, but we seldom find that the same success attends their culture in the gardens of villa residences as is to be seen in neighbouring gardens where an experienced gardener has charge of them. There are many and obvious reasons for this. The amateur with little or no knowledge of garden work is advised to plant fruit trees in his garden, and as the buds begin to start in the spring he thinks it time to begin planting his trees. Another thing I have noticed is that the trees are purchased and sent home before the ground is ready to receive

them, so that the first operation is to lay them in by the heels until the convenient season comes to plant them. The ground is dug over in the most superficial manner; a hole not large enough for the roots is made through the hard subsoil, the tree is stuffed into it, and the operation is finished. Very soon we hear complaints about the fruit trees not doing well, but by this time their condition is so bad, that nothing can be done to produce satisfactory results.

When I stated above that I believed fruit trees would grow in almost any kind of soil, I was drawing upon my own experience with them, and that with dry hard gravel from 1 foot to 3 feet below the surface, as well as upon stubborn wet clayey soil. For small gardens the bush or pyramid form of tree is best. I prefer pyramids, but they do not retain that form long, because it is an absurd notion to grow any tree in the form of a pyramid unless it is its natural form. I let the top branches grow out as much or more as those near the base of the tree, and I find this form productive of excellent results. Many persons fancy that the ground under fruit trees is wasted unless they have something growing upon it. This may almost be said to be a popular delusion. Nothing ought to be planted under the trees, not even at the beginning, if the best results are expected. At first vegetables can be grown, but if we could see their roots exposed during the summer and how they robbed the trees of their due proportion of moisture and other sustenance, we would speedily conclude that one crop was enough at a time. A moderate-sized garden is best laid out in the following manner (after the ground has been trenched or made up to the depth of 18 in. at least; 2 feet would be better): If fruit is the principal object, there ought to be a border 6 feet or more wide all round it, and if the garden is surrounded by a wall, this will do to train fruit trees upon. The borders in front of the wall will grow Strawberries, but they should not be nearer it than 3 feet. A gravel path should be next the borders; for a small garden it need not be more than 3 feet or 4 feet wide—4 feet would be better. Down the centre of the garden there should be a similar path, edged with Box or tiles. Tiles, I fancy, are best, because they do not harbour slugs, and a row of Strawberry plants might be planted quite close to the tiles, which they soon cover with their deep green leaves; they are also beautiful in flower, and more so with their rich scarlet fruits. This arrangement of paths will divide the garden into two plots the form of a parallelogram, and a border all round of not less than 6 feet wide. The paths will require gravel, and sometimes this can be obtained in the garden. I had to plant such a garden once, and in one place the gravel cropped up to within 6 inches of the surface, so I took out the gravel to the depth of a foot more and exchanged it with the soil from the paths. The only difficulty I had with the trees upon this dry gravel was the want of water at the roots. They were watered when we had time, but often they had to go without, and smaller, badly coloured fruit was the result. When the garden has been laid out and the soil well prepared much manure is not necessary, but if the soil is poor a good dressing of farmyard manure quite decayed should be dug in. The trees ought to be purchased as soon as the leaves drop in the autumn, and they ought to be planted in November. The dwarfing stocks are best, and as all trees on these stocks are budded or grafted close to the ground, the trees must be planted so that the soil comes into contact with the union of the stock and the scion. Roots will in some cases issue from the base of the scion, and such trees will be practically upon their own roots. With the free stocks it is different; the trees ought not to be planted deeper than they were before, and in the process of planting see that the roots are carefully spread out, not twisted round, to be pushed into a hole that is too narrow for them. Even with all this care some of the Apple trees on these dwarfing stocks will canker. Ribston Pippin was the first to canker with me on the dry gravel; Cellini Pippin and Wellington also cankered, and these were all amongst fifty varieties. I have always believed

that canker came from the roots, and in this case the evidence pointed that way, for after the trees were dug up and replanted with good loam about the roots, the disease was stayed. Insects soon find a refuge in the cankered portions, which has led some to believe that these were the cause of the disease itself. Unsuitable subsoil and undrained ground will bring canker, but it can be arrested by attending to the roots. Apples are the most useful fruits to cultivate. A few Pear, Plum and Cherry trees should also be grown; Gooseberry and Currant bushes in the centre of the plots, fruit trees all round the paths. They ought to be from 6 feet to 9 feet apart, and a good plan is to retrench the ground the second season after planting, and as the work proceeds, to carefully lift the trees and replant them. The trees should be planted from $4\frac{1}{2}$ feet to 6 feet from the sides of the paths. A few good Apples in the order of their ripening are: *Dessert*: Irish Peach, Kerry Pippin, Adam's Pearmain, Cox's Orange Pippin, Braddick's and Lodge-more Nonpareils. *Kitchen*: Lord Sutfeld, Stirling Castle, Lord Grosvenor, New Hawthornden, Dumelow's Seedling, and Northern Greening. *Pears*: Jargonelle, Williams' Bon Chrétien, Louise Bonne of Jersey, Urbaniste, Doyenné du Comice, and Easter Beurré. *Plums, for dessert*: July Green Gage, Green Gage, Kirke's, Jefferson's, and Coe's Golden Drop. *Kitchen*: Early Rivers, Orleans, Victoria, Autumn Compôte, and Belle de Septembre. *Strawberries*: Vicomtesse Héricart de Thury, Keens' Seedling, President, and British Queen. J. DOUGLAS.

UNNAILING PEACH TREES FROM WALLS.

THE advantage of unnailing or loosening the last year's wood of Peach and Nectarine trees is twofold, as it retards the blooming and to a great extent hardens and matures the young wood. Some may object on account of injury happening to the buds by winds and storms, but such is not the case when the old shreds or ties are left on the older wood; it is the young wood that needs exposure and retarding. In some instances the wood or branches is tied in bundles and supported by tying to the wall. It is an excellent plan for Figs or any trees requiring protection, but injurious to those requiring free and full exposure to the weather. When Peach or Nectarine trees are tied in bundles the buds inside are deprived of air, and the wood being kept dark the buds push, only to be killed by severe weather. I find it advisable to loosen the young growth as soon as the leaves have fallen. By so doing, the wood is hardened and buds often covered by shreds freely exposed. There is no loss of time by doing the work in the early winter months, as if left for three months later till pruned, it must be done then, and at that date other work is more pressing. Another advantage of doing this in the early winter is the destruction of insect pests lurking in the old shreds. I am aware that the hardest frost does not reach every insect, but it to some extent clears the walls, and by the removal of the shoots from the walls the rains through the winter wash out the eggs. Some may think that the Peach being a tender tree to a great extent the wall is a protection in the winter, but the mischief is often done with badly ripened wood; it is this latter that suffers from exposure, and this is often through the trees being too much crowded, so that the sun and air cannot ripen up the wood. At times the roots are in a cold, wet condition, so that the tree does not perfect its wood. The shoots are frequently attacked by green-fly and mildew, and a late growth is the result, with poor, small, unripened wood. I am of opinion, provided the tree is in a healthy condition, there is little loss from severe weather in ordinary winters. I have followed out the above practice for some years, and have always had plenty of wood to cut out. With wired walls loosening is more necessary than when nails and shreds are used, as often in severe weather the young, tender bark against the cold iron is much injured, when we have the trees frozen for many weeks together. I prefer to paint even galvanised wire when used for this work, as I have seen sad havoc in severe

winters with young trees. Under any circumstances I would advise the removal of ties and allow the young shoots free play, so as to be clear of the cold iron supports through the winter months. G. WYTHES.

NOTES ON APPLES.

I QUITE agree with "Y. A. H." and Mr. Pearson (p. 91) that the chief factor in high-coloured Apples is the soil. Here Mère de Ménage takes on a deeper colour than I have seen it in any other locality. All Apples colour richly in our soil. Some surprise was expressed at the colour of Cox's Orange Pippin growing here last season, and I have for years noted the difference in colour of the fruit on a tree of D. T. Fish from that of one of Warner's King growing close to it. It is generally admitted that these two are the same. Fruits of the former every year have quite a flush of colour on the sunny side as compared with those of Warner's King. Allowing both these to be one and the same thing, and also allowing that the position of Warner's King prevents the fruit taking on quite so high a colour as that on the other tree, I still hold to the belief that soil has influence on colour in Apples; indeed I think that is the primary agent where exceptional colour is present. The soil here is heavy and retentive, but not wet—that is, the water never lies on the surface, owing to the fact that the soil is largely mixed with numerous flint stones, and at a depth of 3 feet a bed of chalk is to be found. We endeavour to keep the roots as near to the surface as possible; this and the fact of the soil being not a wet one, and also to its being highly charged with lime, points to its suitability for promoting rich colour in Apples. It would be impossible to obtain even fair colour in Apples here if the fruit was not exposed to the sunlight by having the branches thin and adopting a proper course of summer pruning to admit light to the trees and fruit. Plenty of instances of this kind occur to one visiting exhibitions during the summer and autumn where means have been taken to prevent birds eating the fruit intended for show by covering the trees with nets. One particular instance of this came under my notice last year. A very fine dish of Cellini was exhibited which showed some peculiar marks in colouring; the skin was marked evenly on one side in a diamond pattern, which gave it a quaint appearance. Upon inquiry it was found the tree had been covered with a net, and where the meshes had come in actual contact with the fruit there was no colour. In this case there was direct proof that the sun was the principal agent in colouring the fruit in question. I have noticed also that where a garden was composed mainly of a sandy soil the colour in Apples was not nearly so high as in another but three miles away where chalk was largely to be found. I, therefore, hold to the opinion that an absence of lime in soil has much to do with the want of colour in Apples, and where it is present the colour is much deeper.

With regard to the question of growing Apples from cuttings, I am making experiments in that direction with a view to testing its suitability or otherwise. Not far from here are to be seen several trees of King of Pippins grown from cuttings, and which promise really well. With regard to canker in Apple trees, my impression is that it all hinges upon two things—first, the unsuitability of a particular variety to a particular soil; secondly, bad culture, viz., deep planting and heavy manuring, by which the trees are made to produce a lot of growth, which does not become matured, and consequently in that state lays the foundation for canker. In dealing with strong soil, fewer varieties can be cultivated than in a lighter one. I do not care what is done with some sorts; in heavy soils they cannot be made to grow satisfactorily. Take, for instance, Ribston Pippin. This was planted here as a standard on Crab and bush on Paradise thirteen years since. Both are still alive. The stem of the former is thicker than it was then, but the head is not one bit larger than when first planted. It has grown and died back more than once, and has been taken up and planted in fresh places and with fresh soil, but all to no pur-

pose. If this is not an instance of the unsuitableness of a variety to a particular sort of soil, what is it, I would ask? Cellini is another example of a generally free-growing and bearing sort which fails to succeed here. Lord Suffield is another variety that fails. In all the varieties except the Ribston we have our remedy, even in this soil—that of growing others that will succeed. Lord Grosvenor in the place of Lord Suffield is superior in every way, and in almost every instance efficient substitutes can be provided that canker does not affect. Choose suitable varieties, and canker need not be a trouble to anyone. Keep the roots near the surface, avoid the use of rank farmyard manure, especially that from the cow-house in the autumn and winter, but assist the trees with mulchings of partly decayed stable manure and liquid manure in the case of heavy crops of fruit; but where there is no fruit and the trees are making sufficient wood, give no manure. I do not believe in covering the soil during winter with manure and allowing it to stay there until it decays and becomes invisible. In this way the roots are robbed of warmth from sunshine, and little wonder need be expressed if the branches canker and the trees eventually fail. E. MOLYNEUX.

SOME RELIABLE PEARS.

In writing of reliable Pears I am not alluding to the bearing qualities of any, but to the uniform excellence of the flavour of certain sorts over a long series of years. I am perfectly aware that no other fruit varies in quality so much as the majority of dessert Pears, especially amongst the sorts that are most popular owing to their large size or handsome appearance. The vagaries of Pears have furnished materials for many an article from every class of cultivators, but so far as I remember no one has attempted to compile a list of sorts that are good in flavour every year alike, and in a variety of soils and conditions. I am going to make an attempt to do so of such sorts as have come under my observation, and I hope other cultivators will add to this if they know of any that I have not named. With reference to the quality of the crop produced last season, I must say that the merits of a number of sorts were inferior, but of a large collection grown as cordons and pyramids about twenty sorts bore! a fair crop. The flavour of such varieties as Durondeau, Doyenné du Comice, Pitmaston Duchess, and Beurré Superfin was a long way from being first-rate, while Beurré Bachelier and Jules Guyot were worthless, although the fruit of the former was exceedingly large and handsome. With reference to the subject of reliable Pears, it has always struck me as somewhat remarkable that any of the early Pears that are known to be of good quality and that ripen on the tree or within a few days after they are gathered are always good. Perhaps there are not many that would be considered first-rate in that respect, but that is not my argument. What I maintain is that they do not disappoint us; their merits are always the same. Take the Autumn Bergamot as an instance of what I mean. The flavour of this sort is always of a uniform excellence, and so far as my experience goes, it is the same with all other early varieties. In common with a large number of other growers, I would be glad if I could say the same of the late keeping sorts. There is no more reliable October Pear grown than Fondante d'Automne. It is unfortunate, perhaps, that the fruit is only of medium size and not very handsome, but the flavour should make up for these defects, as it is exceedingly sweet, and the flesh buttery and free from gritty matter. Emile d'Heyst is not only a reliable bearer either as a pyramid or cordon, but the flavour is always good, and I regard it as one of the best that ripens in October and November. Seckle is an old favourite with those who prefer a small deliciously flavoured Pear to a large fruit that has no merit except its size. Winter Nelis is another sort that is small in size, but I grew it for twenty years on a wall facing east, and never knew it to be deficient in flavour. Josephine de Malines is the last I have to mention.

I grew this for many years on a south wall, and the flavour was always excellent. Four years ago I planted several cordon trees of this variety, which are trained on wires 18 inches from the ground, and I find the quality quite equal to that of fruit produced by trees trained against a wall.

Taunton.

J. C. CLARKE.

SHORT NOTES.—FRUIT.

Apple Gold-n Noble.—This grows well upon a gravelly soil with a thin layer of loam on the surface, and, if only for that reason, it is valuable. Apart from its usefulness in that respect Golden Noble deserves a place in every garden. Although it is generally considered to be in season from September to December, it will last quite fresh and plump well into February.—S. H.

Apple Baumann's Red Feinette.—This very showy Apple deserves a place in every collection. It is extremely handsome in appearance, being bright red all over when exposed, the flesh white, crisp, and juicy, but not highly flavoured. The growth of the tree is upright, vigorous, but not rampant. During January and February, and sometimes longer, the fruit is in good condition.—H.

Apple Newton Wonder.—What a resemblance this Apple bears to Belle Pontoise in shape, and also colour, when the latter is grown somewhat in the shade. The form of the eye, too, and general appearance give one a strong impression of their sameness in character. Newton Wonder is a promising late variety, said to keep quite fresh till May. It was raised by Mr. H. Taylor at Newton, near Melburn, in Derbyshire.—S. P. H.

Apple Calville Malingre.—This highly coloured kitchen variety keeps well, and deserves more attention than it appears to receive. Seldom is it met with in private gardens. The fruit is of medium size, yellow on the shaded side, with an especially bright red cheek on the sunny side. The flesh is firm in February, with a pleasant crisp flavour. The fruit resembles Baldwin very much in appearance, but is superior in quality to that variety. Trees appear to grow better when worked upon the Crab, or free stock, than upon the Paradise.—E. M.

STOVE AND GREENHOUSE.

GLOXINIAS.

THE time is now at hand when these beautiful stove-flowering plants should have attention; old corms should be started into growth and seed should be sown. Formerly it was only by growing named varieties that really good flowers could be depended upon; but since some of the leading firms have made a speciality of growing for seed, by careful selection the strain has been much improved. Seedlings are even preferable to named sorts, as they are of more vigorous growth and are less liable to disease. Seed sown now will make nice plants to flower in July or perhaps earlier, and for the first batch the corms selected from last year's seedlings will be best. Although I should entirely discard named varieties, I think it is a good plan to propagate a few of the finest seedlings from leaves each season, as it secures a number of plants of a uniform shade of colour. In growing from seed it is of the first importance to secure a good strain. The seed should be sown thinly in pots or pans, which may be filled three parts full with any rough compost that is free from worms or other vermin and surfaced with leaf-mould (which should first be baked), peat and sand in equal parts. The seed will not require any covering. The pots should be well soaked with water before the surface soil is put on; it will then require only just sufficient to settle the surface after the seed is sown. The best position for the seed pots is where they are fully exposed to the light, but do not catch the direct rays of the sun, and the pots may be covered with glass until the seeds begin to germinate. When the seed pots are shaded or covered up too much, the seedlings are almost sure to damp off. As soon as large enough they should be pricked off, giving a little more

depth of good soil and more drainage. They will be ready for potting off singly about May or perhaps earlier, but they should be done as soon as large enough, one great point being to keep them growing without a check. The plants should be grown as close to the glass as possible. When Gloxinias are started and grown throughout in an exposed position, they make sturdy plants with firm foliage, which is not easily damaged by the brightest sunshine, provided they are not allowed to suffer from want of moisture at the roots. During the early stages of growth they may be given a stove temperature, but later on an intermediate house will suit them better. The best compost for Gloxinias I have found to be good fibrous loam, leaf-mould and peat, a little well-sweetened manure and plenty of sand being added. The pots should be well drained and the plants potted moderately firm, keeping the corms nearly covered with the soil, but not quite buried. The plants should be potted on into their flowering pots before they have made too much growth, otherwise it will be difficult to do so without damaging the leaves. As soon as the pots are well filled with roots, liquid manure may be used freely. No class of plants is more benefited by liberal treatment than Gloxinias. It is, however, necessary to be careful that the manure water is used in a clear state, or the foliage will be disfigured. If this cannot be secured, it will be better to use some fertiliser. This should be put on the surface very thinly, but frequently.

Propagation from leaves may be done towards the autumn. Well-matured leaves should be selected; these may be cut through the midrib in several places, also the lateral ribs, and laid on cocoa-nut fibre refuse and a little dry sand put on the surface at each cut. If the fibre is kept moderately moist, young corms will soon be formed at each cut. Generally the leaves will gradually dry off, leaving only the corms; but if premature decay is observed, the portion should be cut away. After the leaves have ripened off, the corms may be taken out of the fibre and placed in pans or boxes of sand; these should be kept in an intermediate temperature and just moist enough to keep the corms from shrivelling. Early in the year or about this time they may be put into more warmth, and as they start into growth should be taken out and potted singly, treating them as recommended for seedlings. F. H.

Brachyotum confertum.—J. Kranz asks if I know this plant of which he sends a specimen. He says it is a great beauty, and flowers freely about Loxa. It was flowered in Edinburgh by Mr. Henry, but I am not aware of the plant being now in existence in this country. It somewhat resembles in habit a Genetyllis, and the flowers are similar in shape to the bell-shaped involucre of this. In the case of the plant under notice these are really flowers, the petals being rich deep violet and the calyx lobes yellowish green. I should be glad to know if this lovely greenhouse plant is still in cultivation. It is all the more valuable as a decorative plant, as its blooms are produced during the winter months.—W. H. G.

Prunus sinensis flore-pleno.—Among shrubs well adapted for blooming under glass must be included the double-flowered variety of the Chinese Plum, which produces its rosette-like blossoms so freely, that the slender shoots are studded with them throughout the greater part of their length. Its usual habit is to form a freely-branched somewhat upright growing shrub, which in the open ground flowers at much the same time as the majority of Cherries and Plums. When it is needed for indoor blooming this Plum may be kept in health for years in pots, provided the plants are not neglected when out of flower. As the young leaves are very susceptible of injury after the flowering season is over, they must be protected till all danger from frost is past, when the better way is to plunge the plants out of doors in the summer, taking care that they are properly supplied with water, and at the same time occasional stimulants will be of service. In this way the flower-buds will set freely, and all that is then

need is to take the plants into a little heat when required. This Plum in question is usually grafted or budded on to the common kind, which is far too vigorous a stock, as the suckers therefrom are a very great nuisance, and the thick, unyielding roots do not readily lend themselves to pot culture. Plants propagated by cuttings or layers are difficult to obtain, but they are far more satisfactory than the others. In common with all shrubs that are employed for forcing, the blooms of this last much longer when the plants are kept altogether in pots than when they are lifted from the open ground and potted for the purpose. There are two varieties of this double-flowered Plum, one being pure white and the other flushed with pink.—H. P.

The variegated Pandanus.—These only consist of two varieties, but both are extremely useful as decorative plants. Since the introduction of *Pandanus Veitchi*, the older, but still excellent variety, *P. javanicus variegatus*, has not been so much cultivated. Both are useful, and may very well be included in all but the more limited collections; then I would decidedly prefer to keep to *P. Veitchi*. This latter variety makes the most graceful and the best developed plant for dinner table decoration, but as it attains to specimen size there is often a tendency towards a strong growth with more greenish foliage. This is not so often the case with the older kind, which makes an exceedingly elegant vase plant: its longer leaves and more pendulous style of growth commend it for this purpose. *P. Veitchi* looks best when not above the line of vision; whereas the other is seen to good advantage in tall vases. In handling *P. javanicus variegatus* one needs to be careful, as the addition of a third row of spines set in an obverse direction along the midrib makes it somewhat awkward. Large plants of either kind are not worth keeping for other than stock purposes; medium sized ones now occupying less room will in a few months take their places for any purpose.—PLANTSMAN.

CARNATION SOUVENIR DE LA MALMAISON.

TAKEN all in all, there are few flowers that have attained to greater popularity than the Carnation. This is equally true of all Carnations, and yet it is only natural in so extensive a group that certain kinds must necessarily take a leading place in general favour, and I think of few can this be said with greater truth than of the several forms of *Souvenir de la Malmaison*, whose handsome flowers always command attention by their colour, always please by their fragrance, and always realise good prices and a ready sale in the market. This last is indeed a good test for any plant, for nothing more quickly proves either its value or its probable popularity than by putting it into the market with other kinds. It is curious that while the forms of *Souvenir de la Malmaison* are as truly perpetual in character and habit as are any of the so-called "tree" varieties, the majority of market growers treat them as though they were strictly border Carnations, layering them year by year in summer-time after their flowering is complete; indeed, of all methods of culture, this is certainly the least expensive way of growing them, and renders the plants of convenient size for various purposes. During the past few years quite a new departure has been introduced by growing purely border Carnations under glass, such, for example, as the old *Crimson Glove*, *Gloire de Nancy*, and others; while the subject of these remarks has likewise been grown thus on a very extensive scale. The plan adopted is very simple and easily imitated. The plants flower in spring during April and May, after which they are planted out in lines in the open ground without delay, to in the first place

ripen the growths, which are often too sappy through being kept indoors. When sufficiently hard, they are layered in the usual way.

In September the layers are potted into 5-inch pots, good loam forming the chief soil, with sand and charcoal liberally added. Very little manure is employed, nor is this necessary when the gross nature of the plants is considered. When potted the plants are stood on a bed of ashes in the open, frames being, as a rule, studiously avoided, and a thorough soaking of water given. Save for the necessary attention to watering, they are safe enough till the end of November, but if heavy rains prevail, protection is given with lights overhead.

tion is limited and where the large increase by layers would be of little service to the owner. I have at the present time a house devoted to these thus treated containing several hundred plants in 9 inch pots. When thus grown the chief point to aim at is keeping the plants cool enough during the first autumn and winter after being potted on, otherwise the strongest "grass" will be pushing forth flower-spikes in autumn, and these having to combat fogs (if near large towns), will be sure to suffer. Kept in check as much as possible till the turn of the days, these plants will flower considerably in advance of those layered, and early flowers of these are doubly valuable. By thorough drain-



A flowering plant of *Souvenir de la Malmaison* Carnation.

The plants are afterwards shifted into 7-inch and 8-inch pots and placed in a cool, airy structure, according them only sufficient warmth in severe weather to exclude frost. A similar soil is employed at this shift with the addition of some good fertiliser, firm potting and abundant drainage being always given. After the first watering at potting time little must be given for the next two months, keeping the plants meanwhile perfectly cool. Here and there cuttings are resorted to, but they are by no means generally adopted, being more uncertain as well as more troublesome than layers. Another way of growing these plants is to treat them as perpetuals, growing them on from year to year. This is a very good way where glass accommoda-

age, very firm potting, little or no manure and very careful watering, these plants may be grown to a good age; though to keep them in good health considerably less water should be given at the root than is usually the case.

E. J.

Lapageria unhealthy.—I have a *Lapageria* which has been in the same position since planted about fifteen years ago, viz., at the western end of the greenhouse which faces south. When flourishing it covered a space of, I suppose, 8 feet square at least. This end, I should tell you, consists of a glazed partition between the cooler part of the greenhouse in which the plant is and that somewhat warmer. The plant is in a wooden box nearly

3 feet by 2 feet and 2½ feet deep. Some months ago the drainage was renewed, broken flower-pots now occupying a foot of the bottom, peat placed on that is followed by about a foot of loam in which the plant is. For several years it grew well and flowered abundantly, but latterly has been doing badly, and is now, I fear, not likely to recover.—R. L. ALLMAN.

* * That a *Lapageria* should be in this condition is not altogether an uncommon occurrence. It may arise from various causes, either of which would be sufficient to weaken the plant. I have known it to occur when the young shoots issuing annually from the crown of the plant beneath the soil have been injured or eaten off by slugs soon after they appear above the surface. If this happens for two or three successive seasons, the top-growth becomes weakly with less disposition to flower in due course. A sharp attack of green-fly whilst the young growths are forming will cause the leaves to turn yellow and drop off; the points of the shoots then cease to grow and will eventually die off. The plant in question should not suffer from too much sunlight if the roof immediately over it is shaded during the warm season of the year. Another house being upon the western side of it should afford some protection from the rays of the sun during the afternoon. On this point there is possibly some alteration, since the plant in question once thriving well has now declined in vigour. If at one time the plants in the adjoining house were tall or shading employed upon the roof, and either or both of these circumstances now altered, so as to expose the partition more to the sun, this would not be favourable to the *Lapageria*. I should not myself care to plant a *Lapageria* in all loam; it may do for a time, but would eventually become much too close. Peat mixed with loam, adding silver sand freely and charcoal or broken potsherds if the peat or loam is not full of fibre, would be a better choice. The *Lapageria* is a plant that delights in abundance of moisture; hence an open, porous soil is all the better for it. A good supply of drainage is desirable; 6 inches, however, would have been ample; a foot is more than is really needed. If the plant in question should soon show any signs of growth from the base, these young shoots should be carefully tended, as they will greatly aid in resuscitating the plant. The weakly wood upon the old shoots might be shortened, not pruned hard, but merely the points taken off. When any signs of top-growth are seen the plant should receive some shading, so that when the foliage is syringed, which it should be frequently, it does not run any risk of injury from scalding. With care and attention I think the plant may yet be brought round into health again; it should still have some energy left in it considering its size. I would advise that the loam and roots be examined and all sour soil removed, so as not to injure the roots, which are somewhat brittle. Fresh soil, as aforementioned, should then be added, finishing off with a good top-dressing. The old foliage should also be examined closely for any insect pests, as thrips, white scale, &c.—PLANTSMAN.

Freesias.—I should be very much obliged if any of your readers could give me some advice about the flowering of *Freesias*. I have carefully followed the directions which have appeared from time to time in your paper, and have been fairly successful up to a certain point. I have some twenty or more pots (5-inch) with about one dozen bulbs in each—both *refracta alba* and *Leichtlini*. The bulbs have made excellent growth and the pots contain on an average ten or twelve flower-spikes, each with from six to eight flowers on each head. But here my difficulty begins. In many cases only two of the flowers on each head assume an erect position and come to perfection, the others remaining perfectly green and not expanding at all. In no case do all the flowers on the head open, the best having only four or five which open, the others on the same head being apparently blind. The disappointment in this case may be more easily imagined than expressed. I flower them in a conservatory where there is a fire at night and during damp or cold weather. The

pots have no appearance of being overcrowded with roots and the plants are liberally fed.—REGINALD RYLEY.

DRACÆNAS.

DRACÆNAS form a most important class of ornamental-foliaged plants. It is, perhaps, those with the brightly-coloured foliage which are most generally appreciated; yet there are several of the green-leaved sorts which are equally worthy of cultivation, and a long and varied list of useful sorts might be made. Although we now have such a number of varieties from terminalis and Cooperi, these are still grown very extensively, especially for market. The stock of terminalis is often obtained from stems which are imported from Brazil. It is supposed that plants propagated from these imported stems are more vigorous and colour better than those from English grown stock. I am doubtful on this point, however, for I have grown plants from English stock which have been very satisfactory. No class of plants better repays for good cultivation than the coloured varieties of *Dracænas*, and to have useful plants, young stock must be propagated annually. Old plants which have become too leggy will be the best for stock; the tops may be taken off and rooted in the same way as recommended for *Crotons*, and the stems, after being dried off, may be cut up into short lengths or laid down whole and covered with cocoa-nut fibre refuse. Where there is a good bottom-heat, they will soon start into growth, roots will be produced from the base of the young shoots, and after they are well started they may be cut off close to the old stem and placed in small pots. When first potted they should be kept in the close propagating pit until they are established. Sometimes young plants propagated in this way will run up rather tall, and when this is the case the tops may be cut off and rooted again. The old tops colour best, but they often produce flowers which do not add to their beauty. During their early stages of growth they may be plunged where there is a good bottom-heat, but should have a light open position and plenty of room. A moist atmosphere and a high temperature will induce vigorous growth. Towards the autumn, when the plants should begin to produce brighter-coloured leaves, they should be brought up as close to the glass as possible and kept a little drier. Various composts are used for *Dracænas*. I prefer a good proportion of fibrous loam, with leaf-mould, a little well-dried manure and plenty of sand; a little peat may be used if the loam is heavy. Soot-water is the only liquid manure I care to give to *Dracænas*; this may be applied freely at any season.

VARIETIES.—I have already referred to terminalis and Cooperi as being among the most popular, yet there are many very handsome varieties which ought to supersede these useful old sorts. The slender-growing narrow-leaved varieties are the most desirable, especially for table plants. Of these, I should select elegantissima as the best. *Superba* is a handsome variety, and colours freely; *angustifolia* is another fine sort, with long, narrow, recurved leaves, dark bronzy green, striped and margined with bright crimson; *igneus* has narrow recurved leaves, olive-green, margined and striped salmon; *salmonia* is similar, but has rather broader leaves. Of those with medium-sized leaves, *Frederica* is one of the best; Mrs. R. Turner, compact growing, colours freely, the terminal leaves being very bright rosy red; *Prince Mahout Bey* is a distinct variety with rather long erect leaves, colours freely, and makes a nice specimen; *pendula* is a good variety with drooping leaves, a little inclined to run up tall, but when well treated it makes a very pretty plant. *Sajouti*, somewhat after terminalis, with broader leaves, may be regarded as an improvement; very bright in colour and of good substance. *Spinksi* and *Bausei* are desirable varieties.

Of those with broad leaves, *Rossi* and *Mme. F. Bergmann* are among the best. *Renardæ* is a good variety, with broad recurved leaves, the variegation of a pale salmon, tinted with red. Of those with the white variegation, terminalis alba is the most use-

ful; *Louisa*, a slender-growing variety with narrow recurved leaves, makes a pretty table plant, but is rather delicate; *Alexandra* may also be recommended; Mrs. Wills is a variety of good habit; *Guilfoylei* is a distinct sort with narrow leaves, striped with white, with a shading of rosy red; *norwoodensis*, slender growing, with drooping leaves, striped creamy-white, changing to a reddish tint, makes a very handsome plant. Of the more distinct species, *D. Goldiana* is a general favourite; *D. Lindeni* makes a beautiful specimen, the broad, recurved, soft green leaves having a broad margin of yellow, and sometimes striped; *Massangeana* is of similar habit, but the variegation is linear instead of marginal, and not quite so distinct as in *Lindeni*. The last four named require a high stove temperature, and can only be propagated from the tops or the shoots produced after the tops have been taken off. Of *D. rubra* there are several good varieties, *Dannelliana* and *Bruanti* being the best. These do well in a greenhouse temperature. *D. indivisa* and *D. indivisa Veitchi* are also desirable for the greenhouse, and large specimens are useful for the subtropical garden. These may be obtained from seed. *Veitchi* does not come quite true.

F. H.

SHORT NOTES.—STOVE AND GREENHOUSE

Latania borbonica.—Amongst the great variety of Palms which are grown out of doors in the south of France on the beautiful Riviera, *Latania borbonica* is generally the first to suffer when sudden and light frost sets in. This accounts for its not being so largely planted as many other species. It is surprising how the plant at Thornton Manor mentioned in last issue had withstood the frost.—J. SALLIER, *The Nurseries, Neuilly, Paris*.

Hardy Palms.—Mr. Whittle (p. 99) might be interested in reading of the experiments made at Kew a year or two ago, when some Palms were perforce removed from the tropical Palm house to the great and much cooler temperate house of that establishment. A report was published, I believe, in the *Kew Bulletin* or in the horticultural press. On a rockery here in the open air a small plant of *Sabal Blackburiana* has lived for at least fourteen or fifteen years, and is to day small, but healthy. It is sheltered by a *Laurustinus* overhead, and has several fresh green leaves. Along the Riviera many tropical species endure a few degrees of frost.—F. W. BURBIDGE, *Dublin*.

The Gardeners' Orphan Fund.—The annual meeting of the subscribers to the above and election of children to the fund took place at the Cannon Street Hotel on the 5th inst. at 2 p.m., Mr. William Marshall, chairman of the executive committee, presiding, there being a good attendance. The annual report of the committee showed that the income for the past year had been highly satisfactory; that the sum of £555 16s. 6d. had been raised as a memorial to the late Mr. George Deal, thereby enabling the committee to place seven orphans upon the fund; and the receipt of a sum of £250 from the B. S. Williams' Memorial trustees had resulted in two additional orphan children being admitted. No Covent Garden fête was held in 1891, but a Rose fair and fête took place at the Crystal Palace, which resulted in a substantial gain to the fund. The national collection instituted during the past year brought in a sum of £250, and it is proposed to continue it annually. Thirty-nine children are chargeable upon the fund, and it was proposed to elect eleven on that day, bringing the number up to fifty, at an annual cost to the fund of £650. The cash statement showed total receipts from all sources amounting to £2494 17s. 4d., which, with the balance of £807 8s. 11d., brought the receipts up to £3302 6s. 3d. The actual expenditure for the past eighteen months was £1097 6s. 8d.; in addition £975 0s. 6d. had been expended in the purchase of stock. There is on deposit at the bank £600, and a balance of £629 10s. 1d. in addition is carried forward. The trustees have the sum of £4556 4s. 7d. invested in consols and Canadian stock. The chairman moved the adoption of the report and balance sheet, and commented on the extremely satisfactory cha-

acter of both. This was seconded by Mr. H. J. Veitch, and carried. Mr. T. B. Haywood was re-elected treasurer, Mr. Sharp auditor, and Mr. A. F. Barron secretary. The eight members of the committee, retiring by rotation, were also re-elected. Messrs. R. Dean and B. Wynne were appointed scrutineers of the ballot, and the meeting then adjourned till 4 o'clock to receive their report. On the meeting being resumed, the chairman declared the following candidates as having been elected: Mary Esther Green, 272 votes; Thomas James Francis, 259; Charles Henry Wasley, 244; Annie Parker, 216; Edward William Butcher, 163; John Ernest Vine, 141; Agnes Jane McIntosh, 137; Edmund Norgate, 129; James Alfred Bolton, 122; Janet Hood Ireland, 99; Olive Hall, 90.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 9.

THIS meeting was a great improvement upon its predecessor, which was held in most uncongenial weather: the milder time we are now experiencing no doubt tended to induce exhibitors to send their productions. Orchids were present in considerable force, several good and noteworthy kinds being shown with not a few excellent new varieties of both species and hybrids. Cyclamens were in strong force, showing a marked improvement in the strains now grown as compared with a few years back. Bulbous plants (hardy) were not displayed in any numbers; the next meeting will no doubt show a marked advance in this direction.

Orchid Committee.

First-class certificates were awarded to the following—

ODONTOGLOSSUM CRISPUM NOBILIUS.—This is both a distinct and a truly noble form of this well-known Orchid; it has extra large flowers with broad sepals and petals, which are barred and spotted with dark chocolate upon a pure white ground, the lip nicely fringed and blotched. From Baron Schröder.

ODONTOGLOSSUM PESCATOREI SCHREDERIANUM.—This plant bore a small spike but quite sufficient was shown to prove it to be a distinct addition; the flowers were beautifully spotted with rosy-purple, the groundwork white. Also from Baron Schröder.

CYPRIPEDIUM JUNO.—This is a hybrid (Fairrieanum \times callosum) with dark coloured flowers, the dorsal sepal dark, striped with rosy purple after the manner of *C. barbatum*, only upon a darker ground; this is a good addition to the darker kinds. From Mr. Drewitt O. Drewitt, Riding, Mill-on-Tyne.

ZYCOPETALUM LEUCOCYLUM (Burkei \times Mackayi).—This hybrid bore a good spike, and is a valuable addition to an all too limited class. It has flowers of average size: the lip, which is pure waxy white, is its most distinctive feature, the sepals and petals olive-green, with darker markings. From Messrs. Veitch and Sons.

CYPRIPEDIUM HERA (villosum Boxalli \times Lee-anum).—This is a noble looking hybrid, with the properties of both of its parents: the dorsal sepal is large, reflexed and darkly spotted, the other parts of the flower of good proportions. This will rank as one of our best hybrids. From Messrs. Veitch and Sons.

Awards of merit were given to—

LYCASTE YOUNG.—This Lycaste has flowers of medium size, rich golden yellow, the outer petals a greenish-yellow. Shown by Sir Trevor Lawrence and Messrs. B. S. Williams and Son.

ODONTOGLOSSUM IOPLOCON.—A variety with dark purple flowers and a strong spike. From Baron Schröder.

CYPRIPEDIUM CERES (birsutissimum \times Spicerianum).—This is another good dark-flowered hybrid of vigorous growth, the pouch very distinct. From Mr. Drewitt.

DENDROBIUM CASSIOPE (japonicum \times nobile albiflorum).—This is a delicately beautiful hybrid

with pure white flowers, which are apparently produced in profusion; the lip has a claret-coloured blotch in the centre, and the plant is of dwarf habit. From Mr. Norman Cookson, Wylam-on-Tyne.

CYPRIPEDIUM INSIGNE (Cambridge Lodge var.).

—This has flowers of medium size which are distinctly marked; the dorsal sepal has a light edge, the central portion spotted freely with dark brown. Shown by Mr. Measures, Camberwell.

DENDROBIUM SPLENDIDISSIMUM LELANUM.—This is a distinct form of a good Orchid. Mr. Lee, Beech Lawn, near Manchester.

Botanical certificates were awarded to—

DENDROBIUM FELSCHI AND **TRICHOCENTRUM TRIQUETRUM**, both from Sir Trevor Lawrence. The former is a species with most minute flowers, produced in profusion upon slender spikes from the tops of the bulbs. The latter has yellowish flowers of Dendrobium-like appearance, but with a long spur.

EPIDENDRUM WATSONIANUM.—A variety with small yellowish flowers. From Messrs. Sander & Co.

CYPRIPEDIUM LINDEYANUM.—A species more curious than beautiful. From Mr. Drewitt.

Messrs. B. S. Williams and Son had an excellent display consisting chiefly of Cypripediums in good varieties; the best of these were *C. Williamsi*, *C. Sedeni candidulum* (very robust), *C. villosum*, *C. Amesianum*, *C. politum*, *C. Fitchianum* (foliage very dark), *C. Boxalli*, *C. vexillarium superbum*, *C. Sallieri aureum*, *C. Harrisianum vivicans*, *C. Lee-anum*, and *C. nitens*; these plants were all remarkably healthy. Others included good forms, both light and dark, of *Laelia anceps*, and a fine example of *Dendrobium Wardianum* with extra large flowers (silver Flora medal). Messrs. H. Low and Co. sent a group of smaller plants consisting of several *Phalaenopsis Schilleriana*, *P. amabilis*, and *P. casta*, with *Vanda Boxalli lutea*, *V. Amesiana* (a pretty species), *Angraecum sesquipedale*, *Dendrochilum glumaceum* and others. Messrs. Low & Co. also sent a spike of *Vanda* (*Renanthera*) *Lowi* of good length with several flowers open, the lowest (one in this instance, but usually a pair) being of the customary tawny-yellow colour, whilst all the rest are of a reddish-brown shade. The effect was here improved upon by mixing Ferns amongst the Orchids (silver-gilt Banksian medal). Messrs. Sander and Co. had a small group, amongst which were two or three beautiful examples of *Oncidium splendidum* with stout erect spikes bearing large flowers with a most conspicuous bright yellow lip; several good forms of *Lycaste Skinneri* were here to be seen, also *L. Skinneri alba*, *Oncidium Phalaenopsis*, and *Laelia harpophylla* (silver Banksian medal).

Other Orchids consisted of cut blooms of *Cattleya Trianae* in superior varieties, the blooms of large size, and *Phalaenopsis Sanderi* (Low's var.) with pale rosy lilac flowers, from Mr. Ingram, Elstead House, Godalming. Mr. Statter, Stand Hall, Manchester, sent several choice cut blooms; notable amongst these was a superb flower of *Lycaste Skinneri alba gigantea* of the purest white, superior varieties of *Laelia anceps* and of *Cypripediums*; amongst the latter were fine blooms of *C. Lathamianum* and *C. Lee-anum giganteum*, also the comparatively scarce *Oncidium loxense*. Of *Cælogyne cristata* there were four profusely flowered plants, each about 2 feet across and in small pots. These came from Mr. Miller, Ruxley Lodge, Esher, to whom a cultural commendation was deservedly awarded. A few good varieties of *Cypripediums* were sent by Mr. Ebner, Horton House, one being a superior form of *C. villosum*, quite a major variety; another, a dark kind named *C. enfieldense*, was conspicuous. Some fine spikes of *Phalaenopsis* and other cut Orchids came from Mr. Wigan's well-known collection at Clare Lawn; the spikes of *P. Schilleriana* were extra strong, one spike having as many as six branches, and all in flower; *P. Stuartiana* was also shown in good order; so was *Cattleya Percivaliana* (a vote of thanks was awarded). A fine pale variety of *Cattleya Trianae* and another of *C. Percivaliana alba* were sent by Mr. Freeman, Beechwood Park, Dunstable. From Mr. Mitchell,

Brigden Place, Bexley, came *Vanda Arbutnotiana*, a dark glossy brown variety, quite distinct; the plant bore two spikes. Messrs. Ross and Co. showed the scarce *Cymbidium Hookerianum*, with large greenish yellow flowers, the lip marked with dark spots. Mr. Crispin, Fishponds, Bristol, sent a fine spike of *Saccolabium giganteum* and other cut blooms.

Floral Committee.

First-class certificates were awarded to

BERTOLONIA COMTE DE KERCHOVE, with leaves of extra size (7 inches by 5 inches), of a deep olive-green colour, spotted and veined with rosy pink; quite a handsome kind. From Mr. Bause.

B. ARGYRONEURA has rather smaller foliage, of a pale green shade with silvery veins and spots, being very distinct. From Mr. Bause.

ELEIS MELANOCOCCA.—A variety of the Oil Palm, first introduced in 1821 from Tropical America; it is a promising kind, with dark green foliage, and as shown of compact growth. Messrs. Williams and Son.

Awards of merit were given to

CLIVIA MRS. P. C. GLYN.—This is an extra fine seedling variety with very broad petals and a large truss, the colour a bright orange, with quite a light centre, habit robust. From the Hon. P. C. Glyn, Rooknest, Godstone (Mr. Friend, gardener).

LILAC PRESIDENT GREY.—This is one of the double varieties, and is of much promise for forcing. As shown it was almost white in colour, there being a faint trace only of lilac. Messrs. Paul and Son.

IRIS HISTRIOIDES.—This is an extra dwarf species, after the reticulata type, but appears to be sturdier. Colour of the flowers a pale blue. As an early kind it will be found most welcome. Messrs. Laing and Sons.

Messrs. Laing and Sons sent a miscellaneous group of choice flowering and fine-foliaged plants, consisting of *Cælogyne cristata*, *Dendrobium Wardianum*, *Cattleya Trianae* and other Orchids; and such fine-foliaged plants as *Dracæna Lindenii*, *D. Willsi*, *Pavetta borbonica* and *Bertolonia Mme. E. Pynaert*, *B. argyryneura*, *B. Mme. A. van Geert* and *B. Comte de Kerchove*, *Saxifraga sarmatosa variegata*, &c. (silver-gilt Banksian medal). Messrs. Low and Co. had a collection of hard-wooded and other early-flowering greenhouse plants, amongst which were *Boronia heterophylla*, *Pimelea spectabilis*, *Acacia Drummondii* and *A. ovata*, *Correa speciosa major*, *Eriostemon scabrum*, with *Cytisus* and *Azaleas* (silver Banksian medal). Groups of *Cyclamen* were numerous, and silver Banksian medals were awarded to each of the following well-known growers: Mr. J. May, Gordon Nurseries, Twickenham, whose plants were of extra size and in the finest health, the strain excellent; the St. George's Nursery Co., Hanwell, for a large group, the plants dwarf, with fine blooms, assortment of colours good, and Mr. J. Walker, Whitton, who had plants of free growth and well flowered.

Mr. Friend, Rooknest, Godstone, had a quantity of cut Camellias, chiefly the best of the older kinds, also *Acacia dealbata*, with long branches in profuse flower, and another *Clivia* named *Maurice Glyn*, a very promising seedling (silver Banksian medal). Mr. Wythes sent from Syon House well-flowered examples of *Amaryllis* with some trace of the aulica blood in them, but distinct from that kind. With these were some pots of double Daffodils in good bloom. From Kew Gardens was sent one of the most interesting of all the exhibits at this meeting; this was *Brownea Crawfordii*, a hybrid (*B. grandiceps* \times *macrophylla*); of this an immense globular truss was shown some 10 inches across, the flowers of a bright orange-scarlet, the filaments making the appearance of the flowers all the more interesting. With this was also sent an extra fine cluster of *Caryota Cummingii* bearing an immense quantity of apparently well-developed seeds. Messrs. Cannell & Sons showed some fine strains of *Primulas*, the best being a very pure white with extra large flowers named *Cannell's Triumph*. From Messrs. Veitch & Sons came a basketful of *Lachnalia Ameliana*.

a sturdy growing variety with deep salmon-pink flowers borne upon stout footstalks—a valuable addition to this bulbous family; also cut specimens of several hardy early blooming shrubs.

Fruit Committee.

Fruit was largely exhibited, including three large collections of Apples, and several varieties for name.

An award of merit was given to

APPLE MAY QUEEN.—This is of medium size, brightly coloured, and with rich flavour. It will be a valuable addition to our list of late dessert kinds. From Mr. Crump, Madresfield Court Gardens, Great Malvern.

A collection of 103 dishes of Apples and Pears (73 kinds of Apples and 30 of Pears) beautifully coloured and fresh came from Mr. A. H. Smee, Carshalton. There were some very fine examples in this collection, some of them being remarkable for their high finish. The best were Melon Apple, Claygate Pearmain, Wadhurst Pippin, Cox's Orange, King of the Pippins, Golden Reinette, Ramborough (very fine), Cockle Pippin, Golden Noble, Bismarck, Sturmer Pippin, Hoary Morning, Winter Queening (of a beautiful colour), and the Gooseberry Apple. The best Pears were Pius IX., Broom Park, Chaumontel, Comte de Flandre, Glou Moreau, Nouvelle Fulvie, Uvedale's St. Germain and Catillac (silver-gilt medal). Messrs. Cheal and Son, Crawley, had a fine collection of seventy dishes of Apples and Pears. The colour was very fine and the varieties of large size and in excellent condition, the best specimens being Lane's Prince Albert, Brabant Bellefleur, Alfriston, Wellington, Annie Elizabeth, Royal Russet, Nonsuch, Cox's Orange, and Boston Russet (silver medal). From Lord Foley's gardens, Esher, came a smaller collection, though meritorious, many being fine fruits in excellent condition and of good colour. Alfriston, Royal Russet, King of the Pippins, Scarlet Crofton, Ribston (very good), Claygate Pearmain, Dutch Mignonne, and Royal Russet were good (silver Banksian medal). Mr. C. Leach, Albury Park Gardens, again submitted Apple Albury Park Nonsuch, which received an award at the last meeting. The committee desired to see it again next year. Messrs. Lane, Berkhamsted, sent some seedling Apples. One very similar to Dutch Mignonne, but smaller, will probably be valuable. Mr. Miller, Ruxley Gardens, Esher, and Mr. Leach sent some very good Mushrooms. Seakale, said to be an improved variety, was sent by Mr. Crisp, Canford Manor, but the committee could not see any improvement on existing kinds, the growth being smaller with more leaf-top. The committee recommended that it be tried at Chiswick. A new tying material for trees was sent for the approval of the committee, but it was found to be unsuited for the purpose, not being soft enough.

Annual general meeting.—This was held at 117, Victoria Street, the president, Sir Trevor Lawrence, in the chair. Sixty-seven new Fellows were elected, the largest number at any meeting yet held. Mr. H. J. Veitch and Mr. Marshall, acting as scrutineers for the election of council, declared the Fellows proposed as additions to council duly elected. The chairman said the past year had been one of considerable progress. Their meetings during the past year had been better attended, the exhibits more interesting and a greater number of new fruits and plants had been introduced. To the several committees they gave their hearty thanks for the time and attention they gave to the affairs of the society, also to those gentlemen who had contributed to the conferences and meetings by giving lectures on the special subjects which they had taken in hand. The Temple show was a great success, and they had to thank the treasurer and benchers of the Middle Temple for the use of their grounds. He was confident both visitors and exhibitors were satisfied by the excellence of the show and the admirable way Mr. Barron conducted it. He was equally sanguine that next May would produce the same results. The conferences had been a success, especially that on Conifers. The usual trials had been going on at Chiswick, and had given much satisfaction. The

journal had also been regularly issued. It was of great importance to country Fellows, and gave them a certain return for their subscription. He was glad to say the subscriptions of new Fellows just paid the cost of the journal. There was a larger increase in Fellows during the past year by 344, with an increased income of £448, carrying a balance of £218 to revenue account. They had issued a pamphlet on small fruit culture for the use of those interested in country districts, 52,000 having been distributed. He hoped with increased prosperity to see more done for Chiswick Garden than in past years. There were now thirty-seven provincial societies affiliated with the Royal Horticultural Society. This was a step in the right direction. The sum of £515 was offered this year in prizes, and he hoped the competition would be greater than in the past year. They had made little progress towards securing a new hall; there was a difficulty in the matter; and though they did not hold those who kindly promised to help to their promises, they had not abandoned it, and hoped in time it would succeed. Dr. Ince hoped they would revive the hall project, and not allow it to become a failure. Professor Foster, in proposing a vote of thanks to the council, regretted they still held their shows in the wretched place called a hall, a place no one could find, and when found, people could not see the exhibits. Baron Schröder said no one regretted more than himself the state of affairs, and he certainly did intend to have a hand in erecting a new hall.

PUBLIC GARDENS.

West Wickham Common.—The inquiry for the purposes of the proposed scheme for the conservation of West Wickham Common, near Beckenham, Kent, has been postponed by the Board of Agriculture to March 23. The hope is expressed in the locality that no further postponement will be made, as the evidence on the common rights and the extent of land over which they are claimed depends, not only on documents, but on the personal testimony of aged inhabitants.

Avondale Park.—The Kensington Vestry lately decided that the Pottery Lane Recreation Ground, Notting Hill, which was opened to the public on Dec. 26 last, be hereafter known as Avondale Park, in remembrance of the late Duke of Clarence and Avondale. By the re-naming of this new recreation ground for Kensington, the Vestry also pays a compliment to the Princess May of Teck, who was born in the borough. The formal opening ceremony has been indefinitely postponed.

The Alexandra Palace.—The Wood Green Local Board have decided not to oppose the Alexandra Palace and Grounds Bill, provided that an understanding is given that they shall not contribute more than £250 per annum towards the purchase of the estate during the borrowing period, and that they shall have some voice in the management of affairs. The chairman of the Board, Mr. R. D. M. Littler, C.B., who is also chairman of the Middlesex County Council, speaking on the subject at the last board meeting, remarked that the proposal, if carried out, would not only be beneficial to Wood Green, but to the whole of North London; in fact, for miles round the metropolis people would flock to such a splendid resort as the palace and park would form. He thought, once the palace and park were opened to the people, there would be very few, if any, empty houses in the neighbourhood, and that very general satisfaction would exist in such a course having been taken.

Open spaces.—At the monthly meeting of the Metropolitan Public Gardens Association, 83, Lancaster Gate, W., Mr. F. D. Mocatta, vice-chairman, presiding, it was announced that the laying out of the old burial-ground in Hackney Road, E., and St. Botolph's, Aldgate, Churchyard was almost completed, and that St. Ann's Churchyard, W.C., and two others in Fulham would be begun at once. It was reported that the London County Council had received a deputation of members of the association and others in favour of the preservation of

Emanuel Hospital and its picturesque grounds at Westminster; that the Paddington Vestry had accepted six seats for the pathway outside the railings of Kensington Gardens; that improvements suggested by the association were being made in the entrance to the Natural History Museum gardens, which at present are only accessible by a flight of steps; and that the Islington Vestry had asked the association to lay out four enclosures in their district, the Vestry undertaking to maintain them. It was agreed to take steps to lay out All Saints' Churchyard, Poplar, E.; to write to the candidates at the approaching London County Council election, to ask for their support in furtherance of open spaces; to offer seats for the New Kent Road, S.E.; and to assist in the opposition to the Manchester, Sheffield, and Lincolnshire Railway Bill, "which threatens to destroy over 60 acres of land, chiefly open space, in Marylebone and St. John's Wood, forming the gardens of private houses, as well as several squares."

OBITUARY.

MRS. RAWLINGS, wife of Mr. George Rawlings, of Dahlia renown, formerly of Bethnal Green and Romford, and now of Bragower, Monmouthshire, died on the 2nd inst., at the age of 75. She had been a great sufferer, having been helpless for fourteen years through chronic rheumatism.

Mr. John Roberts.—On January 23 last at Charleville Forest Gardens, Tullamore, the veteran Grape grower of Ireland, Mr. J. Roberts, gardener to Lady Emily Howard-Bury, passed away. After an illness of but two days he succumbed to an acute attack of pneumonia brought on by influenza. He had reached the 62nd year of his age and the 36th year of his service in the Charleville family. Mr. Roberts had served five members of this house, including three earls, having been engaged by the third Earl of Charleville. It was as a Grape grower that he made his mark, and at the shows of the Royal Horticultural Society of Ireland held in Dublin he was always in the first rank. Several times he carried the war into the sister islands and wrested victory from noted and able opponents, as at the international shows held in Manchester, Edinburgh, &c. Mr. Roberts was the raiser of an improved variety of Gros Guillaume known by his name, and exhibited several very large bunches, one of which weighed over 23 lbs. He leaves a widow, five sons, and two daughters to mourn his sudden death. His son-in-law, Mr. R. McKenna, gardener, Chief Secretary's Lodge, Dublin, succeeds him.

International Horticultural Exhibition, London, 1892.—A preliminary meeting of the above was convened by Mr. H. E. Milner at the Hotel Windsor, Victoria Street, W., on Tuesday last. Mr. Milner explained the chief points of this proposed exhibition at Earl's Court, to be opened in May next. Those present who had any doubts as to its financial support previous to the meeting had them entirely removed by the very lucid remarks of Mr. Milner. There is now no doubt that this international exhibition will receive a most liberal support from the trade as well as from private gentlemen who are interested in horticulture. The draft copies of the schedules for the several shows from May to October inclusive are in preparation, and will be soon circulated; these bid fair to be of a most comprehensive character. The permanent portion of the exhibition will be carried out in the best possible manner. With the monthly displays and these permanent exhibits there will be every attraction to draw together those engaged and interested in horticultural pursuits, not only in the vicinity of the metropolis, but also from all parts of the country, as they visit London during the season. One essential feature which Mr. Milner has most judiciously insisted upon is the exclusion of the bazaar element; in this he will most certainly receive the support of the committee. Support has been promised already from the Continent, and those present accorded the same most unanimously upon the proposal of Mr. W. Paul.

WOODS AND FORESTS.

TOWN PLANTING.

(Continued from p. 112.)

THE CANADIAN POPLAR (*P. canadensis*) and the valuable, but as yet little known *P. c. nova* have been proved to be most valuable for planting in smoky localities. In the very centre of Sheffield, and where the air is vitiated with noxious fumes to a large extent, the Canadian Poplar grows with the greatest vigour, and soon forms a neat, healthy-looking tree in spite of its ungenial surroundings. In the variety *nova* we have one of the most valued additions to our forest trees that has enriched this country for a long time. There is a beautiful avenue of it and the Oriental Plane at Wimbledon, and there the healthy hue of the Poplar foliage is quite remarkable. This variety is far better suited for town planting than the Black Italian Poplar, it being of less rampant growth, with fewer heavy side branches to get riven by the wind, and a healthier and brighter hue when exposed to the heated and tainted air of our larger centres of industry.

THE ABELE POPLAR (*P. alba*) cannot be passed by unheeded where trees suitable for town planting are under consideration. But all the Poplars, most probably from their stout growths and shining foliage, are excellent town trees, their worst drawback being susceptibility to get riven asunder in stormy weather owing to the limbs being heavy and unwieldy.

THE LOMBARDY POPLAR (*P. fastigiata*) is not to be despised for planting in the suburbs of our larger towns. It stands smoke fairly well, and being of dignified appearance is well suited for both urban and suburban districts. The Poplars, too, are readily propagated, and will grow freely in soils where many other trees would die out.

THE TULIP TREE (*Liriodendron tulipifera*) is another excellent tree of neat proportions for planting in the smoke-laden atmosphere of our larger towns; indeed not a few instances could be mentioned even in London where it succeeds better, or at least quite as well as several species that have received a greater amount of attention for this particular purpose. But not alone in the fumes of smoke, but where chemical refuse is thrown off, the Tulip Tree would seem to stand and almost surprise one with its healthy look and generally well-furnished appearance. Then it is a tree of peculiar beauty, the ample fresh green leaves rendering it easily recognisable from every other of its kind.

THE COMMON SYCAMORE (*Acer Pseudo-platanus*) must rank high for its long-proven value in town planting. Even in that, perhaps, worst of all English towns—Warrington—and where the greatest difficulty is experienced in getting vegetation of almost any description to take at all kindly, the Sycamore grows in a fairly satisfactory way; indeed, has been proved to be the best tree for that particular town. Warrington is one of the most deadly towns to tree and shrub life, the emanations from alkali works being most disastrous in their effects. Strange as it may seem, I am told by a friend who owns considerable landed and other property in and around Warrington that the variegated Sycamore is even preferable to the species for planting in the worst districts, and that he has found this from actual experience, not gained on one, but on several occasions. It is certainly valuable information, and might well be tested in several of our worst metropolitan areas and where a difficulty is experienced in getting any trees to grow satisfactorily. The strong robust constitution of the Sycamore and its general adaptability to soils of widely varying qualities have unquestionably much to do with its succeeding so well. Stiff, formal-outlined trees are never very satisfactory, in ornamental planting at least, but in the common Sycamore we have a tree of decided yet easy character, and one that harmonises fittingly with almost any surroundings.

THE CUCUMBER TREE (*Magnolia acuminata*) can be thoroughly recommended for its suitability for town planting. For withstanding the grime and soot of our larger towns this *Magnolia* is of particular value, though its fitness in this way is but yet very imperfectly understood. It must ever rank high as an ornamental tree, the fine, large, pea-green leaves and great wealth of fragrant yellow flowers making it a general favourite with cultivators. That it likes good loamy soil on a porous bottom I am pretty well convinced. Probably the large smooth leaves, of good substance, and which are readily cleansed by every shower, will account, to some extent at least, for the suitability of this particular *Magnolia* for planting in the tainted and dust-laden atmosphere of many of our English towns. A. D. W.

The Silver Lime (*Tilia argentea*).—This handsome Lime stands out conspicuous from all the rest on account of its noble growth and silvery undersides of the leaves, features which render it so distinct from all other kinds. Its greatest merit, however, is that of the foliage remaining in perfection long after that of the common Lime has fallen; it is, therefore, highly valuable on this account alone. It is somewhat remarkable that a fine tree like this should have been overlooked for such a long time, for it is a very old introduction. We have no instance of it, but we see no reason why it should not make a serviceable tree for streets and avenues, where its silvery foliage and bold habit of growth would be shown off to advantage.—G.

Silver Birch for poor wet soils.—This is one of the best trees for wet soils where the water is not stagnant. The Silver Birch is one of the hardiest trees grown, as it will stand exposure better than many others, and it pays well, being of quick growth. Some years ago I planted a large tract of wet land on a hill-side much exposed. Many trees had been tried, but all had failed. The Birch grew well and the thinnings the first time paid for labour and plants. The great advantage of this tree is its quick growth. The wood can be readily sold, as there is always a demand for crate wood, and the tops are always saleable. There are numerous varieties, but the common *B. alba* is the most useful. Besides being useful it is also very beautiful when growing. Even in the winter season when planted thickly it looks well. Single specimens also are very effective. The pendulous growers are best suited for single specimens, but for woods and planting for profit the erect growers are far better.—G. W. S.

The Pin Oak (*Quercus palustris*) abounds here in its wild state, and, whether wild or planted, it commands universal admiration. The downward tendency of the lower tiers of branches and the finely divided shining green leaves give it a distinct appearance among other Oaks, and its rapid growth should commend it to all planters. One reason why the various Maples are so largely used is that they can be transplanted easily and successfully. It ought to be more generally known that the Pin Oak may be transplanted with just as much safety as the Maple. I have seen long avenues planted with good-sized Pin Oaks without the loss of a single tree. Those familiar with the roots of various Oaks know how this species differs from most other Oaks in this particular. The Pin Oaks have a mass of fibrous roots instead of the few prong-like roots of most other kinds. Practical planters make all Oaks live by pruning them judiciously. The Pin Oak has the advantage of needing but very little pruning, because its numerous roots will carry it through even if the branches are not shortened in.—JOSEPH MEEHAN, *Germantown, Pa.*, in *Garden and Forest*.

The Elder as a nurse tree.—It is somewhat remarkable that the common Elder is not oftener used as a nurse, as it is about the hardiest tree with which I am acquainted. In places where the strong west wind blows for several months in the year, and where even common Gorse looks as if it were rolled, Elders will grow and thrive, and anybody about to start a plantation in such places

would do well, as a preparatory step, to plant the ground in the interior thinly over with Elder bushes, but as thickly as possible along the margin, especially on the windward side. This skeleton plantation of Elder, filled in with timber trees, will have a massive and telling effect. No plant grows so rapidly as young Elder, or so slowly when it is old. Elder will also withstand sea breezes as well, and perhaps better, than any other shrub or tree. No other tree or shrub will grow in the shade or stand the drip of trees better than the Elder. In woods, the darkest and gloomiest spots may be made cheerful and lively by means of the Elder planted freely. As cover in woods and plantations, where little else would live, keepers used in winter to dibble in cuttings of Elder in all bare naked places, being well aware of its utility as a plant for "thickening up." Lastly, the Elder makes a good plant for filling up gaps in hedges, especially where they pass under trees, and for boundary fences, where nothing else will grow. It will preserve the continuity of a hedge right up to the trunks or stems of even Beech and Horse Chestnut. Moreover, a well-developed, full-grown Elder tree, ornamented with about a thousand of its enormous creamy-white cymes, seen at a distance, is a noble object.—E.

The Scotch Fir in damp places.—The Scotch Fir thrives well under a variety of conditions on the sloping hillside with only apparently a few inches of good soil on the surface, and if not too much crowded it will grow to large proportions and live to a great age, while as a shelter tree on a dry bank it will withstand the most violent gales of wind. Of course in such a position the growth is slow. It is, however, of the suitability of this Fir for wet positions that I wish to write. I have had under observation for more than twenty years a plantation of Scotch Fir. When the plantation to which I allude first came under my notice, I regarded it with a good deal of suspicion. In fact I thought it was a mistake to plant this tree in such rough ground, which for the greater part of the winter is quite a swamp; some of the trees for days together are frequently standing in water to the depth of a foot or more, and generally all the winter. Many of them have the stem and roots covered with water several inches deep. What is equally surprising is that those round the margins where no water ever accumulates are neither larger nor in any better condition as regards health than those in the middle. I do not wish to make it appear that the Scotch Fir will do better in a damp place than in a dry one, as that would be contrary to all experience. My reason for referring to the above is to show that the Scotch Fir is capable of making a fairly satisfactory growth when planted in such a position. The trees under notice are about 50 feet in height, while the boles are of a satisfactory size, seeing that they are somewhat crowded. The colour of the foliage is perfectly healthy, and the rate of growth is quite as good as I have seen under what would be generally considered more suitable conditions.—J. C. CLARKE.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference purposes to the issue of the Monthly columns. Price 5d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols., price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference purposes to the issue of the monthly columns. Price 5d.; post free, 1s.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference purposes to the issue of the monthly columns. Price 5d.; post free, 1s.

"Hardy Flowers." Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Families of the Horticultural Trade collected up to November 10 last. The Lists of Gardens and Country Seats containing over 8000, have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

No. 1057. SATURDAY, February 20, 1892. Vol. XLI.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

PRUNING ROSES.

THE past few weeks of warmer weather have already affected the growth of Roses. The sight of young bristling shoots may perhaps induce some to start pruning at this early date. Considering our erratic seasons and that we may yet experience severe frost, this would be dangerous, and lead most likely to another and much worse evil, namely, the young growths which are to produce flowers later on would probably be greatly injured, if not entirely spoilt, by spring frosts. On no account would I sacrifice the plump eyes lower down the branch. A few seasons ago, I remember, about this time, the Rose trees were in a forward state, and at the ordinary pruning time—well on in March for the hardier sorts and a month later for the more tender Teas—many growths were from 6 inches to 9 inches in length. These were all cut away to dormant buds, and there was no reason that year to be dissatisfied with the result. It may not be too early to begin the work with the hardy climbing varieties against walls and houses, because with these there is really very little cutting back required. Take away decayed branches, thin out where very thickly placed, and cut away the unripened points of very long shoots. I hold strong views upon close pruning of Rose trees, but as an instance that we can carry our ideas too far, I pruned the shoots of a well-grown standard tree of Belle Lyonnaise in the same way that I should cut those of, say, Marie van Houtte, to a few inches of their base. The result was not a flower till late in the autumn, when it bloomed sparingly on the long growths the tree made, instead of the well-developed flowers it was pruned to produce.

Belle Lyonnaise belongs to what may be called the Gloire de Dijon group, there now being quite a family of them, those best known after the type being Beauté de l'Europe, deep yellow; Etendard de Jeanne d'Arc, creamy-white; Mme. Berard, salmon shade. Bouquet d'Or, although classed as a Noisette, might well be placed among them, being similar in habit of growth and conforming to the same treatment. But all of them appear to me lacking one quality in comparison to the Gloire de Dijon: they are not so free flowering. They all need very little pruning, merely taking away weakly shoots, also old ones when they can be spared, and cutting away the unripened tips. Reine Marie Henriette requires the above method of pruning, but it only gives one crop of flowers in a season, and a high place should be selected to get room for its rampant growth. Whilst upon the subject of vigorous Roses, a wall should be given Mme. Caroline Kuster and La France, both very distinct in character. The flowers of the former are delicate in colour and form, being easily spoiled by wet, and can against a wall be protected by the aid of an odd light from a glass frame. Another popular sort, Wm. Allen Richardson, should have very little indeed cut away until its allotted space is well filled; then the lateral shoots may be spurred back. L'Idéal, in many respects like this, seems with us not to possess its vigour, but when better established it may prove to be a real climber.

It is wise to use the pruning knife freely on all Roses newly planted; indeed, to get a good foundation to a tree it is hardly possible to cut too close to where the same was budded. To assist in keeping the established trees of almost all Hybrid Perpetuals we know there is nothing like close pruning. Take, for example, one on which the principal shoots have been allowed to retain, say, 9 inches of their growth; three or four of their top eyes on a stem will break into leaf and the lower part become bare. Continue this year after year and the chances are you get a leggy specimen, which finally falls into ill-health and dies. But prune the same back to 2 inches or 3 inches of their base, entirely removing soft unripened late shoots each season, and constant growth near the junction of stock and scion will in nearly all cases be the result. I have often tried such vigorous kinds as Edouard Morren and Mme. Gabriel Luizet by cutting to the ground line, and never failed to get flowers; therefore, I practise close pruning all true Hybrid Perpetuals, whether they be grown for exhibition blooms or to make large bushes. With standard trees it is exactly the same, and I always remove the inside growth, which is taken out by disbudding the young shoots in May.

There are a few weakly-growing sorts which occur to my mind as needing extra close pruning, namely, A. K. Williams, Louis van Houtte, Horace Vernet, Xavier Olibo, Duchess of Bedford, and Lady Mary Fitzwilliam. La France, on the other hand, which seems distinct from any class, has always with me given the best blooms on trees that have been sparingly cut. The truly perpetual class—the Tea-scented—has now to be considered. The stronger growers amongst them (Mme. Lambert and Marie van Houtte being named as examples) will succeed best with moderately hard pruning, for I have observed, from an exhibitor's point of view even, that on very strong growth the flowers come quartered and otherwise less beautiful than on that of moderate strength; hence a greater number of shoots will tend to the latter development. Comtesse de Nadaillac and Souvenir d'Elise are examples of the weaker growers, and should be more severely cut, whether the form of tree be dwarf or short standard. This last form of tree is fast becoming popular with cultivators who exhibit Tea-scented kinds. Such beautiful summer-flowering Roses as Blairi, Charles Lawson, and Coupe d'Hébé require but little pruning. Thin out the branches and leave those remaining almost intact. Moss Roses, again, should be freely cut back, while the class of small-flowered Chinese are too moderate in growth to want the aid of the pruning knife, nor is this needed much in the case of those called Bourbons.

H. S.

Roses in masses.—Nothing can surpass the beauty of Roses when planted in bold masses and in quantities of one shade. I have seen beds of that grand hybrid China Camoens that were a perfect picture for the greater part of the summer. The old Blush China is another grand kind for this purpose. In choosing Roses for this purpose one must not strive after grand flowers individually, but rather such varieties as make a fair amount of uniform growth and continue blooming for a long time. Such varieties as Baroness Rothschild and La France, that flower very profusely several times during the summer, are by far the best for planting in bold masses. I would never advise mixed beds of these flowers. A mass of such grand foliated kinds as Mme. Falcot or Perle de Lyon is always attractive. Queen of the Bedders is another grand variety that may almost always be had in flower during the summer and autumn. Where large

clumps of Portugal Laurels, Azaleas, and Laurustinus are getting leggy and thin towards the edges, as they frequently do when not properly attended to, I do not think many plants look better than a good depth of Roses planted all round them. Last summer I saw some fine sweeps of Portugal Laurel, &c., that had been served in this way, and the Roses were a grand feature as one came round the numerous bends. To come upon a mass of one variety, and that in full beauty, has a far more pleasing effect than a plant here and there in flower among quantities of other kinds, although each may be grandly in flower during its proper season. Another advantage in planting all of one variety together is the uniformity of the growth—a dwarf grower, like La France, not having a neighbour that requires pegging down to secure a quantity of flowers, and that is usually making a series of long upright growths at the same time, thus absolutely spoiling the symmetry of the bed and often hiding many of the flowers from view. Some of the Moss Roses have a grand appearance when planted in this form, and the old Provence or Cabbage Rose is particularly suitable for the purpose.—R.

MARECHAL NIEL ROSE.

THIS Rose, which of its colour has no rival, possesses traits quite its own, and must be treated in matters cultural not as a true Tea-scented kind nor as a Noisette. In all respects it stands alone. To obtain it in its glory it should be grown under glass. Still, I can call to mind the first perfect flowers I saw, which were on a tree growing against a cottage in Sussex. Now, to those who contemplate making a start with Maréchal Niel, the first consideration will be what kind of tree is the best to procure. I recommend one budded as a standard on the common Brier, those worked as dwarf plants being found more liable to canker, and those on their own roots less vigorous in growth. All Roses delight in a soil that is known as yellow loam. Mix with this some charcoal and make a border, not large (say a yard square for one tree), but well drained. Plant the tree at once and cut back all growths to about 3 inches, for blooms must not be expected the first year. This Rose is not perpetual flowering, as the greater portion of Teas and Noisettes are. It gives one crop and an occasional bloom during the season. What is required are long, strong shoots, made one year, to flower at every joint the next, and close pruning must be practised to secure these. It matters not how old the tree may be; after the flowers have been gathered, which would be (under glass) about May, all growths should be cut back. I have watched the progress of many fine specimens of the Maréchal Niel in various parts of the country, and, without exception, those showing health and vigour have been thus annually pruned; therefore, cut back close in the first place and one item towards success is secured. Others hardly less important, such as air-giving and watering, must also be mastered. One of the pests to Roses is mildew. Cold draughts and changes in temperature assist its spreading. Ventilate, then, from the top of the house only. When the Rose is among a house of mixed subjects this is, of course, a difficulty, but then even the front ventilators near the tree need not be opened. I have a greenhouse in which Roses are chiefly grown, and seldom when growing do I allow any air to pass through the front lights. The foliage, path, and walls are kept in a semi-saturated condition till autumn; then, and, of course, while in bloom, the ventilators are thrown open to ripen the wood. At the resting period in winter and after pruning, the trees should be kept dry at the root, but when growing freely it is hardly possible to over-water the Maréchal Niel, nor should something in the way of stimulants be forgotten when the bloom-buds are swelling. The rich golden colour is generally coveted by all who attempt the cultivation of this flower; some who fail to get it say theirs is not the proper sort. In and around Canterbury, where the Maréchal certainly puts on a rich tint, it is grown as "Cooper's

variety," but I have taken the trouble to test this in more than one locality, and find no distinction whatever. This deep colour cannot be obtained, at least under glass, from any but strong healthy shoots, which should be allowed ample room between trellis and glass—the same conditions as are applicable to the production of finely-coloured Grapes, Peaches and so on.

Those who require this Rose for exhibition in July must, however, have it outside, and there is no reason why, in the great majority of the counties of Britain, it should not succeed. I have recollections of many fine trees in the south, and oftentimes envy the excellent positions the warm sides of outhouses of farms afford when visiting country places. A high wall for its long shoots is requisite, and close pruning back after blooming may be practised. As a standard, too, where the growth may be loosely trained by driving stakes into the ground to tie to is another form. It has been budded on established trees of the *Gloire de Dijon* with marked success. That worst of all ills this fine Rose is heir to—canker—seldom visits the outdoor plants, but under glass it is always with us. It strikes a standard tree less often than the dwarf budded. The moment it appears, my mode has been to root out the tree and begin afresh. I have tried cutting the bark where cankered in a similar way that Peach trees are sometimes cut to get an equal swelling of stock and scion, but without effect. A well-known rosarian who advised this, on being informed of failure, said, "Cut deeper." I last autumn again operated on a *Maréchal Niel* which showed signs of decay, and did cut deeply. This must be said, by the way, the tree in question is now growing. There is some colour to his theory, and we may in time believe with him that the dreaded canker may by this means be averted.

S. C.

EXHIBITING ROSES.

OWING to the alterations that have been made in the National Rose Society's schedule there will no doubt be many small growers anxious to compete. It is with a view of assisting these new competitors that I give a few practical hints upon how to prepare and exhibit Roses. No time should be lost in getting the boxes, tubes, &c., made. The boxes should be as light as possible consistent with strength, and be painted a dark green. A very handy size for twelve blooms is 20 inches long by 17 inches wide; eighteen blooms, 36 inches by 17 inches. I would not advise beginners to aim higher than this, but should their ambition go as far as twenty-four blooms, a good size for the box is 42 inches by 17 inches. All of the boxes must be of the same depth, more particularly the front of the bottom part; this must be 4 inches deep. Seven or 8 inches is a good depth for the lid to be, thus making the box 11 inches or 12 inches deep over all. Have the boxes fitted with two strong sliding hinges at the back, and let a piece of wood be fixed into each corner of the bottom part to give additional strength. These should rise a little higher than the bottom of the box, and so form four horns to keep the lid in its place when the box is closed. Strong swivel handles must be fixed to each end, these being much better when of a form that will lie in a small recess when not in use, and so allow of the boxes being set closely against one another. There is another great advantage in these handles: they are not liable to get broken off when travelling. I used to lock my boxes, but one cannot avoid their receiving a certain amount of rough usage now and again, and under those circumstances the locks would occasionally get out of order and cause a great deal of annoyance; so I prefer to use a piece of good cord around each end of an eighteen or twenty-four-size box, or tied over in both directions on the smaller sizes. This, with the horns from the bottom of the boxes, makes them as secure as possible, and they can be easily untied at any time. One may lose a key at any time, or go off without it in the hurry and bustle accompanying the showing season.

The next requisites are the tubes and funnels. The tubes should be $4\frac{1}{2}$ inches by 5 inches long and

$1\frac{1}{4}$ inches in diameter. Thin zinc is the best material to have them made from, and they should have a piece of zinc about $2\frac{1}{2}$ inches square to form the bottom of the tube. The object of this will be seen later on when fitting the tubes into the boxes. The funnels must fit into the tubes easily. The lower portion of these may be about 3 inches long, and the upper portion that rests outside of the tube should be $1\frac{1}{2}$ inches in diameter at its widest part. The advantage of the funnel will be found when staging, and it is much easier to place the stem of a Rose into this than into a tube of equal size throughout its length. It is also a great convenience to be able to shift a bloom by simply lifting the funnel out of one tube and inserting it into another. By having a funnel of the length specified you can draw the flower down into it by the stalk, or push it up higher until it is at the proper height for the best effect. Supports are necessary for some of the varieties. There are several ways of supporting the flower-stalks. Small pieces of Bracken Fern and twigs of Birch are sometimes used, also neatly made wire supports. After having given a trial to almost every plan, I find nothing better than the following: Procure some lengths of wire, the same as that used for securing the corks of lemonade and other mineral waters. These are already cut into lengths of about 9 inches. Take one or two strands of the wire, according to the weight of the Rose bloom and weakness of its stalk, push one end of these into the pod of the flower, and then loosely twist the wire around the lower part of the Rose stem. This will give sufficient support without being stiff and clumsy, and you will find the bloom can be set into any position or angle, and the wire will keep it there.

Labels will also be wanted. I always use written labels, because fresh varieties are constantly being introduced, and it comes expensive to purchase printed labels for so many. If I could not have all printed names, I would prefer having them written upon pieces of cardboard. In fitting up the boxes, tack three thin strips of wood lengthwise upon the inside of the box, and press one of the corners of each of the tubes under each. In fitting up the boxes ready for the blooms arrange the tubes so that there may be four in a row for twelve, six in a row for eighteen, and eight in a row for twenty-four blooms. This is speaking of single flowers. When fitting the boxes for trebles they should have four strips of wood, and the tubes be set in triangularly, having two of the three flowers in the back row. Now fill the space between the tubes with shavings, and on the top of these place some of the greenest and freshest Moss you can procure. Sprinkle the Moss well before any flowers are placed in the tubes; the evaporation keeps the Moss fresh and the Roses cool. Fill the tubes with hard water in preference to soft.

So far everything has been plain, but we now enter upon a phase in exhibiting Roses where experience in selecting the flowers and taste in setting them up and arranging the colours are the chief things. One of the faults of amateur exhibitors is keeping old and faded flowers in their stands. They have probably staged them once at home, and generally speaking they do not make sufficient allowance for the time that must elapse before they are seen by the judges. More often than not beginners set up their Roses in the afternoon or evening previous to the show day, and if the judges came along at that time they would see them in their full beauty and perfection. Their change is so gradual, that their owner does not always notice it, and so it happens that when the blooms come before the judges they have lost their freshness. I would advise the exhibitor not to be led away by size and leave large flowers in their stands that are past their best.

There are three points in judging Roses—shape, colour, and size. Amateurs often get size of bloom at the cost of the two former, and yet in the estimation of most judges it comes last on the list. It will be readily understood that cutting and staging the Roses for competition are of great importance, as careful selection and skilful staging contribute largely towards success. Choose

young and well-formed flowers, and be sure they have a true centre. These points should be secured even at the cost of a little extra size. There is a great difference of opinion respecting the best hours for cutting the flowers. Late in the evening and just before the dew falls is a good time to cut the *Teas* and *Noisettes*, but where practicable I prefer to cut the *Hybrid Perpetuals* in the morning. This is not always possible, because one often has to start for the show overnight. In that case, cut as late in the day as possible and wire all of the flowers that require it. Then in the morning, on arrival at the show, you will have ample time to choose the best twelve or eighteen, as the case may be, and to stage them before the judges come round. Of course, circumstances may alter this plan, and it may be that you cannot arrive soon enough to do all of your staging on the show ground. In those cases you must act according to circumstances and do as much as possible beforehand. The weather will also make a great difference to the cutting. On a dull day you can commence early in the afternoon, but on a bright hot day it would be folly to cut so soon. When the weather is good and the show can be reached on the same morning, I prefer cutting the Roses the last thing before starting. To be able to show them with the remains of the morning dew on their petals gives a peculiar charm of freshness that few judges can resist, especially when other points are about equal.

Make a preliminary excursion amongst your plants before cutting any flowers. You will then be better able to decide which are the best flowers of each variety, and it spoils the appearance of the beds to cut so many blooms in waste. Cut with a good length of stalk and place in water as soon as possible. Previous to putting them into the tubes, cut off the bottom of the stalk afresh. This is important, as the small pores of the wood dry up and close very quickly in the air. As the flowers will absorb a great deal of water, it is necessary that these pores be open and uninjured when finally placed in the tubes. A drying wind, such as sometimes occurs on hot days, is very trying to the blooms, causing them to droop and get smaller, instead of larger. If not thoroughly well acquainted with all of the varieties you grow, it will be well to put the names to the flowers when placing them in the tubes. A small deal stick with a slight slit in the top is an excellent and cheap method of holding the labels. Place the largest flowers in the back row, and see that you have a good specimen at each corner. Where the blooms are not of an even size, it will be better to distribute the smaller ones in the front and middle of the second row. The colours must be arranged so as to bring each sort into prominence and make the whole collection show to the best advantage. Plug the blooms firmly in the funnel with a little Moss. This will avoid shaking and bruising, and also keep the water from being spilled during travelling, and you can plug your Roses to any given height on arrival at the show. A wet cloth or mat should be placed over the boxes when driving to the show on a warm or sunny morning. A few of the varieties will be much better if their centres are tied round very lightly with raffia. Etienne Levet, Heinrich Schultheis, Victor Verdier, *Pride of Waltham* and a few similar kinds will need this to retard a too hasty development of their centres. Always take some younger flowers as spare blooms, as it sometimes happens that the tent or room is very hot; in that case the younger flowers will arrive at their full beauty, while the older blooms have gone too far. What promises to be a dull day will sometimes alter in character and turn out very hot, to say nothing of the chances there are of some of the flowers travelling badly. As soon as you arrive at the show, untie the boxes and block them a little way open to admit air. Ascertain where your class or classes are and begin to finish off your staging. Plug the flowers up a good height, taking care to have them even and in straight rows. Finally, look over the names and make sure they are correct, and that your box contains no duplicates. Tilt your boxes and keep them in that position with a small flower-pot or block of

wood. If there is still some time to elapse before judging, you had better replace the lids and leave them on as long as possible. The light takes the freshness of colour from the blooms and causes them to expand very quickly.

Dressing the flowers must have a few words, and I would warn the tyro against overdoing this. There are not many varieties that can be improved in this way, but now and then such kinds as Charles Lefebvre and Duke of Edinburgh can be made into more perfectly shaped flowers by easing out or reflexing a few of the petals. Practice and experience are the only guides one can have for this.

RIDGEWOOD.

ROSES IN POTS.

THE culture of Roses in pots is easy enough when one has mastered the details of the work or cared to do so, for a fault common to a large class of gardeners and amateurs is an indifference to the minor details of their work. I am sure all successful gardeners will bear me out when I say that it is in careful attention to every minor detail that gardening is brought to a successful issue. This applies more particularly to forced Roses than to most other classes of plants. I heard a young gardener remark the other day of some plants he had under his charge, that the *Cinerarias* and *Calceolarias* were quite free from green-fly, and he hoped to keep them so until the forced Roses were introduced to the house. Fancy Rose trees in pots being a terror to a careful gardener because of the stock of parasites carried about with them! This remark, made in my hearing, has led me to pen a few remarks on the subject of Rose culture in pots under glass. I wrote an article on this subject which was published in *THE GARDEN* last year for June 27. It contains full details of the work, as to the character of the soil required to grow them in, time and method of repotting, &c. This is the season of the year at which forced Roses are most esteemed because of their rarity, and it is a great pity that the plants or flowers should be injured or their beauty marred by want of knowledge of the requirements of the plants or by carelessness. I need not say that the only way to obtain a succession of Roses from the time they first come into flower until they are in bloom out of doors is by placing a few plants in the forcing house at different periods. It matters not how carefully the plants have been grown, or how well the young wood has been matured the previous season if they are mismanaged after being placed in the house to be forced. A gardener who has gone through the usual training for forcing plants, fruits, &c., knows exactly what to do with them in the various stages of their growth if he cannot always give a reason for what he is doing; but in these days hundreds of amateurs grow Roses and other plants which they also like to force into bloom, and have but little special knowledge of the work. We must in this, as in other things, imitate Nature. Winter does not merge into spring with a sudden bound, nor spring into summer. By slow stages with the lengthening days we cannot feel the increase of temperature—it is so gradual, and yet some persons are so rash as to bring Rose trees or other plants and shrubs intended to be forced from a quite cold house or even from amid ice and snow into a high temperature. This is an error which would not be committed if anything like careful consideration had been given to the subject. The temperature in which Roses are started at or before Christmas should not exceed 45° at night; they may be started with or without a gentle bottom heat, but root action in Roses is generally in an active state even before the buds have started much; and as the shoots grow and increase in strength, more heat should be applied to them. Early in the year the cultivator has to contend against want of sunshine, and, what is much worse in our garden at any rate, against frequent dense fogs; but if we know what is the best treatment for our plants, no more can be done than to carefully follow it. The lightest position in the house

should be chosen, and the Roses must be placed as near as possible to the glass roof, with a south aspect in preference to any other.

Cleanliness is of the utmost importance. The Roses should be well painted with a mixture of sulphur and soft soap all over the young and old wood when in a dormant state. When this is not done, the young shoots, before they are an inch long, may be found covered with aphides, and mildew soon follows. These parasites the Rose grower must keep from his plants in the early months of the year. It is enough strain upon them to be forced into active growth so long before the time they would naturally start; if they have in addition to this to contend against unwholesome surroundings, no good results can be expected. Besides getting the plants into a light position and near the glass, a free circulation of fresh air should be admitted. In very cold weather a little ventilation only can be obtained from the roof of the house, but when the weather is favourable the front lights may be slightly opened. It is the lack of sunshine at mid-winter that baffles the most skilful cultivator. Watering the plants should be carefully attended to. When once growth has fairly begun, over-dryness at the roots is a serious evil; but even that is not so bad as making the soil sour by over-watering. Some persons may say all this is going too minutely into detail; but it is by cleanliness, careful attention to watering and ventilation that perfect success can be attained. The question so often asked by the inexperienced amateur, "How often shall I water the plants?" is a query to which the most skilful cannot give a direct answer. It must all depend upon the surroundings of the plants; they may be placed over a bed of moist tan or decaying leaves and manure, with the pots plunged in it, or they may be arranged over a stage with hot-water pipes immediately underneath. In one case water might be needed at the roots once a week; in the other, once in two days. A man can only obtain an insight into this by practical experience, but I would advise to never water a plant if it does not really need it to save the trouble of looking over the collection next day. In summer this might not matter, but in winter over-watering is an error that cannot be soon rectified. On the other hand, a plant may suffer from over-dryness in this way, the tips of the young rootlets get killed, and a deluge of water after may cause further mischief, because there not being any, or few, rootlets to absorb the water, and the cultivator, eager to remedy the mischief he has done by allowing his plants to suffer from over-dryness, pours in more and more water, which may kill more roots than the over-dryness did; whereas if the water had been carefully applied the plants would speedily recover, for Nature if allowed to have fair play soon repairs any injury of this kind. A moderately moist atmosphere is necessary for Roses when growing, and it may or may not be of advantage to the plants to syringe them daily. When the atmosphere is inclined to be over-dry, syringing is good, and should be done in the morning. In a genial, moist atmosphere the plants will show that the treatment is right by a clean, short-jointed growth and healthy green leaves, which in the early morning will be fringed with dewdrops. It is better not to force the Roses in too high a temperature, as this causes weakness in the growth, and the leaves will be flimsy, followed as a natural consequence by poor flowers. It is also desirable that they should not be removed from the forcing house to a cool, airy greenhouse without their being inured to the change. The greenhouse may be kept closer and warmer for a few days, or the forcing house may be kept a little cooler. In private gardens any forcing of flowers and plants has to be done in vineries, Peach houses, &c., and such structures answer very well until the roof is too thickly covered with leaves. The Roses should be taken into the greenhouse before the first flowers are quite open, and when the plants pass out of bloom they must be placed where they can have a chance to ripen the young growths, and about the end of May be placed out of doors.

J. DOUGLAS.

FERNS.

BRITISH FERNS FOR EXHIBITION.

I AM asked by H. Thompson to name a dozen kinds of these plants for exhibition, and these to be the best. This is a rather more difficult task than the applicant would seem to infer when tastes vary so much and we have nearly or quite 4000 different forms to select from. I will name some which I consider very good and handsome kinds, and which, if properly grown, should not fail to place H. Thompson and his friends in the front rank. Now is a very good time to set about getting in the plants, as towards the middle or end of next month (March) is the very best time to set about shifting or repotting them before the young fronds appear. Repotting, no matter how carefully done, after the fronds have started is sure to leave its marks behind by some damaged fronds. If repotting is deferred until half the growth is made, the plant as a matter of course will not do so well as if it had begun its growth ready to take advantage of the new soil. Care should be taken with these plants in the dormant state, for I have frequently seen a whole lot of plants spoilt for a season through having the roots so badly mangled. Many people never give a thought to the roots, and when the plants develop imperfect fronds they content themselves with saying, "My Ferns have not done well this season, but from what cause I cannot tell." The roots of Ferns should not be injured more than is absolutely unavoidable. To ensure good and perfect fronds ample pot room is necessary, but I do not like to see Ferns in pots of too large a size, for they are dwarfed and stunted in appearance by this. Have a well protected spot for the Ferns to grow in; some place sheltered by shrubs will be a far better position than surrounded by brick walls. Various Ferns like various soils, but for ordinary plants I like one part of good fibrous peat chopped up with a spade, one part of leaf-mould, one part of good turfy loam, and one part of sharp sand, the whole well mixed together. The pots should be well drained and the drainage material be covered with a layer of Sphagnum. In the event of this Moss not being handy, then cover with some rough peat or loam which has been put on one side as too rough to mix with the mould. Pot firmly, but not hard, because if the plants are not firmly potted injury is sure to follow. After potting, water well and put the plants into position, also watering freely when they begin to grow. By this means the following plants will form good specimens:—

THE LADY FERN (*Athyrium Filix-femina*) stands at the top of the tree for elegance and general beauty, and a very good selection could be made from its varieties alone. Some forms of *A. f. acrocladon*, found wild in Yorkshire, are beautifully crested and much branched. *A. f. Frizelliae* is a very distinct and pretty form, having all the pinnæ contracted and crested, rendering the narrow fronds quite distinct, nothing like a Lady Fern. *A. f. cristatum* is an exceedingly beautiful form, having at the ends of these narrow fronds a dense heavy crest nearly circular, like a bunch of feathery Moss. *A. f. glomeratum* is a bold, handsome variety, the ends of the pinnæ being all crested, and with very heavy and dense crests at the apex. *A. f. kalothrix* is not a crested form, but its charming fronds are amongst the most beautiful that I know, and from no collection of Ferns should it be absent. *A. f. plumosum elegans* is also not a crested plant, but the divisions are finely cut. *A. f. Victoriae* is a variety which certainly no collection should lack; the wild form was a unique plant, growing by itself in Scotland, and no other plant has ever been found, and yet under cultivation it produces fertile spores

which come true, as I have often proved; the seedlings, however, generally come of a somewhat coarser character. The plant has the pinnules much reduced, and these are all crested, with a fine and delicate tassel; the pinnæ are produced in duplicate like the letter V, and these all cross each other, these gradually becoming smaller as they approach the point which is capped with a dense tassel, producing a unique appearance. Turning from the Lady Ferns to the

POLYSTICHUMS, OR SHIELD FERNS, we have here many handsome varieties, the Soft Prickly Shield Fern perhaps yielding the most. These plants should have a larger quantity of loam mixed with the compost. *P. angulare acrocladon* has a much-branched frond, all the points of which bear a dense crest. *P. angulare brachiato-cristatum* makes a trifid frond, having at the tips three dense ball-like crests. *P. angulare Thompsoniæ* is a handsome form, beautifully feathered and crested. *P. angulare cristatum* is a gem, having the pinnæ slightly crested, but the top of the frond displays a large flat and finely-divided one, which is grand when well developed. There are several forms of *P. angulare grandiceps* bearing this name, but all are beautiful. *P. angulare proliferum Wollastonii* is a very finely-divided and prolific kind. The Hard Prickly Shield Fern (*P. aculeatum*) produces some elegant forms, of which may be noted *P. aculeatum acrocladon*, having the tips of the pinnæ slightly crested, and the top ornamented with a dense tuft. *P. aculeatum corymbiferum* is a handsome, heavily crested form.

THE BUCKLER FERNS (*Lastreas*) produce many fine varieties, of which the Hard Male Fern (*L. pseudo-mas*) is particularly noticeable for its fine forms. *L. pseudo-mas cristata* may be noted for its bold tree-like habit, the pinnæ being heavily tasselled and the point of the frond densely crested. *L. p.-m. cristata angustata* is a very long-fronded form, narrow, very singular. Of *L. p.-m. polydactyla* there are various forms; it is a flat-crested form, having tassels at the ends of all the pinnæ and a spreading crest at the point. *L. p.-m. ramosissima* is a much-branched form, the tops of all the branches being heavily crested; these become massed into one, and thus it assumes the appearance of one dense head or crest. Leaving the *Lastreas*, and turning to the

ROYAL FERN, OR FLOWERING FERN (*Osmunda regalis*), we have a beauty of no ordinary merit. I have seen this plant growing in Ireland to giant proportions, its fronds reaching 9 feet and 12 feet in height; the pinnæ are very broad and the apex of the frond is contracted, forming separate lots of spores; hence the name Flowering Fern, which, however, is not right. The fronds are thick and leathery in texture, and of a rich deep green; it forms a dense mass of roots at the base, and it likes an immense lot of water and a moist atmosphere. There is one variety of this plant well deserving a place in any garden, having a flat dense tassel on the ends of the pinnæ and a large crest on the point, which causes the plant to assume more of a pendent habit than the type. We now come to a genus of Ferns that does not like chalk or limestone—in fact it will not grow in it. This is the

HARD FERN (*Blechnum Spicant*), which succeeds best in leaf-mould and stiff loam. There are many varieties which will form handsome plants if properly cared for. One or two kinds are quoted here; they will form nice front row plants to a group of Ferns. *B. Spicant ramo-cristatum* is a bold-growing plant with fronds like the species, but much branched and at the points of all the branches a dense crest is developed. *B. Spicant glomeratum* is also a beautifully crested form, and *B. Spicant polydactylum* is a plant but very little short of the normal size, all the points of the fronds being divided into many fingers. With *B. Spicant multifurcatum* I will leave the Hard Fern and its varieties.

THE COMMON POLYPODIUM VULGARE contributes some few varieties which must not be left out. This Fern prefers leaf-mould and a little peat made sandy. Of these the most desirable is *P. vulgare cornubiense*. This plant appears to have several

names; so exquisitely divided are the fronds as to have the appearance of a *Trichomanes*, and after which it takes one name. *P. vulgare omnilacerum* is another form which has much-divided fronds, and is altogether quite a different plant from the type. *P. vulgare cristatum* is a broad form, with the ends of all the pinnæ and top of frond tasselled; so also is *P. vulgare grandiceps*, whilst *P. vulgare cambricum* and *P. vulgare pulcherrimum* are beautiful, much-divided forms.

THE HART'S-TONGUE (*Scolopendrium vulgare*).—The forms of this are valuable because they retain their fronds in all their beauty until a fresh crop is produced. The variations in this are very numerous, and I shall only give the names of a few of the best kinds. These plants may be potted in the soil recommended for the Lady Ferns, with the addition of some old mortar rubbish. The following are splendid varieties and they will make good front row plants: *S. v. cristatum*, *grandiceps*, *endivæfolium*, *sagittato-cristatum*, *ramo-cristatum*, *capitatum*, *conglomeratum*, *Cowensi*, *Malcolmsoni*. I have given the names of about two dozen and a half kinds which, I think, represent the cream of the British varieties. There are many others equally as good, but I would grow these if I had any thoughts of exhibiting.

WM. HUGH GOWER.

BOUILLIE BORDELAISE AND THE POTATO DISEASE.

It cannot be a matter of surprise that the report of the failure of the trials of Bouillie Bordelaise, which were undertaken by the Highland Agricultural Society last year for the purpose of testing its capacity to check the Potato disease, is productive of grave disappointment. The trial had special merit, because conducted under the auspices of a public and of course entirely disinterested body, and it is certain that if the mixture had proved a success, the result would have been readily published. The result of the trial when allied to the reports of the Messrs. Sutton and Sons' trial on the one hand, and the very diverse and striking results obtained by Messrs. Veitch and Sons, of Exeter, and others on the other, serves to show that under no circumstances should we accept any trials so far as final. During the ensuing season there ought to be many of an entirely public nature conducted by the Agricultural Department of the Government under the control of both practical growers and scientific experts. Not only should the trials be conducted over not less than a dozen well-known varieties, but also duplicate blocks of each variety should be planted contiguous to each other, though not immediately adjoining, and varieties which are notoriously liable to disease attacks should specially be treated, because there is little gain attached to the treating of sorts which are as notoriously disease-resisting. It is very evident that whilst it is open to private growers or business firms still to test the Bouillie Bordelaise as fully as they may desire, yet whilst such trials might be helpful to those conducted by the Government, they should in no way be regarded as of greater importance. That the general extinction of the Potato disease (I will not say its entire extinction) is a matter of the first interest there can be no doubt whatever. It is indeed a matter of exceeding national importance, and it does seem that, much beyond urging private persons to test the assumed fungicide, the Agricultural Department should institute trials of its own in each county, appointing a board of experts in each case to supervise the trials. We have so far very little knowledge as to whether what trials have been conducted have all been upon the same basis so far as relates to time of application of the mixture, method of application, and strength of the mixture. It is very evident that so nearly as is possible these trials should be uniform in character, and varied only by the diverse stages of growth of the Potato plants in various parts of the kingdom. Assuming that an acre of ground were utilised for the trials in each case, it seems very probable that £50 would cover the entire cost of

each local trial, especially as only one half the crop grown would have to be dressed. This would be ample for all practical purposes. Then the sale of the produce would materially help to reimburse the department some of its outlay. But, apart from the mere determining whether the Bouillie Bordelaise is capable of checking the destructive powers of the *Peronospora* on the Potato plant, we want to learn further how it operates or is assumed to operate. If the dressing has capacity to kill the fungus, whether in sporadic form or in a state of growth, then there is room for hope that some years of application to our Potato crops may ultimately stamp out the disease altogether. But it has been intimated that the mixture has no such potential virtues, and that it checks the action of the fungus by, as it were, coating the leafage with a sort of glutinous surface, which, hardening, becomes impervious to the attacks of the fungus spores. If the spores be not destroyed, but are incapable of spawning on the leafage or stems of the Potato plant, then they still remain to be washed into the soil by the first shower which falls, and unless the forming tubers be thickly surfaced with soil, they are still liable, according to Mr. Jensen's theory, to be attacked by the spores, because the tender skins and tissues of the tubers cannot be protected with a coating of the dressing in the same way that foliage may be. It is thus seen that there is in relation to this assumed protective mixture an important problem to solve. Of course, if it is the case that the Bouillie Bordelaise when applied as a dressing to Potato plants hardens and forms on the foliage an impenetrable barrier to the fungus, it must also choke the leaf pores and check plant respiration.

A. D.

NOTES OF THE WEEK.

Odontoglossum Rossi majus. I have sent you to-day some flowers of this. The plant has been in bloom since November in a cool greenhouse, and the flowers sent have been out two months. They have been produced abundantly and with long stems. The markings are good and very varied in different plants.—J. L. STACKHOUSE, *The Vicarage, Berkeley*.

Seedling Clivia.—I have sent you a small head of a seedling Clivia now blooming with us. It seems to me closely like *Lindenii*, and in any case is a very fine variety. The first and finest spike got accidentally damaged, so this can only give a partial idea of its size. I have another still deeper in colour, but with less clear throat colouring, which I sent you two years ago. I shall be curious to know which you prefer.—EDWARD H. WOODALL.

*** A very richly-coloured form, the truss large and certainly better than the one previously sent.—Ed.

Iris Rosenbachiana.—Mr. G. F. Wilson sends us from his garden at Oakwood a flower of this beautiful Iris, which was found by Albert von Regel on the mountains of East Buchara, Turkestan, at an elevation of 6000 feet to 7000 feet. There are two varieties of it, one having blue flowers, while those of the other are violet. Dr. Foster first flowered the blue variety, and Max Leichtlin the violet one. Mr. Wilson, in a note he sends with the flower, says: "The flower of *Iris Rosenbachiana* from the open air at Oakwood is so lovely, that I cannot resist sending it to you, though fearing that it may not reach in good condition, as it comes from Ramsgate, where it was sent down to me."

Bamboo from the highlands of Africa.—Lord de Saumarez sends us the following note from Guernsey: "I am sending to your office a specimen of the cane and foliage of a Bamboo from the Shire highlands of Central Africa. I obtained it direct from that district two years ago, and it has thriven well in an unheated conservatory here, where, however, it must be noted the frosts are but slight. The shoots have attained fully 25 feet in height, and I believe in the milder counties of England, if planted in places sheltered from the winds, it would grow well and be highly ornamental. I intend to divide my plant and try it out of doors this summer. You will notice that the cane is remarkably heavy, being solid except at the slender end."

FLOWER GARDEN.

SOME GOOD AUTUMN FLOWERS.

WHEN all that was seen of hardy plants in gardens was a very much mixed border, the notion was rather general that the season of hardy flowers was early summer. It is true that after that period, especially during the fine autumn months, the borders in question began to look very bare, and this was sometimes mentioned as a justification of bedding out for supplying

those in charge if a special feature were made of the autumn hardy flowers. For this purpose we could have nothing better than borders such as those shown in the accompanying engraving—a background of trees and shrubs setting off hardy plants to the best advantage. As a matter of fact, however, they do not need setting off in this way, and although improved by it, if we could not have borders so placed, the best thing would be to have beds whose size permits of the bold grouping of plants. A description of such a bed that has given great

Riccartoni, *F. gracilis*, and *F. microphylla* in groups of about six plants of each. One group of *Fuchsias* was arranged thinly, and among and around the plants were planted 100 strong bulbs of the Cape Hyacinth, which thus raises up its stately spikes of waxy white flowers above a mass of pendent *Fuchsia* bells, and blended with the *Tritomas* there is a grand effect of colour and beauty to a degree impossible with any bed of tender plants. Such beds are examples of what is worth copying, not perhaps an exact reproduction, but the idea worked out with variations.

There are other fine families of autumn flowers in addition to those already mentioned. What a charming bed might be made with *Anemone japonica* in its several forms massed in the centre, then a broad irregular belt of *Rudbeckia Newmanni*, and the front filled in with *Sedum spectabile* or *Statice latifolia*. It is strange that in many gardens where these plants are to be found the idea is never conceived of growing them in quantity in some bold arrangement. The *Michaelmas Daisies* are enough in themselves to make a gay autumn garden if we set about growing them in the right way. If there are no thin shrubberies that they can fill in, the next best place for growing them is simple borders, such as those now illustrated. The beds of hardy flowers such as those described and suggested may remain for several years, unless change is desired, if the soil is well prepared previous to planting, but *Michaelmas Daisies* need lifting and dividing at least every second year. If we devote a large piece of ground to them, it is a simple matter to lift the whole lot, divide them, and replant suitable pieces after having re-enriched the ground. Such things as these if neglected for a few years degenerate sadly and have a miserable, starved appearance. Perennial *Sunflowers* are similar in their needs. We might make much more use of these. They have a fine effect when planted among or in front of shrubs. *Phloxes*, too, are very numerous and cannot be omitted, whilst a score of other things could be added, but to do so would confuse. The first thing is not to gather together every autumn-flowering plant, but to find out the best and make the most of the important families. The autumn interest in the garden will then be equal to that of summer, as it should be. Instead of having plants that then we know remain but on sufferance, awaiting the frost to necessitate their speedy removal, let us have seasonable flowers coming and going, ever changing the beautiful aspect that the garden wears, and adding fresh interest to it from day to day.

A. H.

CARNATION NOTES.

ALMOST the only attention that Carnations in the flower beds and borders need during the winter months is looking over after a severe frost. The careful cultivator will not neglect this most essential detail, as to do so is to run the risk of subsequent death and loss that might have been avoided. Upheaval of the soil is a natural result through the freezing of the water it contains, and it is much or little in proportion to the state of the ground and the amount of water it contains at the time frost begins. Sometimes it has little or no apparent effect upon the plants. This is generally the case when layers are planted in September or early in October, and have then fair balls of roots, for the plants continue rooting and obtain such a hold of the soil, that if they are in any way upheaved they settle down again and do not appear loosened in any way. When Carnations are extensively grown, however, it is impossible to finish planting at an early date, and, moreover, there are sure to be some layers only moderately rooted but,



A flower border in autumn.

colour effect when hardy flowers were over. No one now, however, would venture to say that they are past and done by autumn. The old idea originated through a bad method of arrangement, as borders were filled with a plant of this, that, and the other, each being restricted to a moderate tuft which had no chance to reveal its full merits.

The truth is that we may make spring, summer, and autumn beds and borders of hardy plants according to the season, when the greatest interest and effect are needed. There are many who see most of their gardens during the autumn months, and it would be wise, therefore, on the part of

satisfaction will be a guide to those who may wish to carry out the idea. It is one that was planted in November, 1889. It stands upon a formal terrace, and when in beauty, in fact at any time, is a standing refutation of the false idea that "in such positions hardy flowers are inadmissible." It is an autumn bed, and therefore the common *Tritoma* is planted in a bold group, and other kinds also in smaller groups, from the dwarf *T. Macowani* and *Saundersi*, through medium forms, up to the giant of the family, *T. nobilis*. The *Tritomas* are planted irregularly, and thus admit of the introduction of other things, such as *Fuchsia*

which, nevertheless, will make strong flowering plants. It is these that most need attention. Our own groups in the flower garden are looking better now than ever before, and so, too, a plant has been started out in the nursery plantations of stock to try, only this business is to make the majority firm. This attention cannot be too readily given. When once the frost is out of the ground and it is dry enough to permit of pressing or treading, close observation is necessary, for though few plants may be totally upheaved and lying upon the surface, many are often suspended with their roots practically withdrawn from contact with the soil. Instead of tenderness of constitution being attributable to Carnations, they seem to possess great tenacity of life, for it is by no means unusual to see plants that have been upheaved and are lying upon the surface putting forth roots in a vain endeavour to re-establish themselves. If root-action ceases during winter it certainly recommences before that season is past, as during the first week of February (when the plants were being attended to) I pulled up several that were suspended, and there were clusters of newly-made white roots trying doubtless to obtain a hold of the soil on either side of the fissure.

CARNATION DISEASE.—ALL HARDY FLOWERS and many small growers, too, know something of this. Several years ago Mr. W. G. Smith enlightened us to the extent of the name of this dreadful pest, which is *Heterosporium echinulatum*, but not much comfort is found in the advice that "Though destruction of infected plants is advisable, the spore production of this fungus is enormous." We have numerous antidotes for mildew upon Roses, and one could surely be found for this disease. Last November in a large garden I saw several thousand plants of the old Clove Carnation and they were almost black with disease. They were growing in the rich black soil of an old, well-cultivated vegetable garden, and this made it the worse for them. Safety, however, is not to be wholly effected through the medium of a sweet, unmanured loam, as in such a soil I grew the old Clove for two seasons, but disease exterminated as healthy and vigorous a stock as ever was planted. It is satisfactory to know that many fine selfs are not attacked with it, or if a few spots appear upon the leaves during a wet autumn, they do not seem to spread. In this respect it appears somewhat erratic. All our groups at present are free with but one or two slight exceptions, and in these no permanent injury is likely to result; but, on the other hand, where disease would have been least expected, it has appeared and totally destroyed great plants. These were some of a large batch of seedlings, the produce of seed saved from the best selfs, and at no period were the seedlings coddled, yet some were attacked and decimated, others left spotless and clean, and this throughout the beds and in a most irregular manner.

OTHER CARNATION ENEMIES.—These are those over which we have some control, or at any rate can ensure the safety of our plants. Hares and rabbits have long been regarded as two of our worst foes, but one more exists in pheasants. They are quite as fond of Carnations as hares and rabbits, and can as effectually level them to the ground. I have long been suspicious of the fact, but have had absolute proof this winter. They visited the beds of Carnations once or twice, but the spot being rather frequented, little harm was done. The cleanest piece of destruction, however, was that of some surplus plants laid in in a nursery bed in a quiet spot surrounded by shrubs, and of these hardly a vestige of green leaf remained. They were cleared off in a few days. The knowledge of this may perhaps be useful, and serve to make others take precautions for safety, as Carnations are planted in many gardens in beds and borders near to shrubs that would harbour game and furnish a hiding-place for pheasants.

SPRING PLANTING.—This is said to be an absolute necessity in some places, but I imagine them to be few, and it entails a lot of extra labour to pot up plants then, many of us are able to plant direct where they are to flower the following sea-

son. When planting has to be deferred till spring, however, advantage should be taken of the very first favourable opportunity when the ground is in a fit condition. As previously mentioned, fresh root growth commences very early in the year, and as a natural result growth of top soon follows. It is much more satisfactory that the plants should be making this growth in the open ground than in pots, and if they are kept long in pots the flower-spike soon appears often in a sense prematurely, and then when the plants are put out it continues growing. Such plants have poor grass, which is neither fit for layering nor much of an ornament to the plant.

CARNATIONS FOR CUT BLOOM.—Those who want large quantities of cut bloom will find the value of the Grenadin and Marguerite strains. If seed of the first named is sown in summer, strong plants may be had for autumn planting, and if flowers for cutting are the sole object, the plants may be thickly planted in some nursery bed or border, and they will furnish a tremendous quantity of bloom, and that before the finer selfs have opened their flowers. To succeed them comes the Marguerite strain, and plants of this from spring-sown seed will furnish flowers until the wet or cold of late autumn spoils them. I am very favourably impressed with this strain, and, in common with others, think that "S. D." must have been singularly unfortunate in his experience of them, as recorded in THE GARDEN of January 2. A small packet of seed gave about sixty plants, the majority being selfs, embracing a variety of charming shades of white, pink, rose, and red, the flowers full and double, and some of them with prettily fringed petals. The plants were still full of buds late last autumn when suddenly the disease mentioned above appeared among them, and gave us a good object lesson in its rapid spread and destructive powers. In a fortnight the group was ruined.

S. P.

TRANSPLANTING AND DIVIDING HARDY PLANTS.

It is now generally agreed that many hardy plants are improved by tolerably frequent division and transplanting, but it is hardly possible that any rule can be laid down as to when it should be performed, as soil is one of the most potent factors in determining this. I have repeatedly had ample proof of this upon heavy and light soils. In the first instance, some plants of *Cereopsis lanceolata* were divided late in the month of May in order to make a bold group, and the small divided pieces, though planted in a sunny sloping border, grew away at once and flowered amazingly, though the season was hot and dry. Circumstances necessitated the removal of these plants in the succeeding autumn, and the strongest were divided, every piece having roots attached, and replanted in a bed near at hand. The soil was cold, wet, and heavy, and during the winter the roots rotted and almost every piece failed to grow. The following year, when planting some large groups of hardy plants in another garden where the soil was warm and light, some strong tufts of this same plant were divided, but not with great success, for many pieces that started afterwards failed to grow, and all had to be encouraged by watering, as the warm sun of late spring and early summer dried up the ground before new roots had penetrated to any distance. Now from either of these failures it would be easily possible to draw erroneous conclusions based upon the assumption that this very plant is not improved by division or transplanting, although as a matter of fact the operation, rightly performed, is productive of such good, that the blooming season of divided plants is prolonged weeks beyond that of plants that have been left standing in one position several years. All the vigorous Michaelmas Daisies are better for being lifted and

divided every second year at the latest, whether upon light or heavy soils. Few things more quickly exhaust the fertility of the soil in their immediate vicinity or make such a thick tuft of shoots above ground. Some have advocated dividing the shoots, but this is only a means towards an end that is better attained by dividing the tufts. In regard to these Daisies and some of the perennial Sunflowers, it is noticeable that they grow considerably taller through division and transplanting into fresh or re-enriched soil. A large mass of *Aster laevis* that should have been divided last year, but was left through press of other work, did not grow more than one yard in height last season. It is conceivable how such plants through neglect degenerate, or at any rate fail to reveal their full charms. So long as they remain as isolated restricted tufts at the back of some mixed border, we do not know or recognise their value, and the effect they produce is poor in comparison with that of the same plants in bold, broad masses. A rough and ready way of dividing strong tufts is to chop them in pieces with a spade or some other edged tool, but those who care for their plants will hardly treat them so. Even though some things will not apparently resent it, division is much better effected by pulling the tufts to pieces, as then each piece will have better roots attached to it. Where pulling to pieces is a difficult matter, a tub or pail of water will assist, and with some things it is essential to wash out the roots as it were; especially does this apply to any plants that have been turned out of pots and have balls of matted roots, which unless uncoiled can hardly be expected to do their work properly.

GROWER.

CHRISTMAS ROSES.

It is only within the last few years that these charming hardy midwinter flowers have become so popular in English gardens, and, curiously enough, the desire on the part of a few specialists to arrive at something like finality in the nomenclature of *Helleborus niger* and its varieties has been the means of bringing to light varieties unheard of previously. While the controversy was in progress distinct varieties were cropping up all over the country, each with its special markings, different time of flowering, &c. The varieties *altifolius major* and *angustifolius may*, perhaps, be taken as the standard ones. They were pretty well known to the older botanists, and were the varieties usually found in general collections. To these have been added, within recent years, *vernalis*, *Riverston hybrid*, *caucasicus* of gardens, the *Bath variety*, the *Brockhurst variety*, *Mme. Fourcade*, *St. Brigid*, *W. Brockbank*, &c., some of them having probably been in gardens for many years and grown simply as the Christmas Rose. In addition to these, however, a host of new forms has cropped up as a result of selection from seedlings raised in this country, and also from the numerous importations that are now of annual occurrence. North Germany, the Austrian Tyrol, and other well-known localities supply our markets, but so many equally good, if not better, forms are being raised from seed, that we will soon be able to dispense with collected roots altogether. A collection of plants from the Austrian Tyrol, which I examined when in flower, was plentiful in forms resembling *Mme. Fourcade*, *Riverston hybrid*, and others, which led to the conclusion that all or most of these varieties were at one time or other imported.

Our chief difficulty with Christmas Roses in the open air in England, and which I suppose will be greatly aggravated in America, is the uncertainty of our season, especially midwinter, when the flowers are most in request. A simple covering of glass is of no use whatever, and if the flowers are wanted for cutting, and wanted clean, they must be grown indoors, and out of the reach of frost. I believe that when the plants are gently forced the flowers are larger and cleaner, and last considerably longer in water. A large group of Italian forms has been growing in the wild garden at Kew without any special cultivation for several years, and every winter brings a greater abundance of flowers, which are much admired by visitors. This mode of dealing with surplus stock will be found a very advantageous one even in private gardens, and large quantities of flowers for cutting could in this way be secured. Hellebores, at any rate the niger section, are gross feeders, and the question of manure, or no manure, in their cultivation will depend largely on the nature of the soil in each particular locality. Where the soil is heavy and rich little or no artificial feeding will be required, but where it is light or sandy a sprinkling of heavy loam should be given in addition to the manure. In the latter soil, and in dry seasons especially, a mulching of leaves or other material during the summer will be necessary. Where Christmas Roses are annually lifted and potted for greenhouse decoration it is essential to keep a double set, lifting them alternately, and never planting back those used for the house, until all danger from frosts is past, otherwise the young tender leaves are destroyed, and the plants greatly weakened. Of the varieties of *H. niger*,

LATIFOLIUS, also called *maximus*, is one of the commonest in English gardens, and perhaps the finest of the whole niger group. When grown in shady sheltered situations the flowers come pure white, but where exposed they are shaded with rose on the outside, which, in my opinion, enhances rather than detracts from their beauty. The leaves are large, leathery, and the stalks as well as the flower-stems are deep purple.

ANGUSTIFOLIUS is apparently an old garden plant, the name being well known in Sweet's time. It was not, however, until 1876 that Miss Hope's variety was recognised as the true *H. niger angustifolius*. The flowers are quite 3 inches in diameter, white, and often tinged with rose on the outside; the leaf-divisions narrow, and the stalks and flower-stems green, sparingly spotted red. There are two other well-marked forms of *angustifolius* to be found in gardens. The Brockhurst form, in which the leaf-stalks and flower-stems have scarcely a trace of purple markings, usually bears two flowers; the other, St. Brigid's Christmas Rose, has pure snow-white flowers, somewhat cup-shaped, with flower and leaf-stalks of a rich apple-green.

THE BATH VARIETY is almost intermediate between *H. niger* and *H. niger angustifolius*. The flowers are large, flat, pure white; the flower and leaf-stalks spotted red, the latter slightly furrowed.

CAUCASICUS is a very misleading name, there being a species, *H. caucasicus*, belonging to the orientalis section. It has been widely distributed in England under the above name, and it is one of the most profuse-flowering varieties we possess. The leaflets are coarsely and sharply toothed, and much resemble the Italian forms; flowers pure white, tinged rose on the outside; the flower-stalk densely spotted red, and the petiole stout and deeply furrowed.

MME. FOURCADE is a charming variety belonging to the *altifolius* set. The flowers are each nearly 3 inches in diameter, pure white; the flower-stalk and petiole red-spotted, the latter slightly furrowed. Of the variety

MAJOR, there appears to be a large number of forms in cultivation, although varying but slightly from the old type. The leaves are very massive, the flowers large, white, with a pale pink tinge.

RIVERSTON HYBRID might almost be classed as a form of *angustifolius*. It is said to be a hybrid, but I fail to find any justification for this statement. It is a robust plant, with flowers nearly 4 inches in diameter, white, tinged rose. The petioles are green, and the flower-stalks red-spotted.

VERNALIS seems allied to the variety *caucasicus*. The flowers are large, white, tinged rose; petioles green, deeply furrowed; the flower-stalk red-spotted. A useful form and a free flowerer.

W. BROCKBANK, named as a fitting compliment to Mr. Brockbank, who has done much to make this family popular in England, is very distinct, remarkable in the flowers being so deeply cupped; flowers about 3 inches in diameter, pure white; petiole and leaf-stalk sparingly spotted.

There are numerous other forms equally desirable, but the above will suffice to show the wealth of hardy midwinter flowers within the reach of all. —D. DEWAR, in *Garden and Forest*.

FLOWER GARDEN NOTES.

PREPARATIONS FOR HARDENING OFF.—Happy is the man who is in possession of plenty of pits or of light airy houses with just sufficient piping to keep out frost. Such structures are a great boon during the spring months when hardening-off requires attention, and when all summer stuff has to be gradually removed from vineries, Peach houses, and other places in full work. In the event of insufficient accommodation so far as heated pits are concerned, the best substitutes are home-made structures fashioned in such a manner as to efficiently ward off frost. After marking out the necessary space required, some pieces of quartering 3 inches or 4 inches square should be let into the ground to form a back and front row, the one from 24 inches to 30 inches, the other 15 inches or 18 inches in height. On either side of the quartering boards can be nailed and the space thus enclosed tightly packed with straw, Fern or Heather. If old lights are to hand in sufficient quantity, they can be utilised for the covering, but if these are not available, the two sides of the frame can be slightly prepared at intervals of 18 inches, and some pieces of deal stretched across sufficiently stout to carry the covering to be used in lieu of lights. There is nothing much better for this purpose than some of the common sheep hurdles thatched with Heather. No great thickness of this need be put on, but if it is put together tightly and very firmly bound with some good tar twine, it will keep out heavy rains, and pits of this nature thus protected on all sides are practically frost-proof after say the middle of February. We have here ample provision for all dwarf stuff. For taller things, however, I have invented what may be termed a light pergola or covered way in the shape of a structure built up with light Fir poles, the perpendiculars being bound together at the top by parallel poles and strengthened by crosspieces, made strong enough, in fact, to support some dressed canvas coverings both at top and sides. Inside this skeleton frame are placed—so soon as it can be done with safety—all specimen plants, as *Pelargoniums* in variety, *Heliotropes*, *Aloysias*, *Fuchsias*, and the like; staked trailing plants that have been sown and grown for special purposes; in fact, anything whose size renders its admission impossible in the smaller pits above mentioned. Later on in the season this same skeleton frame comes in very handy for Azaleas, as they can be sheltered here for a time against a hot burning sun or dry nipping winds.

VIOLETS.—The border that is to receive the Violet runners to be grown on through the summer and lifted in September for another winter's display should, if not already seen to, be turned up without delay, and if the natural soil is not considered satisfactory, it is a good plan after the

first digging, to give a surface-dressing of more suitable material, some 2 inches or 3 inches thick, and fork this in. A moderately stiff border will require no making if forked up early in the winter, but naturally light soil that dries out quickly will be the better for a mulching from a heap of rather stiff road sidings. The plants come up splendidly in autumn from such a compost. I think a south-west border the best aspect of all, as here the plants get plenty of sun without drying up too much if the summer prove very hot. A foot apart is not too much for the runners; it appears too much when the tiny plants are first set out, but this distance affords plenty of space to get around comfortably with the spade a fortnight or so before lifting. An early surface mulching to keep the ground free from weeds and to remove useless runners is the sum total of summer cultivation.

ANNUALS.—If long-standing annuals that make a brave show through the summer months are to be employed largely in the flower garden, the different colours must be decided on and seed sown not later than the end of March to ensure early plants. A good plan is to throw up a bed of leaves some time during that month, not less than say 4 feet high, treading it down firmly. Put on soil and frames, and when a gentle warmth has arisen, the seed may be sown thinly in shallow drills some 3 inches apart; it will germinate quickly if a light shading is put on for a few days. Small seeds, as those of *Petunia* or *Lobelia*, may require a little extra attention, as a little sand, both at the bottom of the drills and over the seed. Useful things are *Petunias* and *Phlox Drummondii* in variety (the latter a valuable flower for cutting); these supply many shades of colour. In yellows we have *Zinnia Haageana* fl.-pl., *Tagetes pumila*, the dwarf *Mari-golds* and the foliage of *Pyrethrum*; in dark bronzes, the *Beets* and *Perilla*; in whites, the silvery *Corn-flowers* and *Cinerarias*; in various shades of blue and purple, *Lobelias* and *Violas*, whilst *Asters*, like the *Phlox*, will furnish a great variety of colour. I have never found *Verbenas* come so good from seed as the strain of best-named varieties either for quality of flower or habit, nor are *Ageratums*, as a rule, a success. Some plants will come true, but a bed of seedlings of this plant would generally present a very uneven, weedy appearance, and the flowers have a washed-out, uncertain shade of colour.

Claremont.

E. BURRELL.

CHRYSA NTHEMUMS.

BIG CHRYSANTHEMUM BLOOMS.

From what I read in the horticultural papers during the past few weeks, it appears that *Chrysanthemum* flowers of the Japanese section are now so enormous, that the old show-boards of the regulation size are not large enough, and much argument has been expended as to the correct dimensions of the proposed new ones. This is no doubt very interesting to those concerned in the growing of big blooms for prize money and cups and medals. Mere size, after all, is not the only nor the best result obtainable in the culture of any flower, and as to the old show-board plan of exhibiting flowers of any kind, the sooner it is done away with the better. Surely no one with any sense of what is artistic or even becoming to the grace and beauty of a flower, be it *Rose* or *Lily*, *Carnation* or *Chrysanthemum*, can for a moment really believe that the show-board is the best method of enhancing and displaying such beautiful flowers to the best advantage?

There has indeed been a slight reaction against the show-board in some instances, and growers of single *Dahlias*, for example, have lately placed ten or twelve flowers together in a sort of wire gridiron, which is afterwards placed on a background of Moss. This is, however, a very questionable improvement, and, like the

show-board, the wire-worked device is not to be admired. It is a gain to have lived past the staging of Pinks and Carnations, Asters, French and African Marigolds, and even Pansies in neatly-cut paper collars; but still we are not satisfied, and the sooner the show-board goes the way of the paper collar the better. It is simply and truly a remnant of the dark ages of flower culture and of flower shows, and is not worthy of being persisted in at a time when we are priding ourselves on progress and improvement in the gentle art of floriculture.

Of course, the inevitable question that will suggest itself to many is this: "What substitute do you propose for the show-board?" Well, I simply propose that all flowers shall be cut with their stalks as long as is possible, and that they be arranged in bowls or vases or tazzas in a natural way, and with their own leaves, just as a lady of taste and culture in floral matters would do the thing in her own house. That is all, and it is enough. Some of us remember the Primrose conference at South Kensington, when Miss Jekyll, of Munstead, set up a few bowls of Oxlips, both yellow and white, that were artistically incomparably finer than aught else in the place. An artist might have made a picture of any one of those bowls of simple flowers, but who would ever dream of painting even the finest productions of the florist proper as he dots them at equal distances from each other on a board? It is to be deplored that the men who are so skilful in culture, and who grow the finest of flowers from all quarters of the world, should at the same time exhibit them so stiffly and inartistically. Of course, I know that any sudden change is likely to have a depressing reaction, even although it eventually leads to improvement; still, we might at least begin gradually to do without the fetish show-board, and one way of doing this would be to offer prizes for flowers such as Roses or Chrysanthemums, leaving the staging and arrangement open or optional. A simple handful of Roses cut with long stalks and put into a wide-necked jar of water would be as easily judged as if the flowers were cropped short, and jammed tightly down on a show-board. Of the two systems, that I recommend is really easier, and the staging might be done in half the time occupied by the old plan. The whole art and mystery of arranging flowers well consist in cutting them with long stalks and their own leafage, five minutes being ample time for arranging them in a jar or bowl. There is no comparison between Carnations cut with long stalks and buds as well as open flowers, and allowed to group themselves in a tall jar of water, and the same flowers as cut short and encased in a collar in the old way before being stuck down on to a board of emerald-green. Let the show-board go altogether, and let us show our loveliest blossoms at least as naturally as we grow them. There are sundry conveniences, real or supposed, about the show-board plan, but none superior to the simple and natural arrangements in vase or bowl such as I recommend, and which have, as above indicated, been already seen and admired at our metropolitan exhibitions. In any case the adoption of both show-board and vase or bowl might prove to be most convenient and best from different points of view; if so, then let us have both, as better than either alone. F. W. B.

Chrysanthemum Miss Annie Manda.

This, I see is announced as a new white, sweet-scented Ostrich Plume Chrysanthemum, and is said to be an American variety. It is an improvement on the original Mrs. Alpheus Hardy. There

is certainly much room for improvement in this variety, as, despite the assertions of a few that it can be readily grown, the fact remains that it is very seldom seen in good condition, and is by the majority of growers already discarded. These hairy Chrysanthemums bid fair in a little time to be sufficiently numerous to form a class of their own, and this will be perhaps the better way of dealing with them, as some of them at least look rather out of place when associated in a cut state with the ordinary Japanese varieties. We have now of this class Mrs. Alpheus Hardy, sent out in 1889, followed two years later by Louis Boehmer, which turned out to be of good sturdy habit, and bloomed in a very satisfactory manner. The flowers are, however, not of a very pleasing colour, though in this respect a considerable amount of difference was to be seen, as, like all varieties, a good deal (even to the colour of the blooms) depends upon the treatment given to the plants. The varieties announced as new for the present year in which this peculiar hair-like growth occurs are W. A. Manda, golden yellow; H. Ballantine, bronze; and Mrs. George Daniels, light peach: while to these must be added the one first mentioned, Miss Annie Manda. Another of this class put into commerce by M. Crozy and



Onion Giant Zittau (one-third natural size).

of Lyons (whose name is so familiar as the raiser of the beautiful Gladiolus-flowered Cannas), is *Enfant des deux mondes*, described as of good habit, with flowers, which opening yellow pass to pearl-white, with a slight cream tinge at the base of the petals.—T.

FRENCH NOTES.

LAGENARIA SPHERICA.—We have just received from M. Naudin some fine fruits of this interesting ornamental cucurbitaceous plant, which is a native of South Africa, and for which a special genus (*Spherosicyos*) had been created. This classification, however, can hardly stand, as the plant readily intercrosses with other species of Gourds and produces fertile seeds. *Lagenaria sphaerica* is a handsome species, well worth growing as an ornamental climber, which in autumn, especially in southern districts, bears a profusion of pretty spherical Gourds of a dark green colour, dotted and spotted with yellowish-white—very attractive-looking.

SOLANUM SACCIANUM.—The late lamented Dr. Sacc, who made so many strange discoveries in Brazil, and who introduced such interesting plants from Cochabamba, where he died (*Begonia Baumannii*, for example), sent to France some years ago seeds of a *Solanum* which bears fruit that can be eaten either raw or cooked. Plants raised from these seeds have lately borne fruit on the Mediterranean coast. One of these which we have received is ovoid in shape, white, marbled with pink, and very singular in appearance.

IMPROVED JERUSALEM ARTICHOKE.—Notwithstanding the great value of the Jerusalem Artichoke (*Helianthus tuberosus*) as a plant which yields large crops in poor soils, which possesses nutritious properties for cattle feeding, and is adapted for the production of alcohol and for cooking, it is still little grown in France. M. Boussingault has demonstrated that 30 lbs. weight of the tubers are equivalent in nutritious properties to 11 lbs. of hay, and that in good soil $2\frac{1}{2}$ acres will yield a crop of over 54 tons, the average crop ranging from 25 tons to 37 tons. The pulp of the tubers contains 6 per cent. of nitrogen and a little more of potash. With the object of improving both the yielding properties and the quality of the Jerusalem Artichoke the plant has lately been taken in hand by the eminent Parisian firm of Vilmorin-Andrieux and Co., with the so far pleasing result that the tubers which they have raised from their first sowing exhibit a decided improvement on those of the ordinary form.

RICHTER'S IMPERATOR POTATO.—The trials which have been very generally made of this Potato have justified the expectations which had been raised as to the value of its culture on a large scale for the manufacture of alcohol, and the demand for it has been so great, that it is at present difficult to obtain seed for planting. This is most deeply felt in certain districts of Normandy, where the imposition of the duty on Maize has compelled the distillers to abandon the use of that material and increased the demand for Potatoes as a substitute. Seed of Richter's Emperor will not be obtainable in France or elsewhere until next harvest. In the meantime, attempts are being made by raisers to produce Potatoes which for distilling purposes may equal or even surpass the Emperor. Good grounds for such expectations are afforded by the results of the latest operations in this direction which have been undertaken by MM. Vilmorin, of Paris, analyses which have been carefully made in their laboratory at Verrières showing that one variety at least, and perhaps two, of the Potatoes which they have raised surpass Richter's Emperor in percentage of alcohol, as they also do in the weight of the crop. We shall have more to say about these valuable varieties before long.

HONOURS FOR HORTICULTURE.—We are pleased to announce that M. Charles Rovelli, of the firm Rovelli Bros., Pallanza, Italy, has just been nominated a Chevalier of the Crown of Italy. This gentleman is well known as the skilful managing partner of the firm, and the high distinction which has been conferred upon him is a well-merited recompense for the services which he has rendered to horticulture.

PYOCTANINE.—This new product, which is said to resemble and have considerable affinity with ordinary aniline, is reported to be an infallible remedy for the mould fungus which is sometimes so troublesome in hothouses, and particularly in propagating houses. There are two kinds of it, viz., the blue and the yellow pyoctanine, but the blue alone possesses the active principle which destroys the fungus. A small quantity of the powder is dissolved in water in a watering-can, and this when sprinkled over the mould fungus completely eradicates it without injuring Ferns or other plants on which any of it may happen to fall. It appears to be a strongly concentrated substance, as we learn that small bottles of it containing about one-third of an ounce are sold in Holland for 1s. 3d. each.

AIKA PROVINCIALIS.—Under the commercial name of *Agrostis algeriensis*, the Parisian makers of bouquets and of wreaths of immortelles have for some years past largely employed

a pretty Grass which is really a well-marked sub-variety of *Aira* (*Agrostis*) *pulchella* that was named by Jordan *Aira provincialis*, and is considered by some authorities to be a distinct species. The plant is found in the wild state at Cannes, Fréjus, Toulon, and in Corsica. It differs from the ordinary form of *A. pulchella* in its taller growth, its stouter stems, its trichotomous, divaricated, undulated branches, and especially in the much larger size of its spikelets of flowers. The greater strength and rigidity of the plant, rendering it less liable to collapse, and the larger size and more spreading disposition of the flower-spikelets are very sufficient reasons why the Parisian bouquet-makers have adopted it in preference to the ordinary form of *A. pulchella*. Like the latter, it may also be advantageously grown in borders, &c., the mode of culture being exactly the same, viz., the seed is sown in autumn or in spring in a nursery bed, or where the plants are to stand, and very thinly if the season is advanced. If sown in a nursery bed, the seedlings are pricked out as soon as they are strong enough. This Grass is very ornamental when grown in tufts or clumps in a border, or when mixed with groups of other plants, which it then sets off considerably by the contrast of its light and airy grace. It also forms an excellent edging to groups or clumps of shrubs. When required in the dried state, the tufts should be cut close to the ground as soon as the flowers are fully developed, then made up into small bundles which should be hung up in the shade, head downwards, in a well-ventilated place, which is the best method of preserving the colour of plants that are to be used in bouquets and wreaths of immortelles. Seed and dried bundles of *Aira provincialis* (*Agrostis algeriensis*) can be obtained from Messrs. Vilmorin-Andrieux & Co., Paris.

It may be observed that the name *Agrostis* is commonly, but incorrectly, applied to this plant and also to *Aira pulchella*, and, moreover, that the ornamental Grass which gardeners generally call *Eragrostis elegans* is, properly speaking, *Panicum capillare* (Gronov.).

—*Revue Horticole*.

KITCHEN GARDEN.

ONIONS AND THEIR CULTURE.

ALTHOUGH not nearly so much used as a vegetable, that is to say, cooked and served whole, as they ought to be, Onions are yet an im-



Flat Tripoli Onion (one-third natural size).

portant and indispensable product of the garden, and the crop is one in which very many gardeners take particular pride. The selection of varieties, as well as the methods of culture,

ought always to be largely influenced by the uses to which the roots are to be put. For instance, they may be wanted for exhibition, for boiling and baking whole, or for flavouring generally. Those that win prizes have now-a-days to be extremely large, coupled with good form; the best for cooking whole are also large, but mildly flavoured, while the least wasteful



Giant Rocca Onion (one-third natural size).

and the most preferred by cooks for flavouring are the comparatively small forms of Onions, these also keeping the best. Ailsa Craig is, perhaps, the most popular with exhibitors, it being possible to grow roots of this variety to a weight of 2 lbs. or more, and of good form, too. Rousham Park Hero, Improved Wroxton, Anglo-White Spanish and Royal Jubilee are also very fine varieties, and will doubtless be largely exhibited this season. Before the monstrously large roots were thought of, Banbury Improved was hard to surpass, and a well-grown dish of either this or the Anglo-White Spanish is still very weighty with judges, the good form and bright straw colour of the roots telling in their favour. When seed of Ailsa Craig can be bought more cheaply, there is every probability of its being largely grown for cooking whole, the flavour being somewhat mild, and as it keeps fairly well, it would be available for use after the white-skinned Italian varieties are over. While the latter last they are preferred to all others, as being very melting and mild in flavour when cooked, and those of this section are suitable for sowing both in the autumn and in the spring. The little silver-skinned Queen is the first to bulb and be fit for use, Early White Naples forming a good succession, the Leviathan White being the last fit for use and a fine variety, the quality also being good. The Tripoli Onions never keep so well as those with Spanish blood in them, but I have seen some very handsome roots obtained by sowing the seed in the spring, these keeping till midwinter. If extra heavy roots are desired, they can be had by sowing either Lemon or Giant Rocca in the autumn, and these, again, are not very strongly flavoured. The bulk of the Onions grown in this country is used for flavouring, and, as before stated, these are not wanted large, and they keep much better when of a medium size and thoroughly well ripened. Veitch's Main Crop is a good type of serviceable Onion, it being possible to obtain a great weight of roots from a comparatively small piece of ground, these keeping well. Giant Zittau, also of the White Spanish type, is

another favourite of mine and can be grown profitably in most gardens. One or both of these, with either James's Keeping or Brown Globe, or both of them, are enough varieties of this class for most gardens, though if need be, Reading may be substituted for Main Crop and Bedfordshire Champion for Giant Zittau.

Not only must the would-be prize-winner save or procure seed of extra fine strains or varieties, but he must also be prepared to devote more than ordinary pains to raising the plants and preparing the ground for their reception. Sowing the seed where the plants are to mature will not meet the case now-a-days, and autumn-raised plants rarely give such well-formed bulbs as desired. Besides, it is frequently stipulated that the White Spanish or any other types shown shall be "spring-sown," but this difficulty is met—whether rightly or wrongly, it is not for me to decide—by sowing the seed in pans or boxes, and placing it early in February in a fairly brisk heat to germinate. The seed being sown thinly, the plants, after they have been in gentle heat and hardened off before they become much drawn, can be transplanted to where they are to grow, only a slight check being given by this removal. The gain in time is very considerable, and the transplanting, in addition to favouring the growth of extra large roots, would also appear to ensure a better or more handsome form. Ordinarily manured and dry ground cannot be depended upon to give the very best results, but when once a site has been got into a suitable condition there is no good reason why this should not, with a little furbishing up, grow the same crops several years in succession. Late in the autumn or early in the winter the selected plot ought to be trenched two spits deep, good solid manure being freely mixed with both spits, very little, if any, of the sub-soil being brought to the surface. There is little or no virtue in the old hotbed manure that is principally used in very many gardens, good mixed farmyard manure partially decayed being what is needed for Onions. Early trenching gives good time for the ground to settle and for other preparatory measures. Where the roads are repaired with gravel or flint, the scrapings from these, after being dried, greatly improve Onion ground, a thin layer being spread



Globe Tripoli Onion (one-third natural size).

over the surface and forked in. Once or twice before the plants are put out a liberal dressing of soot should also be well forked into the surface, and a sprinkling of salt is to be recom-

mended for all other than clayey soils. Some of the best Onions ever shown are annually grown on the same plot of ground, this from being frequently added to gradually becoming raised not less than 12 inches above the level of the paths. Others will do well to copy this example, raising the beds by the addition of materials already named, and some fresh soil, such, for instance, as that obtained from old Vine borders, not only giving a much greater depth of good soil, but the elevation would appear to favour the production of large, handsome, and early maturing bulbs. Plants raised in the open ground last autumn ought to be transplanted to the prepared ground during mild, showery weather in March or early in April, while those raised in heat should be transplanted from the middle to the end of May, also in showery weather if possible, otherwise temporary shade and frequent overhead waterings are necessary, much depending upon a good start being made. The rows ought to be 12 inches apart and the plants carefully and firmly put out about 9 inches apart, taking care to keep the collars only slightly below the surface. During the summer the Onions must be prevented from becoming dry at the roots, the watering-pot with coarse rose attached being used freely if need be. These waterings should be in anticipation of dryness or not given at all, applying water after a check has once been given to the bulbs usually ending in malformed roots. A firm root-run with plenty of grit in the soil promotes early bulbing, "bull-necks" being few and far between, and it is not often necessary, therefore, to twist down the necks to hasten or ensure progress at the right place. It ought, perhaps, to be added that very good roots or bulbs of any of the Tripoli forms can be had by disposing autumn-raised plants on rich, firm ground 6 inches apart in rows 12 inches asunder.

For ordinary purposes, capital crops of Onions can be obtained by sowing seed of the varieties named on freely-manured, well-worked ground any time during March, and in this case, again, a free use of soot and road-grit is desirable. Especially should the former be well stirred into the surface prior to sowing, and again when the plants are growing freely, as, in addition to being an excellent fertiliser, it also proves a good preventive of Onion maggot. A light surfacing of salt prior to sowing the seed, or nitrate of soda early in the summer suits light soils, and these also must be objectionable to the maggot, besides hastening or supporting a strong early growth of the plants. Solidity of soil I believe to be one of the best preventives of Onion maggot, and that is a good reason for applying road-grit to the beds. Onion seed ought always to be sown in shallow drills, and these may well be fully 12 inches apart. When the rows are too closely disposed, hoeing between them is a more difficult operation, and, in addition, the plants must be more severely thinned out, a process that, from the fact of its loosening the ground and assisting the ready egress of the Onion fly, may be said to favour the increase and destructiveness of the maggot. Sow the seed somewhat thinly, so that very little thinning will be needed to bring the plants about 3 inches apart. With a good firm root-run and plenty of room between the rows, the Onions may well be left so thickly as to eventually press hard against each other, the solid medium-sized bulbs that thus form being certain to keep well. Guano is one of the best fertilisers that can be applied during the growing season, a pound of this being enough at one time for a breadth of bed 18 yards to 20 yards square. Lightly stir this in during showery weather during June and early in July, or it may be

watered in. Heavy or somewhat heavy soils ought to be frequently lightly surface-hoed in order to prevent rapid loss of moisture and cracking of the ground, this keeping the surface loose, also admitting of more warmth and air to the roots. Naturally light or non-retentive soils may well be early and lightly mulched with either leaf-soil, cocoa-nut fibre, fine dry soil or spent tan. The importance of keeping the beds free of weeds must not be lost sight of, but if the surface-hoeings are commenced soon after the rows of plants are well defined and the weeds among the plants drawn out, these preventive measures may be the means of saving much labour later on in the shape of hand-weeding. Onions to keep well must be thoroughly harvested and bunched or roped up rather than laid in heaps, suspending them in cool, airy sheds being the surest method of retarding premature growth.

GROWER AND EXHIBITOR.

THE WEEK'S WORK.

HARDY FRUITS.

PROTECTING FRUIT TREES.—Comparatively warm weather and a moist atmosphere are forwarding fruit buds only too rapidly. The time will therefore soon arrive when Apricots, Plums, Peaches, and Pears will require to be protected in some way, and it will be well to have everything in readiness for it. Copings (elazed if possible) and blinds of some kind are the best form of protection for Apricots, the material known as frigi domo warding off the most severe frosts. Coarse cotton blinds are the next best that can be used, scrim canvas being a fairly good substitute. With a little ingenuity, blinds with brass or galvanised iron rings attached and strong lines can be made to quickly open and close, and something of the sort must be attempted, as it is of importance that the blossom be not unduly weakened by being shaded during the day-time. The blinds ought to be run on rods close up to the glazed or wooden coping, but they need not reach down to the ground by about 2 feet. Provide the curtains or blinds with plenty of strong tape ties, as they must be fastened very securely to upright rods or poles. Much may also be done towards saving the buds from birds and the flowers from frost by a free use of fish-nets, these being doubled or trebled and loosely hung over the trees and kept clear of the latter by means of long rods or poles.

RASPBERRIES.—These may yet be planted, but care must be taken of the shoots just forming at the base of each young cane, or a failure to push up suckers for fruiting next year may be the result. Raspberries delight in a moderately rich, well-worked soil, a heavy and wet position not suiting them long. They succeed well in rows 5 feet apart, a distance of 15 inches dividing them in the rows. Planted in that way they will eventually require to be either cut down market-growers' fashion or else be trained to wires or railings. If the old-fashioned plan of arranging the canes in groups of three (said groups being not less than 4 feet apart each way) is adopted, the canes, when of good strength, will need to be securely fastened to stout stakes 5 feet high. Baumforth's Seedling, Carter's Prolific, and Prince of Wales are among the best varieties that can be planted, the two former being of somewhat sturdy habit and well adapted for growing without stakes or other supports.

PRUNING AND TRAINING RASPBERRIES.—No time should be lost in completing this important work. Newly-planted canes must on no account be allowed to fruit this season, but should be cut down to within 6 inches of the ground. If allowed to fruit, the chances are no young canes will form, and in the following year they would most probably be useless; whereas if cut down they will push up fairly strong canes this season and give

some fruit during the year after. Any so treated last year ought to have their canes shortened to about half their length now, this promoting a strong sucker growth, a small crop of fruit being also produced. Where the market grower's plan is adopted, that is to say when stakes or other supports are dispensed with, freely thin out the canes and shorten to a length of about 3 feet. In the case of the continuous rows and training to wires or fences, the canes ought to be freely thinned out and those reserved shortened to different lengths, so as to have fruiting shoots right down to the ground. From six to eight canes are sufficient for securing to a single stake, and these also should be of different lengths, or from 2 feet to 5 feet in height. In each case cut out all dead wood, wide-running suckers also being rooted out, and either planted elsewhere or destroyed. Raspberries being surface-rooting there should be no digging among the rows, but a liberal mulching of strawy manure ought to be given. Where the plantations show signs of being impoverished, their vigour will be greatly improved if a good soaking of liquid manure is given now, a second application following a fortnight or three weeks hence.

PROTECTING GOOSEBERRIES.—In the neighbourhood of towns house sparrows have already done much mischief among both Gooseberry and Currant bushes, the buds being largely picked out. In country districts it is the bullfinch that is most to be dreaded, and this destructive bird seldom commences on the buds before they are on the point of growing out or are just on the move. Thoroughly syringing the trees with a mixture of soot and lime-water to a certain extent prevents the loss of buds, and also does well stringing them over with thread or cotton, a handy little contrivance being available for quickly covering the branches with a baffling network of thread or cotton. Tying the branches well up together with tarred twine in the form of a cone, these not being let down or any pruning done till the buds are too far advanced to be interfered with, also answers well, and there is much to be said in favour of the plan of either permanently enclosing the bushes with three-quarter-inch galvanised wire netting, or at the present time with fish netting, fairly strong posts and rails being used for supporting the netting well clear of the bushes—the fish netting to be taken down when the bushes are in full leaf, and the permanently covered structures to be opened at the sides, in order to admit insect-eating birds.

W. IGGULDEN.

PLANT HOUSES.

STOVES.—POTTING.—This work should now be proceeded with, allowing of as little delay as possible. For my own part I prefer to do it in the house itself or in another adjoining it, when the potting-shed is either at a distance or not heated with hot water, as it should be. The work can be got through much more expeditiously if done upon the spot, whilst in the case of specimen plants and any tall ones it is a further saving of labour. A sufficient quantity of soil should be got in over-night for each day's work, so as not to have to use cold soil. It is far better to make this potting as thorough as possible; if done piecemeal it never seems to be finished; besides, other work will crowd upon us with the lengthening days. It is best to go through each family of plants at one time rather than shift from one to another just as they may happen to come to hand. In this way any little modification of the soil can be made to suit any particular class. Fibrous loam (both heavy and light will be found useful), good peat, leaf-mould, and silver sand are the staple composts. About half and half of peat and loam, or leaf-mould and loam, will suit the majority of the plants with a due proportion of sand added.

Young Crotons will do well in leaf-mould and fibrous loam, but I prefer peat and loam for specimens; a few handfuls of bone-meal are an assistance to these plants. Dracenas thrive well in the same soil with a little pure soot added, or used in place of bone-meal. I have found this to suit Dracenas admirably. Pandanus Veitchii and other kinds

will make more satisfactory growth in a comparatively poor soil; hence avoid any stimulating mediums. Nearly all loam I prefer. The growth may not be so robust, but the colour of the foliage in the variegated kinds will be better, whilst in the green varieties it will be more compact. *Cyperus alternifolius variegatus* should be grown in the poorest of soil; siftings from under the potting bench will be good enough for this plant. *Alocasias* and *Anthuriums* (foliage) should have some of the rougher portions of the peat reserved for their use, or take some peat as used for Orchids; some very fibrous loam will not be at all amiss, but much should not be used. Add Sphagnum Moss, charcoal, and potsherds, so as to keep the soil as porous and open as possible. *Alocasia Lowi* and *A. metallica* prefer nearly all peat rather than loam, but *A. macrorrhiza variegata* does well in nearly all loam, the variegation being thus much superior. *Anthuriums* will take a fair amount of loam, rooting into it freely. All of these plants should have the pots well crocked about half way up the pots. *Marantas* will be found to do well in chiefly peat; although I have grown them to a large size in nearly all loam, I prefer peat. The same may be said of *Vriesias*, *Tillandsias*, and allied genera.

Of flowering plants there are some instances in which a variation in the soil will be beneficial. *Allamandas* will afford an instance in which good loam is beneficial; given other favourable conditions, the growth from plants potted chiefly in loam will be shorter-jointed with a greater tendency to freedom in flowering. Large specimens, which it is not advisable to reduce too severely at the root, may have additional assistance in the way of bone-meal. *Clerodendrons* will of the two do better in rather more peat than loam. *Dipladenias* I prefer to grow in all peat when it is good with plenty of fibre, otherwise a little loam may be added with some charcoal in either case. *Vincas* thrive well in similar soil to that accorded to *Clerodendrons*; either genus does well in leaf-mould rather than inferior peat. *Gardenias* do not seem to be at all particular whether it be peat or loam; for my own part I like to mix the soils in about equal proportions for these plants. The *Hibiscus* have always a tendency to grow too vigorously; hence it is better to starve them in comparatively small pots, or use poor soil, chiefly loam, potting very firmly. *Ixoras* should be grown in good fibrous peat and sand; if loam is added it should only be to rectify any deficiency of fibre in the peat; sand should be freely used. For young plants, to encourage a quick growth and more rapid root action, good leaf-soil may be used very successfully. *Francisceas*, like *Ixoras*, prefer peat; so also do the *Hoyas*, particularly *H. bella* and *H. imperialis*. The *Rondeletias* are also peat-loving plants, but such as *Bougainvilleas* will do best in a mixture of about equal proportions of loam and peat. For *Caladiums* and *Dieffenbachias*, leaf-mould and loam will answer all purposes; peat is not really required for either. Of other plants in general it may be said that those which have fine fibrous roots should chiefly have peat provided for them, whilst those that have more fleshy roots will, on the other hand, do well in a more loamy soil.

Whilst the process of potting is going on see that no plants, such as *Allamandas* and others that have been kept dry at the roots, are potted whilst in that state, but rather hold them in tepid water to soak the central portion of the ball first, otherwise when repotted it will not be an easy matter to effect this. In most instances one good watering should be given to settle the soil; thence onwards this work must be done cautiously according to the condition of each plant and the amount of foliage it has to sustain. Overwatering freshly potted plants is most injurious, and often starts a plant on the downward course rather than inciting it to renewed vigour. Of course, all possible means towards cleanliness should be strictly observed, more particularly where the mealy bug has still a home. This insect should have unceasing war waged against it until exterminated; then the relief that is afforded is only known to those who have cleared it out.

JAMES HUDSON.

ORCHIDS.

DETAILS of shading, airing, and ventilating the houses have been given in previous numbers, and nothing more need be said on these points this week, except to remark that the weather may be very changeable for the next two months, and the man in charge of the hot-water apparatus will need to be on the alert. We are doing a good deal of repotting and surfacing in all the departments. *Vandas*, such as *V. suavis* and *V. tricolor* in variety, have been repotted; they had not been done for two and some of them for three years. We fill the pots about two-thirds full of large pieces of crocks. If the pots are large, a smaller pot is inverted inside. The bottom of the inverted pot will stand up as high as the drainage, and around it the drainage is placed carefully with the convex side undermost. The plant is now put over the drainage and the interstices amongst the roots filled up with clean Sphagnum, some coarse, clean, white sand, and clean potsherds. The plants generally start into growth freely with this treatment. We repotted a batch of large plants of *Maxillaria grandiflora*, some of them having been divided. There are two varieties of this species, one much more vigorous and free in growth than the other. This robust form is one of the freest-growing Orchids we have, producing plenty of its white flowers in the autumn, winter, and even into February. We use for potting material fibrous peat, some fibrous decayed loam, and a little Sphagnum Moss, with less drainage than usual. The pots should be filled to about a third of their depth. *Maxillaria Sanderiana* is quite a recent introduction and very handsome. It is a most vigorous grower, requiring, as *M. grandiflora* does, a good supply of water at the roots. If *M. Sanderiana* has been grown in pots, the flower-stems will now be pushing through amongst the compost; if they are underground, the points will turn upwards when they reach the sides of the pots. When these flower-stems and buds are underground, it may be safest not to be too free with water, as this might cause them to rot. The above two Orchids are constantly growing, and we never keep them dry at the roots. *M. grandiflora* seems to thrive well in the coolest part of the cool house; it is evidently a mountain plant, but *M. Sanderiana* is likewise from Peru, at an elevation of 4000 feet, and so far it seems to thrive in a much warmer temperature. This last named species would do well in a basket, from the way in which the flowers are produced, the stems pushing over or under the potting compound. The true *Oncidium splendens* is very lovely yet, the long spikes of large deep yellow flowers being most effective. The appearance of the leaves of this plant—short, stout, and bronze-tinted—as they are imported would lead one to believe that they might stand plenty of sunshine, or at least a light position near the glass, but in practice we find the leaves are injured by the sun striking upon them. *Oncidium ampliatum majus* is rapidly developing its spikes in the warmest house, and the plants should remain there until the first flowers are open. The more vigorous growing *Cymbidiums*, such as *C. Lowianum*, now throwing up their flower-spikes should be assisted with weak manure water at every alternate watering. Most of them have been planted in substantial loam and leaf-mould with some decayed manure, such as we use for *Chrysanthemums*, and they do not require a very large supply of water. The man in charge must examine his plants carefully, and give no water until he has satisfied himself that the mass of soil and roots has become moderately dry. The loam decays and forms a mass of sour material in which the rootlets sometimes decay. *Cymbidium eburneum* now coming into flower requires even more care in watering than such a vigorous species as *C. Lowianum*. We are now getting plenty of beautiful flowers in all the houses, the *Cattleyas* of the *C. Triane* group making a brave show amongst the white forms of *Lælia anceps*. The system I advocated last year of growing the latter in the lightest part of the house and near the roof-glass has been productive of strong plants and plenty of flowers. The coloured varieties do not need this attention to get them into bloom. There are also numbers of

Dendrobiums flowering now, and a constant succession can be kept up until midsummer. The old *D. nobile* is still a great favourite for its free growth and persistent flowering habit. Not only is this species of much value in itself, but it is the parent of all the best spring-flowering garden hybrids; the best of them is *D. Leechianum*, a variety with the rich labellum of *D. nobile* and something of *D. aureum* in the sepals and petals. A very handsome variety was exhibited recently in London, a cross between *D. philippinense* and *D. nobile pendulum*; it has been named *D. splendidissimum* *Leechianum*. *D. Cassiope*, a cross between *D. nobile album* and *D. japonicum*, is a lovely form. All these with such species as *D. Wardianum*, *D. crassinode*, &c., are the loveliest of spring-flowering Orchids, and easily grown.

J. DOUGLAS.

THE KITCHEN GARDEN.

JERUSALEM ARTICHOKE.—When well cultivated the Jerusalem Artichoke is really a very acceptable vegetable, and is more in request than many people imagine. The new Pearly White is a valuable addition, and if I am not mistaken, will supersede the old variety when it becomes better known. To secure tubers of good quality, the let-alone system gives but poor returns. The best results are obtained by forking out the tubers at the present time, and reserving those not required for planting by storing in sand in a cool shed. It is not necessary to change the ground very often—in fact ours are planted in the same place annually, the ground being dug, or rather forked over, adding at the same time some old tan and leaf soil in which the tubers ramify very freely. Drills are got out similarly to Potatoes, the rows being not less than 3 feet or 4 feet apart. Planting may be done at any time previous to growth taking place.

BRUSSELS SPROUTS.—This winter vegetable requires a long season of growth. A drawn, coddled plant, such as is obtained by sowing in heat, must be guarded against, a sturdy growth being very essential from the time of sowing the seed. If this should not be secured, the plants will show its ill effects right throughout the season of growth. If only a few plants are required the seeds may certainly be raised in a box, but as these are more apt to receive a check, I much prefer to sow in a cold frame. A few inches in depth of rather fine and fertile soil should be spread in a shallow frame, and the seeds be sown thinly in drills. After germinating, do not coddle the plants, but draw off the lights on fine days. When about 3 inches high prick off into a sheltered border about 4 inches apart and 6 inches between the rows. A little protection may be necessary for a few days, but afterwards the seedlings may be exposed, so that they may make a sturdy and satisfactory growth.

AUTUMN CAULIFLOWERS.—These naturally require a longer season of growth than the summer kinds, so if seed be sown now of Veitch's Autumn Giant for a first batch, the plants will not be at all too early. Sufficient plants may certainly be raised in a box of light soil, placed on a gentle hotbed where only a few are required, but, like all other young seedlings of the same class, they are much the best when sown in a prepared frame. At this season of the year I find it much the best plan to prepare a gentle hotbed of leaves, surfaced with 6 inches of soil. The seeds, if sown thinly in drills, vegetate evenly and grow away kindly without any fear of damping of the stems. The seedlings are pricked out as soon as ready, to finally prepare them for future planting. A later sowing may take place three weeks hence on a warm border in the open air. Eclipse, when procured true to name, will form a good succession to Veitch's Autumn Giant.

AUTUMN BROCCOLI.—In speaking of autumn Broccoli, I naturally refer to Veitch's Self-protecting, and although some people are ready to aver that it is a Cauliflower more than a Broccoli, yet it may be relied upon by making two or three successive sowings, enabling a supply to be well

maintained until Christmas where the later plants are adequately protected. Although during early springs and in favourable districts plants sufficiently early may be had by sowing in the open air early in March, yet I find it much the best system to raise a batch of plants under glass and prick off as recommended for the autumn Cauliflower. This course should certainly be relied upon on cold soils and late districts. Another sowing about the middle of March in the open air will provide a good succession. By drawing the earliest of these for a first planting, the smaller plants may be left to gain strength for later work. Leaving these smaller plants does away with another sowing. The earlier raised plants under glass must not be coddled in any way, as very often the abuse of the system is the cause of weakly and drawn plants

A. YOUNG.

BARE PLACES.

THERE should be no bare places in a garden except those which must necessarily occur between the plants in a flower border, and those should only be in winter. In summer perennials grow so fast that all interstices are speedily filled up, unless the plants have been put too far apart. No doubt one of the reasons why old-fashioned ribbon borders were at one time so much liked was because the plants of which they were composed became so thoroughly massed together, that no earth was visible. There is a great deal to be said for the brightness and beauty of ribbon borders and carpet bedding, but they have been rightly condemned nevertheless, as opposed to true taste in flower gardening, because the interest and beauty of the plant are lost sight of in the mere shade of colour which it produces by the side of other brilliantly coloured flowers like itself. Our plants should be liked for themselves, for their individual characteristics and peculiarities, their different times of flowering, their mode of growth, their old associations coupling them perhaps with other gardens and other places far away—Swiss valleys or rocky hills. It is thus that the true gardener will enjoy his garden, not merely because it glows with many coloured hues massed together, till all the individualities of the plants are lost sight of in the brilliant spectacle which almost dazzles the eye.

Bare places, however, are an eyesore, and therefore we should take care to avoid them. In the old bedding days it was supposed to be a natural necessity that late autumn, winter, and spring should be characterised by—well, the best word to describe it is desolation—dreary, bare earth. Summer came with its wealth of flowers, a perfect blaze of them, but the prolonged winter was to be dreary. Now if there must be more bare places in winter than in summer, the best gardener cannot help that, yet even in the darkest time there is something which may give interest, and January brings quite a repletion of Snowdrops, Aconites, Hepaticas, and Irises, and from that month onward the outdoor garden begins to afford ever-increasing interest.

But though we may succeed in getting rid of too much bare space in the flower borders, there are still apt to be places where mother earth asserts herself in a very ugly fashion. It has been said, but it is not absolutely true, that nothing will grow under Beech trees, and consequently the ground underneath such a tree is often found to be bare. A Beech tree is a beautiful object; its foliage is more graceful and spreads into more ample shades of green than that of any other of our forest trees. A Copper Beech, as the dark variety is often called, gives a wonderful contrast in its rich colouring to the usual green of other forest trees. Moreover, the roots of Beech trees have an artistic beauty all their

own, so that a grove of Beech trees, bare underneath, the shade, as we usually find it, seems to be all the more graceful for that very reason, because there is nothing to hide the rustic beauty of the great spreading roots, feeling out, as it were, for a strong hold whereby to grasp the earth and sustain the giant tree above. How often have we all stood and admired the loveliness of a Beech grove as it is depicted by the pencil of Vicat Cole, or some other master painter of our forest trees. But those are Beech trees growing together in a grove or by some shady lane; I am thinking of a solitary specimen, growing in the corner of the lawn or by the drive up to the house. In the latter place especially bare earth is not pleasant to the eye, and somehow or other it ought to be covered.

Ivy is undoubtedly one of our best resources for covering bare banks of earth. It is quick-growing and very pretty in its mode of growth. The long trailing shoots of Ivy are singularly picturesque, and when growing on a bank they push themselves forward and break the smoother surface with their pointed branches. The great enemy to such a bank of Ivy is the gardener's perpetual broom sweeping amongst the young leaves to their great detriment. The gardener has not always an eye to the picturesque, but he almost always has an eye to neatness, because it means saving much trouble if leaves are not allowed to blow about at their own sweet will and have afterwards to be sought for and picked up. So when the leaves of the Beech trees fall upon the banks on which they are growing, the gardener pursues them ruthlessly with his broom until they are routed out of their nestling places among the Ivy. But, alas! the Ivy sprigs are all damaged by the relentless brushing up, and it is long before they resume their wonted smooth and happy appearance. I shall never forget the aggrieved face with which a gardener once informed me that his master had forbidden all sweeping up.

For the benefit of the Ivy bank, no doubt the broom should never be seen. I know many banks where probably nothing could be persuaded to grow but Ivy, one especially near a church, precipitous, ugly in itself, but beautiful now because clothed with pretty pointed-leaved Ivy, which would be always let alone but for decorators, who find its lovely sprigs useful for decorating font or pulpit. But Ivy is not the only thing which will grow under Beech trees. Early spring bulbs will do well there. I find that Snowdrops, Crocuses and Tulips can all be made to grow and flourish under Beeches. They come so early, that their flowers have passed away before the leaves above have come out to throw too much shade over them, and the bulbs will ripen and go on from year to year if left alone. Crocus roots become smaller if so treated year by year and require renewing with larger roots, but they also increase in number by seed; so that for a while, at all events, they will continue to grow and increase. Cyclamens will also grow well and look well among the spreading roots of the Beech. Another thing which does well in the shade, and will do nicely to cover bare places caused by it, is the Periwinkle, both large and small. The small or lesser Periwinkle (*Vinca minor*) looks extremely pretty rambling about in shady hedges, and it grows with me under Beeches. The variegated kind is a pretty variety. The large pale blue flowers of the greater Periwinkle are very pretty, and though they do not expand quite so early as those of *Vinca minor* (which will flower in March), they come in May, and their blue stars are exceedingly effective on a bank.

Another plant which is not used nearly so much in gardens as it might be is the large-

flowered St. John's Wort (*Hypericum calycinum*). This is a very beautiful trailing shrub familiar to most people, as it is often planted to make a cover for pheasants and rabbits under shrubs. Its large, starry, brilliant yellow flowers with their hundreds of stamens are most attractive. Whenever a bare place in the garden is large enough, surely this is the very plant to cover it, for in autumn it will give plenty of its conspicuous flowers.

The above plants being trailers will rapidly cover a bank. Primroses are supposed to grow in the shade, and so they will along with many other things, but they will not do to cover a bare place such as I have been supposing to exist in the garden. Neither will Ferns do well under a Beech tree. *Corydalis lutea* seems more capable of resisting the combined disadvantages of drip from the branches and deep shade. This *Corydalis* is an exceedingly hardy plant, and a most persevering one in its efforts to live and thrive under all circumstances. It will sometimes clothe a dry wall with enormous hanks of growth, covered in summer with its pretty little yellow flowers. It will grow in shade. I am not quite sure whether it will grow well enough to be worth trying. I am experimenting upon it on a particularly difficult bare place—hard, dry, shady, and yet hammered from time to time with drip from the trees above.

A GLOUCESTERSHIRE PARSON.

GARDEN FLORA.

PLATE 845.

RHODODENDRON CERES.*

THIS is one of the most recent of the numerous beautiful hybrid Rhododendrons raised in the nurseries of Messrs. J. Veitch and Sons at Chelsea. Its history is given in the following note from Mr. John Heal, the raiser of most of the hybrids and crosses of Malayan Rhododendrons distributed by Messrs. Veitch:—

R. Ceres is a hybrid between two distinct species, namely, *R. Teysmanni* and *R. javanicum*, the former being the mother. The seeds were sown in July, 1886, and from them we obtained several distinct kinds besides that named R. Ceres, which did not flower until September, 1891. It is a grand addition to greenhouse Rhododendrons; indeed, I think it is one of the very best yet raised, the habit of the plant being dwarf and compact, the trusses large, and the flowers well formed, of good substance and rich in colour. We find all the hybrids and crosses, of which R. Teysmanni is one of the parents, are exceptional in their habit of flowering early and growing freely. I have four of them now in flower in 4-inch pots. R. Teysmanni itself is not a first-rate garden plant, the flowers being reflexed and the trusses small, but for cross-breeding it has proved one of the very best.

The exquisite character of this Rhododendron is quite clear from the coloured plate herewith. The flowers shown at the Drill Hall by Messrs. Veitch in September last were so fine, that the committee awarded them a first-class certificate—a distinction not often given to a hybrid Rhododendron. The parents of R. Ceres have been most prolific in good hybrids. In the Journal of the Royal Horticultural Society for August last there is a most interesting and important

* Drawn for THE GARDEN by Miss Low in Messrs. Veitch's nursery, at Chelsea, September 28, 1891. Lithographed and printed by Guillaume Severeys.



PHOTO DENI-FON CEREZ

paper on "Hybrid Rhododendrons" by the Rev. Professor G. Henslow, F.L.S., in which the whole of the hybrids raised by Messrs. J. Veitch and Sons are tabulated according to their parentage, forms and colours of flowers, form of leaf, &c. This paper ought to be consulted by all who are interested in these valuable garden plants.

R. JAVANICUM is a native of the Malay Peninsula, Sumatra, Java, and the Celebes, where it forms a large shrub with leaves 6 inches long by 1½ inches wide and terminal umbels of rose, orange, or brick-red flowers, each between 2 inches and 3 inches in diameter. The form generally known in cultivation has shorter leaves and yellow-orange flowers. It was introduced by Messrs. Rollisson in 1847 from Java, and was figured in the *Botanical Magazine*, t. 4336. This species is the parent of the first hybrid raised in this section of the genus, viz., Princess Royal, *R. jasminiflorum* being the other parent. This hybrid was crossed with other species and gave rise to numerous beautiful kinds, of which Duchess of Teck, *R. jasminiflorum carminatum*, Princess Alexandra, Duchess of Fife, and Excelsior are examples; in fact, *R. javanicum* blood is present in by far the major portion of the hybrids raised by Messrs. Veitch.

R. TEYSMANNI is a native of Penang and Sumatra. It was introduced by Messrs. Veitch from Penang and exhibited in flower by them for the first time in March, 1885, when it was awarded a certificate by the Royal Horticultural Society. The following note appeared at that time in *THE GARDEN*: "This Rhododendron is an introduced species, though at first sight one would take it for a beautiful Javanese hybrid. It has canary-yellow flowers, not so big as those of the hybrids, but good in form. It may lay the foundation of a new departure among greenhouse Rhododendrons." This surmise has been realised by Mr. Heal, for already we have as the result of crossing *R. Teysmanni* with other species and hybrids, a considerable number of first-rate and distinct kinds, numbering about thirty, named and unnamed. Amongst these are Czarina, The Queen, Artemis, Primrose, Imogene, Portia, Aspasia and others.

The other species used in the production of this valuable race of greenhouse Rhododendrons, besides the two already named, are the following: *R. Brookeanum* var. *gracile*, introduced from Borneo by Messrs. Veitch in 1855, has straw-yellow flowers of good size. *R. jasminiflorum*, another Veitchian introduction in 1849 from Malacca, where it forms a small shrub, has oval leaves about 2 inches long and terminal umbels of long-tubed pure white flowers with pink anthers. *R. Lobbi*, a Bornean species, named in honour of Mr. Lobb, Messrs. Veitch's collector, forms a shrub 8 feet high with lanceolate leaves 3 inches long, and terminal heads of crimson flowers, each fully 3 inches long in the tube and an inch across the limb. *R. malayanum*, a large shrub, with lanceolate leaves 3 inches to 4 inches long and few-flowered umbels of deep red, small flowers, was introduced by Messrs. Veitch from Sumatra in 1854; there is a figure of it in the *Botanical Magazine*, t. 6045. *R. multicolor* forms a compact shrub, with small leaves and small flowers, each about an inch across and coloured lemon. The variety *Curtisi* has crimson flowers.

It is noteworthy that all these species belong to a distinct section of the genus, Hooker grouping them under the name of *Vireya*. They appear to cross freely with

each other, but not with other sections, such as the Himalayan species and the true *Azaleas*. There are two recorded exceptions, however, viz., *R. Aucklandi* × *Princess Royal* produced a hybrid named Pearl, and *R. indicico-javanicum*, which was the result of crossing Lord Wolseley and the common white *Azalea indica*. It is remarkable that this hybrid shows scarcely any traces of the *Azalea* either in its flowers or leaves.

Viewed from a purely horticultural standpoint, these Javanese Rhododendrons are the most valuable addition to indoor plants made in recent years. In their perpetual flowering nature they have no equal, except perhaps the zonal *Pelargonium*. Messrs. Veitch exhibited a tray of blooms of their hybrids at every meeting of the Royal Horticultural Society in 1890. I know from experience that with a collection of about a score of plants one may have these flowers in the greenhouse all the year round. A character peculiar to this section of Rhododendrons is that of having trusses of open flowers, buds just formed and young growing shoots all upon the same plant simultaneously. The plants are easily multiplied from cuttings, shoots a foot long rooting freely in bottom-heat. They bear hard cutting, and will break into new growth on the oldest wood if kept moist and close in spring. Although the plants will live and grow in an ordinary cool greenhouse temperature, they are much happier in a house wherein the temperature in winter does not fall below 50°. They prefer a moist atmosphere, too, with plenty of syringing in warm weather. They do best in a mixture of two parts good peat to one part turfy loam and plenty of sand.

When at their best in flower the plants may be taken into an ordinary conservatory or into a room indoors. The blooms remain fresh a long time if cut and placed in water.

W. W.

ORCHARD AND FRUIT GARDEN.

LATE PLANTING.

It is generally admitted that the best time to plant fruit trees is in the late autumn or early winter months. These seasons may, however, be anticipated when the trees to be moved are on the place, but when they have to be procured from a distance the case is very different, too hasty removal frequently ending in the shrivelling of the young wood. When got in early and well, the roots that have been cut over usually form a callus, and in some instances either fresh fibres or root-buds are formed before all activity ceases, and in any case the check of removal has been partly recovered from, a fairly strong early growth being the natural consequence in the spring. Now it happens that from various causes the planting is delayed till either the ground is in a cold, badly saturated, or perhaps frost-bound state, and the trees have to be laid in by the heels till the conditions are altered considerably for the better. The month of February in 1891

was singularly favourable to late planting, as never before, probably, was the soil in such a well-pulverised and comparatively dry state so early in the year. This admitted of thousands of trees and bushes that had been laid in by their heels being got in under most favourable conditions, and recently, on going through a large fruit farm with a view to assess the improved value of the stock generally, it was seen that the trees and bushes planted in February had made as good progress as those planted presumably at a more favourable period. All had made very satisfactory progress, a showery summer naturally suiting them well, though it does not follow that trees and bushes got in on the same place this February or March will again succeed as well as those planted last November, especially seeing that a considerable number were only received this month. Trees and bushes laid in not too thickly by the heels, the roots being well surrounded by light and not too poor and dry soil, seem to have the power of forming fresh root-fibres more surely than is the case with those actually planted, and if carefully handled and planted, the roots being covered with some of the finest and best of the soil, they rarely fail to do well. Where late planting has failed, it may in most instances be attributed to the fact of their being only newly dug up, the roots, in addition to being thus mutilated, being also unduly exposed to cold drying winds, and as a consequence top-growth commences before the roots are even healed over, let alone being in a position to contribute to the continuation of a healthy progress. The necessity for the roots to be callused over or root-buds to be formed well in advance of leafy growth is very marked in the case of all cuttings of fruit trees and bushes, and is nearly as necessary in the case of young and not very strongly rooted trees.

Nurserymen and those market growers who raise many of their own trees may more safely resort to late transplanting, and, in fact, the former have of necessity to do very much of it any time after the planting season may be said to be over. When done well and carefully, as before hinted, these late-moved trees seem to suffer but little, but I have seen a good many trees that have been spoilt by being roughly and late transplanted. As a rule we do not want to be supplied with trees badly stunted in growth. Opening small holes in much-trampled or water-logged ground, cramping the roots in these and covering with heavy lumps of soil is a very sure way of spoiling young trees; yet that is often done. The least that can be done in either home or trade nurseries is to prepare ground by early and roughly digging it some months in advance of the late planting period, and this being done, there can then be no possible excuse for faulty planting. If the shallow trenches or stations cannot be got into a well-pulverised state, then ought the tree roots to be surrounded with fine compost, brought, if need be, a considerable distance for the purpose. Thus treated, the trees are certain to make better progress than would otherwise be the case, let the weather subsequently experienced be what it may, and what is also of great importance, they can be moved very much better the following planting season.

In the case of private gardens where transplanting has yet to be done, it will usually be found that this can be most successfully achieved by deferring it till the buds are on the point of bursting. At this time if the roots are not actually moving, they are not long before they do so, and the conditions generally seem favourable to the quick healing of wounds and a formation of fresh root-fibres. Not unfre-

quently when December and January planting is practised many of the roots fail to callus, and several weeks' exposure to cold, wet surroundings ends in the partial decay of a considerable number of them, a feeble start being the sure result of this. If, therefore, there is any choice in the matter, transplanting fruit trees and bushes should either take place late in the autumn or else just when the buds are bursting. Peaches, Nectarines, Apricots, Cherries, and Plums I have moved successfully when the top-growth was commencing, and the three former have received no very perceptible check even when in full flower. Gooseberries and Currants, again, transplant surely almost up to the flowering period, but if the truth must be told, I have never yet seen what can be done in the way of moving Pear and Apple trees thus far advanced in growth. It is almost needless to point out that more than ordinary pains should be taken at such a late period in saving as many root-fibres as possible and also in replanting. There must be no surrounding the roots of late transplanted trees with either poor or lumpy soil, but they ought to have the benefit of a little prepared compost. Fresh loam with a little bone-meal, wood ashes, and fine charred soil, or the residue of a garden smother added, or, failing these latter ingredients, a little well-decayed manure or leaf soil of the best quality, all tend to promote and foster a healthy root action, and should be freely substituted for the ordinary garden or field soil. Late-moved trees ought to be well attended to during the summer, these being the first to suffer from drought. Therefore, mulch early with either strawy manure or leaf soil, and water freely when dry, hot weather sets in.

W. I.

ORCHARD HOUSE CULTURE.*

THE cultivation of Peaches and Nectarines under glass has, within the last few years, made an enormous stride; the horticultural exhibitions all over the country show that a very great development has taken place, in spite of the obvious disadvantages of climate. The Peach, as everyone knows, is not indigenous. The habitat is generally assigned to Persia. The climate of Persia, although very hot in summer, is very cold in winter, and this is exactly suited to the Peach; the tree is a rampant grower in most climates, and requires an intense and dry cold in winter to induce it to rest. You have, no doubt, observed how easily it is excited to growth by our damp and sometimes warm winters when out of doors. I make these remarks to show that the dry air of an orchard house conduces to the health and well-being of the tree. Until the abolition of the duty on glass, Peach growing was carried on in houses with movable sashes glazed with 4-inch squares and containing as much timber as glass; in a very few years these lights became dim and dingy; the glass itself was of very bad quality, and dust would accumulate in spite of the gardener's care. It is now difficult to understand how good fruit was produced at all under these conditions, and the abolition of the duty was a real relief to the gardener. To the nurseryman desirous that his sorts should be correctly named, it was invaluable. The most extensive nurseries had scarcely wall room enough to grow the number of trees required for securing scions, and I am afraid there was therefore a good deal of confusion in the names of sorts. As these were limited, the evil was, perhaps, not so very great.

About the year 1849, my father, recognising the great value of exactitude in nomenclature, and desiring to grow his own Peaches, constructed a rough glass shed with the new glass, departing entirely from the old system of sliding sashes. The shed was a lean-to, and built with fixed rafters 20 inches apart, with sliding shutters in the back and front. Of course, he was told that the trees would burn, that the draught would kill them, and other evils would occur, and he was rather nervous as to the result. Instead of losing his trees they flourished exceedingly, and he soon saw the importance of the dry air and brilliant sunshine. His expectations were more than realised, and he began to extend the culture without, I think, being at all aware of the importance of the experiment on the future of fruit cultivation in England. After the rough shed he took counsel with his garden architect, builder and carpenter, who was at the same time a very intelligent labourer, and built a span-roof on the same principle of fixed rafters and large squares. The first shed was supported by Larch poles sawn in half, Larch being very cheap at that time, and the span-roof was built in the same fashion, but 20 feet wide, 12 feet in the centre to the ridge pole, and 5 feet high at the sides. This house, from the abundance of light and the thorough ventilation (the ventilators being deal planks on hinges, running the length of the house on both sides), was a still greater success, and began to attract the attention of those cultivators who were disconsolate from repeated failures of the crops on walls.

As the original houses were quickly filled with trees, more were required, and it became necessary to extend and somewhat embellish the first idea of a rough orchard house, and to devise a structure which should meet the claims of the kitchen garden and the ornamental fruit house. The next was a span-roof, 14 feet at the ridge pole, 24 feet wide, and 100 feet long, and this size, I think, is the most convenient. The length, of course, depends upon the will of the builder; it may be half a mile if he likes. The points to be gained are complete ventilation and as much sunshine as our climate will afford. A house, 100 feet long, of the above width, built in the year 1855, has produced annually for the last twenty-eight years from 3500 to 4000 Peaches and Nectarines, a result which, I venture to say, would not be given by any wall built at the same cost—namely, £140, the original cost of the house, the harvest of fruit extending from the beginning of July to the first week in October. The work being carried on under shelter, the gardener does not reap the plentiful crop of chilblains and the certain future of rheumatism consequent upon nailing and pruning wall trees in the inclement early spring of our climate. I do not, of course, say that the work is carried on without expense, but I maintain that this is amply compensated for by the increased and continual production of fruit, and the great pleasure afforded by the dry atmosphere throughout the winter and spring.

Since the permanent establishment of orchard house culture, the question of planted-out trees *versus* potted trees has often been agitated. For my own part, having given the planted-out trees a thorough trial, I am convinced that the potted trees are superior. There is great difficulty in restraining trees planted out. The Peach naturally grows very vigorously in a dry climate and does not submit to root-pruning. In many places the soil is not suitable; but those who object to the constant labour of watering can pursue a modified system with the greatest advantage. This consists in the em-

ployment of perforated pots, the perforations, about an inch in diameter, being made about 4 inches from the rim of the pot and carried round. The pot being sunk in the border below the perforations during the summer, the roots will push through these holes into the surrounding soil, and in the autumn, when the trees are repotted, these roots can be cut off close to the pot without the slightest injury to the tree. For growing for market, when quantity as well as quality is desired, and the soil is thoroughly well suited, it is possible that more fruit may be produced by planted-out trees; but of this I am quite sure, that more fruit will be ripe at the same time than it is possible for a private family to consume; it will be, therefore, necessary to find a ready market for the surplus.

I will, however, take both systems. When I speak of planted-out trees, I do not mean trees trained to trellises, but trees planted with untrained heads, like Apples, or orchard trees, and allowed to form round heads, the starting point of the branches being about 5 feet from the ground. This will give, in a house 14 feet high in the centre, about 6 feet of space for the head of the tree, which should always be kept about 2 feet or more below the glass.

The tendency of the Peach is to excessive growth until checked by the production of fruit. It is, therefore, necessary to rigorously check those shoots which grow with superabundant vigour. To effect this without disturbing the balance of the tree, and causing a quantity of small shoots, the leaves should be removed from these strong-growing shoots, and a ring made round the stem; when the growth of the lower branches has been established, these shoots may be removed altogether. The great point to be settled in pruning standard trees is that they should have flat heads, admitting air and sunshine. There is certain to be fruit enough, as the Peach will soon destroy itself by overbearing if allowed. Another great point in the culture of planted-out trees is that the soil in which they grow should be as hard as a barn floor. When my trees were planted, now about thirty years since, this was stirred to the depth of about 2 feet; manure was mixed with it; it was finally trodden down, and so it has remained ever since. It is a hard calcareous clay, solid with the daily tramping of the workmen. Faggots of wood have been taken from the trees, which are roughly pruned as I have described, and which give annually large crops of fruit, but they are now, however, after thirty years' work, showing signs of old age. A surface-dressing of manure is given to them annually in the spring, and they are dosed with water about once a week, as they get none from the sky. As they are in a house with pot trees, they, of course, come in for the syringing. Trees in pots are, however, the best for amateurs; the pots, being above the surface, are always absorbing the dry warm air of the house, and the trees seem to appreciate this condition. My 100-foot house, which I am now describing, and the proportions of which, I think, are best adapted for the supply of fruit for a large family, contains of Peaches and Nectarines alone 107 trees—31 pyramids, from 8 feet to 10 feet high, in 18-inch pots, ranged in three rows down the centre of the house, and 76 half-standards and bushes on both sides, ranged in two rows, alternately, the pots being 3 feet apart. As the half-standards are about 5 feet high, the pots are partly sunk in the ground, but not plunged, in order to give room for the heads of the trees. These trees are intended for permanent summer residents, and have, as I have said before, produced nearly 4000 fruit

* Paper read by Mr. T. F. Rivers at the Fruit Conference at Manchester, October 20-23, 1891.

annually for the last twenty-five years, and will, I hope, do the same again for some time yet. Now, in addition, the house will contain and protect against frost an equal number of Pears, Plums, and Cherries, all of which can be removed to the open air about the end of May, as up to this time no difficulty will be felt by overcrowding, the cultivation being identical, and the trees will not have made sufficient growth to incommode each other. I think the advantage of thus utilising an orchard house will be at once seen, as sometimes there is a general wreck of outdoor fruits, and entire destitution can be thus escaped. For gardens where there is not room enough for 24 feet span the 14 feet will be found very productive and manageable. It will hold two rows on each side, and these should be half-standards and bushes. There will be the same convenience for sheltering trees until the summer, and in every respect (except in size) the houses are the same in management. There remains now to be considered the third form, which I am afraid has caused more disappointment than any other, and this because of its extreme simplicity and the obvious facility with which it can be erected. Walled gardens are plentiful enough, but crops of fruit from them are not so plentiful, and the often disappointed owner of such a wall, at the time of the publication of the "Orchard House," had a solution of the problem suddenly presented to him. What can be so easy as fixing rafters against a wall and covering it with glass? There is the front protection and the back wall, and the thing is done. It looks easy, and the house when finished is bright and pleasant. A very slight increase of the temperature outside raises the interior to an early summer heat, and it is a very agreeable lounge. Unfortunately, these hopes were often fallacious. The builder had forgotten the main point of the orchard house, viz., thorough ventilation. The angle formed at the base of the back wall and the area of the floor never secured or provided a complete circulation, consequently the air became stagnant, and the insect pests of all glass houses soon showed their ill-omened presence. This was very unfortunate for the system, as lean-to houses were so simple; with boarded sides and backs the ventilation of course could be amply provided for, but people were often unwilling to break holes into brick walls. This difficulty is now, I am glad to say, easily removed by the very simple plan of conveying air from the outside through 6-inch glazed drain pipes with open sockets at intervals of 6 feet. I was led to adopt this plan by the difficulty of ventilating the basement of a lean-to house; the experiment has succeeded perfectly, and possesses the great merit of economy. The drain pipes are not dear, and can be laid by any labourer at the trifling cost of excavation, no cement being required; a slab of slate or board will close the outer ventilation, and all ingress of air is at once stopped. The great convenience of ventilating thoroughly in windy weather will be soon appreciated by those who try this system. The lean-to orchard house, 14 feet wide, will take four rows of trees, two on each side of the centre path; the trees on the back row may be pyramids or half-standards, as there will be ample head room. It must be understood that in all these orchard houses the floors must not be paved, concreted, or flagged. It is absolutely necessary that the soil should be free for evaporation, the paths being gravelled. There is one very important point in the construction of orchard houses, and that is the supply of water; this cannot be dispensed with, and unless it can easily and cheaply be obtained, it would be useless to spend money in

building, as the work would be hopeless. The question of soil must be carefully considered by the orchard house cultivator, as upon the quality which he uses will depend all, or much of his success. I think that I must consider myself fortunate that I have a soil in which the Peach fruits admirably, and this is a calcareous loam. When it can be obtained there is nothing better. I prepare this for potting by throwing it in a ridge about nine months before using, mixing at the time of ridging about one-third of its bulk of good stable manure, and about a month before potting this soil should be placed in a dry shed, another third of well-decayed manure being again mixed with it. If the soil is very tenacious, calcareous sand is an excellent material to use for lessening this defect. The soil being prepared, the next operation is the potting, and this again, although apparently a very simple operation, requires some experience. One of the most fertile causes of failure in the early days of the orchard house was the tendency to avoid this hard ramming on the supposition that the roots would not push their way through the soil, a notion completely erroneous. The pots to be used for orchard house trees are by no means toys, being from 11 inches to 18 inches in diameter, according to the size and age of the tree. Good drainage must be provided, otherwise the soil will be sour; some large pieces of broken pots must therefore be placed at the bottom; the tree should not be too deeply potted, the upper roots being level with the rim. Young roots will always rise to the surface to feed, and will range round the side of the pot, showing the extraordinary attraction caused by the warm air of the house. Before I leave the subject I may here give the materials used for surface-dressing, another important feature of pot culture. From long experience I have found the most efficient top-dressing, if it can be obtained, to be horse manure free from straw two-thirds, kiln dust (not the malt combings) one-third; spread this in a bed about 6 inches or 9 inches deep, and saturate it with cesspool water; use it the day after mixing. This mixture, if repeated during the summer, will be found in the autumn as full of small roots as a peat bed. In addition to this surface-dressing, trees that are bearing a full crop should be watered with liquid manure from a tank as close to the house as possible, this tank being supplied with a bag of soot for soaking, some rusty iron, and horse manure without straw renewed at frequent intervals; the necessity of frequently supplying food by surface-dressing and liquid manure is evident, the property of water being to carry off the salts necessary for the trees. While treating of water I may as well refer to the very important subject of giving water to the trees, and common sense will suggest the mode of action. There is no dew and no water from the sky, and the syringe must therefore supply the deficiency. This should be done morning and evening while the trees are in full growth. Trees out of doors, whether in bloom or not, are visited by showers during the spring, and are not harmed by the heavy drenchings they occasionally endure; therefore there is no reason to suppose that the same treatment will injure them under glass. August and September are usually dry months, and this will indicate the treatment. The roots must not be allowed to dry, but they should not be kept in a puddle.

Another important branch of orchard house culture is the pruning, and this must be governed by the age and condition of the tree. If healthy and well grown, a tree that will ripen from four to five dozen fruit will produce blossoms enough for ten times this quantity. When pruning in

winter this must be carefully borne in mind, and the shoots reduced to a reasonable limit, care being taken to prune always to a triple or a leaf-bud, which will provide the fruiting branch of the ensuing year. Many varieties of Peaches and Nectarines are apt to produce long unfruitful shoots, as there are sorts of equal quality which will give fruit spurs in abundance. I should advise the cultivator to grow these and avoid the others; this is a point which will be soon understood by those who have the management of an extensive orchard house, and the study of these variations will soon become very interesting. The individuality of my trees is of real interest to the manager, and the knowledge of these peculiarities is of great value to the grower for market, as the sorts which furnish abundant fruit spurs and wood buds require less room than the stragglers; under the limited space of glass every inch of room is valuable. Pinching or nipping, a very old and necessary practice, must be done while the shoots are tender, the first, which is the most important, being performed at the fifth or seventh leaf from the base of the shoot. This is generally practicable early in May, and must be pursued at intervals of three weeks or a month during the early summer, the object being to equalise and regulate the growth of the tree.

Pear trees under glass amply repay for cultivation, the protection from spring frosts rendering the crop a certainty. Grafted on the Quince stock the trees become very fruitful and dwarf, and are exceedingly easy to cultivate. After commencing to bear, they grow very little and give all their energy to the fruit. I often think that their cultivation would be a considerable source of profit, but for this purpose none but large and late sorts should be used, such as Doyenné du Comice, Marie Louise, Duchesse d'Angoulême, Winter Nelis, Marie Benoist, and the Easter Beurré. The grower would, I think, soon find customers among the connoisseurs in the country. The most inexpensive form of cultivation is, I think, that of using perforated pots and small pyramids. A rough glass shed, 100 feet by 24 feet, could be filled with trees about 18 inches apart; these may remain under cover until about the end of May, or at all events until the danger of severe frost has passed, the young fruit of the Pear being very liable to injury when it is the size of a small Filbert. They should then be removed to a border especially prepared for them by draining and loosening the soil, and be plunged up to the rim of the pot. As they will then be out of doors, they will not require so much attention in watering, but they must be kept fairly supplied, and when taken out of the house a mulching of manure must be placed over the pots. Liquid manure, as used for Peaches, should be given about once a week. Tomtits are very troublesome when the fruit has attained its full size, as before ripening they will pick a little piece of the flesh out near the stalk and leave the rest to decay. I am obliged to net the trees, but if expense is no object a wire house will amply repay the cultivator. During the summer the roots will push through the holes of the pots into the border, and thus gain strength enough to ripen large and fine-flavoured fruits. At the end of October or in November all these roots may be cut off and the tree repotted; they can then be packed closely together, the pots protected from the weather with straw or dead leaves, and remain until the end of February, when they will be ready to put into the house for another season's crop. As it is a great strain on these little trees to bear continuously, it is well to have an alternate supply, one bearing and the other out of doors and non-

bearing. Very little pruning is required; the shoots should be pinched in May and June; after these months the fruit will absorb the vigour of the tree.

Apples grown under glass attain a flavour rarely equalled out of doors, especially the American sorts, Washington and Melon, and the English Cox's Orange; the latter, when kept entirely under glass, is transformed; it becomes full of juice, and has the texture of flesh which we generally consider the attribute of the Pine-apple. The Washington is a sight to see; indeed, I believe, some were exhibited in a fruiterer's shop at Tunbridge Wells for which he asked a guinea apiece. Grafted on the broad-leaved Paradise stock, they are as dwarf and as fruitful as Pears, and may be grown in exactly the same manner. As, however, there is generally an Apple crop in England, their cultivation under glass is not a matter of necessity.

Plums, like Pears, may be placed in the house for protection during the blooming season, and afterwards removed to the open air. From the diversity of colour and form, the dwarf Plum orchard is remarkably interesting and ornamental. Like Pear and Apple trees, they require very little pruning, as their constant fruitfulness restricts the growth. If the glass shed used for protection has a row of hot-water pipes, it may be used for Black Hamburgh Grapes, but heat must not be applied to Pears. In my district the Black Hamburgh will ripen without fire-heat, but in the northern parts of England I do not think this is often the case. I only speak of Grape Vines for the glass shed; the orchard house for Peaches, &c., must have the roof clear.

Grapes may, however, be grown as small standards in pots, and are exceedingly ornamental. If the early, but small Grapes are grown, these little trees may be taken out of doors in August. The fruit will ripen in a fairly warm autumn, and so will Figs in pots, but their large leaves and vigorous growth almost banish them from an orchard house; if, however, a warm corner can be found for them, they will give a good supply of fruit. The great secret of their cultivation seems to consist in pinching the young shoots; unless this is done the tree will grow without fruit. The first shoot should be stopped at the fifth or sixth leaf, and the young fruits will immediately appear.

During the last few years, and mainly owing to the orchard house, a very great advance has been made in the season of ripening Peaches and Nectarines. Under glass this now extends from the first week of July to the first week of October. I may here say that although in the south of England artificial heat may not be absolutely necessary, it cannot be dispensed with in the cooler districts, and it is especially desirable during the early spring and the late autumn, a single pipe round the house being sufficient. With this help Peaches will ripen during the first week in July, and a continual supply be kept up until the first week in October by the following sorts, which are arranged in the order of ripening:

JULY.	AUGUST.
Alexander Peach	Rivers' Early York Peach
Waterloo Peach	Condor Peach
Early Beatrix Peach	Early Alfred Peach
Early Louise Peach	Goshawk Peach
Rivers' Early Peach	Lord Napier Nectarine
Hale's Early Peach	Early Grosse Mignonne P.
Early Leopold Peach	Dr. Hogg Peach
Advance Nectarine	Crimson Galande Peach
	Mazda Peach

SEPTEMBER.

PEACHES.	NECTARINES.
Grosse Mignonne	Golden
English Galande	Stanwick Elrage
Alexandra Noblesse	Rivers' Orange
Royal George	Spencer
Barrington	Pine-apple
Nectarine	Humboldt
Princess of Wales	Victoria
Sea Eagle	
Lady Palmerston	
Golden Eagle	

This list is, of course, intended for pot cultivation, as the sorts are too numerous for trellis training. I have also confined myself to Peaches and Nectarines, as they are not, perhaps, quite so well known as Plums, Pears, and Cherries.

MRS. PEARSON VINE UNHEALTHY.

I SEND you herewith a few roots of a Mrs. Pearson Vine which I planted about two years ago in a span-roof viney having both inside and outside borders. In the viney are Lady Downe's, Black Alicante, and Gros Colman, all of which are in excellent health. Two Raisin de Calabre not giving satisfaction were removed and replaced by two plants of Mrs. Pearson, but they refuse to grow. I took them up some days ago, in order to replace the soil in which they were planted by other fresh loam and crushed bones, so as if possible to encourage growth, when I noticed the condition of their roots, which appear to be eaten by some (to me) invisible insect or disease of some kind. I shall be glad of your opinion concerning this matter, or information how to proceed to ensure success in the cultivation of this Grape under the circumstances. GEO. JOHNSTON.

*** If nearly or quite all the roots found on lifting the Vines were in a similar plight to those duly forwarded to me, it is little to be wondered at that no progress was made. They have evidently been dead for a long time past. There can be no mistake about this, but what was the cause of their destruction it is not so easy to determine. It cannot well be attributed to any insect agency, and I am disposed to think the roots have either had some destructive insecticide or something of a powerful nature used for cleaning the woodwork of the house washed down to them, or what is more probable, some strong fertiliser was mixed in the soil or since applied. The roots have the appearance of having come into contact with something that disagreed with them, this first killing the points and paralysing all subsequent attempts to start afresh. They reminded me rather forcibly of the stupid old practice of burying dead animals in Vine borders, than which no greater blunder could well be made. The last time it fell to my lot to assist in breaking up a border that had failed to support Vines properly, traces of dead bodies of animals were found. These, instead of being a happy hunting-ground for the roots, had simply been the means of luring many of them to destruction. I do not for one moment infer "G. J." had done anything so foolish as to bury the whole or portions of a dead animal in his Vine border, but he may yet have done something to make the soil injurious to the Vine roots. Doubtless when the Vines of Calabrian Raisin were removed much of the exhausted soil in which they were rooting was replaced by good fresh compost, and the question is, what did this consist of? It is a mistake to imagine that rich borders are a necessity or even advisable, as I have repeatedly proved that it is not so very much rich food, but plenty of moisture that Vines require, and also that we may easily err in applying powerful manures too freely, the roots being more susceptible to injury than is generally supposed. About ten years ago I formed a large new border, and this was principally composed of a strong clayey loam and garden soil in about equal quantities. This was done early in the winter, but as the Vines were not then raised and would not in any case be large enough for planting till May, a temporary low stage was fitted up along the front of the house and filled with Cinerarias. My fore-

man was a great believer in farmyard liquid manure, and the Cinerarias were abundantly supplied with it, to their manifest advantage, but, as it proved later on, the drainings from the pots made the border underneath far too rich for the Vines. As it happened, only what were intended to be permanent Vines were planted along the front, that is to say, in the over-rich, though not necessarily saturated soil, the supernumeraries being 4 feet from the front wall, and it was fortunate this arrangement had been carried out. The permanent Vines started very badly and in several instances had to be replanted, the roots refusing or being unable to live in the over-rich soil. Not so the supernumeraries. These succeeded admirably, and were kept in full bearing for two and in some instances three seasons, and saved my credit. Mrs. Pearson was one of the partial failures, this variety evidently not being nearly so robust as either its near relative Golden Queen or its parents, Alicante and Ferdinand de Lesseps. As a rule, it will succeed well in a mixed house of late Grapes, all receiving rather more heat than is required to ripen Black Hamburgh to perfection. Instead of replanting Vines which with their roots in such a bad plight must be much stunted, I should advise "G. J." to procure fresh planting canes, shaking these quite clear of the soil in which they now are, and replanting in quite fresh and not very rich compost. No mistake can well be made if the fresh Vines are planted in a mixture consisting of chopped turf, to which burnt soil, ashes, and mortar rubbish are freely added. Crushed bones may easily be used to excess, 1 cwt. being ample for three cartloads of soil. Another time, instead of wholly removing Vines of an undesirable character, as far as the quality of the fruit is concerned, the wiser course would be to graft or inarch superior varieties on to them. Calabrian Raisin in a healthy state would prove a suitable stock for the less vigorous Mrs. Pearson.—W. I.

Apple trees as maidens.—This is a convenient form to purchase a stock of Apple trees where an immediate crop of fruit is not expected from them. Maidens can be purchased for one-half the price usually paid for bushes. Cordons for spare places on walls, for arches over a path, or by the side of the kitchen garden paths are all useful in their way; indeed, I do not think the first named method is nearly enough carried out. There are many vacant spaces on walls between existing trees which could be profitably occupied with an Apple of a sort that does not succeed in the open. Or it is open to the cultivator to grow the maidens on into pyramids, or even bushes, or if necessary some half-standards could be grown. This last is a useful class of tree where space admits. In that case the single shoot should not be cut, but allowed to grow uninterruptedly until the desired height is attained. For bushes they should be cut back to about 1 foot high, and also for pyramids. In the case of cordons, 2 feet of the shoot may be reserved, and a system of pinching the summer growths adopted to induce the quick formation of spurs.—S.

Colour in fruit.—Since reading the remarks of your correspondents on colour in fruit I was much struck in passing a greengrocer's shop to notice the colours in his window. There were rosy Apples and golden Oranges, and between them lay bundles of young Rhubarb, the stems of which were of an intense crimson, rivalling the Apples at their feet, while the young leaves were of shades of yellow varying from the colour of the heap of Lemons on one side to that of the Oranges on the other. Again, there were bundles of Seakale with white stalks and leaves tinged with richest purple. Your correspondents who have been writing about it appear to be pretty well agreed that light and air are the chief agents in producing colour. How, then, do they reconcile this with the brilliant colours of the Rhubarb, which were evidently produced under conditions the very reverse of these, i.e., no light and very little air? Again, some of the Oranges had evidently been packed green and had obtained their colour in transit. Here is another

example of absence of light and air producing colour. This subject of colour in fruits is exceedingly interesting, and I hope some readers who are learned on this subject will give us an intelligent explanation.—R. J. G. READ, *Eding.*

FRUIT TREES ON PERGOLAS.

READING the article on pergolas in a recent issue of *THE GARDEN* recalls to my mind some very ancient ones that I recently saw at Eaglehurst Castle, Fawley, Hants. These have certainly been in existence for 100 years. They are formed of stout posts, on each side of a broad kitchen garden walk, with cross-bearers at about 8 feet from the ground. A great portion is covered by two of the finest specimens of the White Marseilles Fig I have ever seen. The stems are very large, and the heads had doubtless been trained to the walls many years ago, but apparently, from neglect, had been allowed to grow up into standards, and the weight of the branches had gradually brought them down over the wide fruit tree border until some owner of the place, with an eye to combining the useful with the ornamental, had erected the stout trellis, or pergola referred to. On each occasion that I have seen them towards the close of the summer thousands of luscious Figs have been hanging on these trees, small muslin bags being used by the gardener to keep flies and wasps from devouring them. The posts were covered with Roses, Jessamine and a variety of sweet-smelling climbers, and under the deep shade of the Fig trees a lovely hardy fernery was formed. To clothe the pergola where the Fig trees did not reach, a collection of Gourds was planted and trained over. The rich colour and quaint forms of many of the fruits hanging over the walks had a capital effect. As wood was plentiful, no difficulty and very little expense attended the renewal of any of the posts or cross-bearers, which, being only roughly trimmed up, were certainly far more ornamental than any kind of iron or wire supports. As Eaglehurst Castle is almost surrounded by the sea at the entrance to Southampton Water, it is very favourably situated for open-air Fig culture. I do not suggest that the Fig trees could be grown in northern gardens, but there is plenty of hardy fruits, such as Apples, Pears, Plums, Cherries, Blackberries, Gooseberries and Currants, that would quickly cover such a structure, and their produce would prove a very welcome addition to the fruit supply.—JAMES GROOM, *Gosport.*

More than one reference has recently been made in *THE GARDEN* to fruit tree arches without any special reference to the kind of fruit tree to be trained over them. If the writers have in view iron arches and advise that they should be covered with Pears, I can assure them that partial, if not total failure will result. I know a garden where the system has been tried and failed to give satisfaction. Very few sorts of Pears will submit to the system of hard pruning that is necessary to bring the trees into the form required. In the neighbourhood of Bristol there is a garden in which many years ago some of these iron arches were put up and covered with various sorts of Pears. These iron arches look very well on paper, and besides that they offer an agreeable promenade in hot weather when they are covered with growth, but the trees which cover them resent the formal manner in which they are trained by bearing but few fruit. Plums, perhaps, might submit to the treatment, but it is doubtful. The only chance of securing a crop of fruit that would justify the outlay is to cover them with Apple trees. Within a mile of where I write there are in an old garden several bowers formed with Apple trees over a prominent walk, and even such strong growing sorts as Warner's King and Golden Noble bear good crops of fine fruit every year. These trees do not have any of the young growth removed until the middle or end of August. In another instance that has come under my notice a bower is being formed over the principal walk in the garden by taking several shoots from some pyramid or bush Apple trees that have become stunted in growth as well as un-

productive through hard pruning. These trees, it will be understood, stand in a line on each side of the walk. So far the experiment has proved quite a success, and I do not doubt but that it will be so.—J. C. C.

STOVE AND GREENHOUSE.

ARALIA SIEBOLDI.

ACCORDING to botanical authorities, the correct name for this useful plant is *Fatsia japonica*. It has now become such a popular plant and so well known as *Aralia Sieboldi*, that this name may well be retained for all practical purposes. On dry ground it is perfectly hardy, but, like most Japanese Evergreens, the foliage is much damaged by frost and wind except in quite sheltered positions. It is a fine plant for the



Aralia Sieboldi in bloom.

sub-tropical garden or conservatory, and as a plant for house decoration it has few equals. Within the last few years its culture has been considerably extended, and at the present time it is grown in thousands for market. As will be seen by the accompanying illustration, it flowers in a comparatively small state. The terminal panicle of small greenish white flowers does not add much to the beauty of the plant. I have frequently seen it in bloom, but it does not appear to seed freely, though seed is sometimes perfected in this country. For trade purposes the seed is generally obtained from the Continent, and is imported during the month of April. The seed loses its vitality in a very short time; it is therefore necessary that it should be sown as soon as received. The seed if sown thinly in a good loamy compost, well covered with the soil and placed in

a moderate temperature, will soon germinate. The pots should be placed in a light position, but not exposed to the sun, and care must be taken that the soil does not get too dry. The seedlings should be potted off singly as soon as large enough. The young plants may be grown on in pits or frames, giving them plenty of air. During the summer larger plants may be grown in the open, but they should be sheltered from rough winds. If grown under glass, they must have plenty of room and all the light and air that can be given. Young plants, if treated liberally, will continue to grow throughout the year. They may be potted in good fibrous loam, with a little leaf-mould and well-rotted manure added. Care must be taken to keep the plants free from green fly, which is often very troublesome, and will permanently disfigure the plants if allowed to spread on the young foliage. I may also add that, although well-matured plants are hardy, those in a growing state are very tender, and a very slight frost will damage the young leaves; but so long as the temperature does not fall below freezing point, the cooler they are kept the better. F. H.

Cordyline australis variegata.—The typical form of this old New Zealand *Cordyline* (or *Dracena*, as it is very frequently called) is well known throughout the country as one of the most serviceable of greenhouse fine-foliaged plants. In the extreme south and west of England it is hardy, except, perhaps, during very severe winters, when it sometimes gets killed to the ground. It is a most variable plant, some forms not only having leaves twice as wide as others, but differing also in colour and in other characters. At the last meeting in the Drill Hall, Messrs. Laing exhibited some very neat, handsomely variegated plants of the narrow-leaved variety. For table or room decoration it would be difficult to find anything more serviceable than these, their usefulness in this direction being increased by the easy cultivation of the species and its requiring little more than bare protection from frost. To get the handsome striations as seen in the plants exhibited, it may, however, be necessary to use more heat than the green forms require. In any case this plant is deserving of wide cultivation. A variety of *Cordyline australis*, which is also very handsome, is known sometimes in gardens as *C. indivisa*. It is quite distinct from the true *C. indivisa*, but is ornamental by reason of the deep red colour of the base of the leaves.

Bertolonias.—Two new varieties of these handsome melastomaceous plants were exhibited last year from the Continent, both of which were recognised and awarded first-class certificates by the floral committee of the Royal Horticultural Society. Two more were shown at the last meeting of the Royal Horticultural Society by Mr. Bause and received the same awards, whilst two more were shown in addition by this well-known grower. A description is not necessary of these newer kinds, those that have gained the awards having already been described. The cultivation is the point that is now essential for their successful management. The popular notion has been that bell-glasses were essential; this is, however, a mistake; such is not the case. Those shown by Mr. Bause had no such treatment, but rather a comparatively dry atmosphere. This was clearly proved by the excellent manner in which they stood the none too favourable surroundings of the Drill Hall at the last meeting; these plants at the close seemed as fresh as when put up in the morning. They require, it is true, the temperature of a warm stove. Given this any good plant grower will soon find out for himself where he can best

accommodate them. Examples such as those shown by Mr. Bause will make decided acquisitions as dwarf table plants for one evening at a time; the extremely rich markings of the leaves will be further enhanced under artificial light.—PLANTSMAN.

— I am reminded of these plants by a portion of a leaf sent to me from the lake district of Cumberland by Mr. Thomas Lowther. He says he obtained the plant from a Continental garden under the name of *Gravesia*, but he thinks it must be a *Bertonia*, and asks what is the best way of growing it. I am very glad someone has taken an interest in these plants. Mr. Bause, of the Moorland Nursery, South Norwood, staged some plants in really splendid condition at the last meeting of the Royal Horticultural Society in the open hall, so that we may hope to have them grown as hardy and as well as any other plants. In M. Bleu's establishment in Paris, *Bertonia*s are grown under a large glass shade. The first of these plants, such as *Van Houttei*, *Rodeckiana*, *Hrubbyana*, *Legrelliana*, and a few others, were raised in the establishment of M. Van Houtte, of Ghent, and I do not think any more beautiful kinds are in existence at the present time. Other varieties are *guttata* and *guttata superba*, which I think are natives of the island of Madagascar, but the hybrids obtained in our own gardens surpass these in elegance and beauty. It is not my intention to enumerate the many forms of these superb plants which I saw in M. Bleu's garden, but I will merely state the fact that these plants were growing on the centre stage in a somewhat small stove, the whole stage being covered with a glass frame; this has the effect of keeping the atmosphere moist, for these plants delight in a moist, warm atmosphere. They should be potted in good peat, with a little good leaf-mould and sharp sand. A frame or bell-glass should be used for the seedlings or young plants. They may also be increased by cuttings. The only difficulty which I have experienced with these *Bertonia*s has been in keeping the atmosphere sufficiently moist. — W. H. G.

EVERY-DAY PLANTS.

THERE are several plants embraced under this heading which, if grown more extensively and better attention given to their requirements, would be valuable from a decorative point of view. One often hears of plants being injured, if not permanently so, at least for a time. This is the case more particularly where plants are grouped together in conservatories that are unsuited to the mere rudimentary elements of plant life, or where they are massed together in rooms, in corridors, or upon staircases—places that cannot be considered in any sense congenial to plants that have been nurtured in stoves with an abundance of heat and moisture to accelerate growth. For such positions there should be a fair proportion of plants that possess good enduring qualities—plants that will for a time withstand injury when in dark positions or draughty places and where gas is the lighting medium. By paying attention to such plants, those that are of more tender character will in some measure be saved. The use of such plants as permanent ones in the conservatory for standing in the most unfavourable positions, for intermixing with flowering subjects and for either backgrounds or edgings to the same, would save many plants that whilst in flower make a good display, but whose beauty fades all too soon if either stood in unfavourable spots or if too much crowded together. Of flowering plants now in season the Chinese *Primulas*, the *Cyclamens* and winter-blooming zonal *Geraniums* are instances of this. These plants all require good positions with plenty of light, and should not be too much crowded together.

Grevillea robusta can be easily raised from seed year by year, and no one who has a few glass houses at his command ever need be without it by sowing every spring, so as to have a succession of plants in various sizes up to three years old, after which they are rather too tall for most purposes. This *Grevillea*, when raised from seed,

will be found to germinate much better if each seed is carefully inserted in the soil separately, so that they stand on edge. This can be easily accomplished by taking each seed between the forefinger and thumb. These seeds, being so flat, appear to absorb too much moisture when scattered upon the soil, and that before they can germinate. Those who have hitherto failed to raise a good stock will do well to take this hint when sowing their next batch of seed. As soon as the seed is up less heat should be given, and before the young plants can in any wise become drawn they should be potted off separately into $2\frac{1}{2}$ -inch pots, and be kept as near the glass as possible in a growing atmosphere, but not in excessive warmth. As soon as fit, another shift should be given into 3-inch pots, treating them as after the first potting for a few weeks longer. As soon as well rooted the plants will bear a harder course of treatment, so as to prevent a too sappy or leggy growth. Those plants which grow away the best and strongest ought to be potted into $4\frac{1}{2}$ -inch pots when the previous shift has resulted in a potful of roots, the smaller ones being deferred, so as to form a secondary size of plant. When the seed is sown early in the spring, the best plants will be fit for use by the end of September. All through the summer the plants should be fully exposed to light and air; thus treated the growth will be hardy and more enduring. These plants if potted again early the following spring into 6-inch pots will make fine conservatory plants, or they may be used for bedding out. The soil best suited to this *Grevillea* is loam of good quality (not too heavy) and leaf-mould with sand or road-scrappings. *Acacia lophantha* makes another distinctly ornamental plant, being also one of very rapid growth. It is useful in various ways, and its pleasing foliage varies from that of many decorative subjects. The seed should be well soaked in water before sowing. To do this the best way is to select a shallow pan as used for Strawberries, placing the seed therein with a fair amount of water; then it should be stood in a warm pit or upon a hotbed. As the seeds swell up and show signs of bursting the husk they should be sown carefully in light soil, either singly in $2\frac{1}{2}$ -inch pots, or in pots to suit the convenience. After-treatment as to potting and soil should be the same as for *Grevillea robusta* until about June, when the *Acacia* should be grown in the open air in a sunny place until September, when it will be found useful. *Melanthus major* could be treated in a similar way, except that the seed may be sown straight off; so also can *Solanum capsicastrum*. This latter plant would not possibly stand so well as some, but whilst it did, it would be so very distinct from anything else; the leaves will drop, but if not over-watered it would not be long before a fresh lot were developed. *Isolepis gracilis* can be either raised from seed or increased by division, but whichever way is adopted, it should be the aim to obtain as good plants as possible in quite small pots. Some in 3-inch pots will be found very serviceable where there is much vase work or rustic baskets to fill; the growth when of the best is extremely graceful, as seen hanging over the sides in either instance. Larger plants in pots a size larger will be better for fringing mantel-pieces and such like work in the house or plant stages in the conservatory; beyond this size of pot it is not advisable to go for other than special purposes.

Ficus elastica is common enough, but its increase is not paid so much attention to as its merits deserve. A few plants may be seen, but it should be a few dozens instead if there is much vase work to attend to and tall plants particularly desirable. It strikes freely from shoots of medium or small size; strong ones are rather disposed to be long-jointed, and do not, as a rule, retain their lower leaves so well, nor do they make such presentable plants on the whole. For my own part I prefer cuttings with four or five leaves upon them. The propagation must be done in heat, not excessive, but sufficient to ensure quick root action; a bottom heat of about 80° and top heat of 70° will do very well. Thumb pots will be large enough to strike in, a shift being given when well rooted

into the next size, or if an extra good amount of roots has been made with a corresponding top growth, then two sizes larger will not be any too much. Propagation by eyes is a slower process, but a good one when a large stock is needed. As the plants become established they should be gradually inured to the ordinary temperature of a warm greenhouse. It is a good plan to cast the shoots into a tank of water for an hour or two before insertion, also to sponge the leaves when there is any trace of insects upon them. As the plants increase in size and become useful, see that they do not draw on one side; an upright plant looks much better. The variegated variety of *F. elastica* evidently grows more and more into favour, or it would not be so much sought after by the trade. Of the two, I consider that it requires a little more warmth and not quite so much exposure, with less moisture, otherwise the same treatment will suffice to grow it well. *Euryalatifolia variegata* is another most serviceable plant thriving well in quite a cool greenhouse. When one of the hardest of plants is required, this should have every consideration, whilst in any case it can be strongly recommended either for grouping or as a specimen in the conservatory. In a small state also it makes a good contrast to plants with dark green foliage, as in front of a group of *Camelias*, for instance. I have myself used it thus for several years, the plants always looking well. In a small state it makes a good bush, but as it gains in size a more pyramidal growth is the most effective. Cuttings will strike well in a gentle warmth, a sandy soil being used. Rather than put them where the heat is too much, I would prefer a cool place, so long as it is not too damp when air is excluded. When being grown on for use, full exposure to the sun will assist in bringing up the colours, as in the case of *Crotons*. *Aspidistra lurida* and the variegated form should not want any recommendation; the decorative florists and growers are fully alive to their value; the only fault they can find with either is that they last too long. Those who have large plants will do well to break them up in the course of the next few weeks, when a house is at liberty to put the stock in where the atmosphere is moist and congenial to fresh root-action and after-growth. It does not matter about retaining any soil upon the roots so long as there is a lead or two with three or four leaves. When the utmost amount of stock is needed, then it is best to plant out in loamy soil in a close pit, allowing only one lead; back growths also will form fresh breaks, only a little longer time is required. Plants that have been so badly used as to lose all their foliage can be broken up into little pieces and then be buried in soil, whence they will break away after the manner of *Dracenas*. By dividing a portion of the stock only at one time, plants fit for use will always be on hand. *Cyperus alternifolius* makes a most useful decorative plant. This can be grown large enough for all practical purposes in 6-inch and 8-inch pots. As the plants get shabby, it is not advisable to attempt to restore them, the better plan being to raise a fresh stock. This is easily done by taking some of the whorls, cutting off the stem close up to the same and shortening all the leaflets to within about 2 inches. Then they should be inserted in nearly all sand and placed in warmth, not necessarily a close pit, as long as they receive plenty of moisture. These, as they start, should be grown on freely, and good plants will soon be had. The variegated form is very beautiful, but comparatively tender, and requires a stove temperature to do it well; whereas the other may be grown in a temperate house.

The lighter forms of *Bamboos*, both tall and dwarf kinds, make very serviceable plants; the former are extremely elegant, and last well in unfavourable positions. The *Eulalias* are about the best of the Grasses. Both *E. japonica variegata* and *E. j. zebina* will be found of good service. The former will lighten up dark places or sombre-looking foliage. These should receive quite a cool treatment, being actually hardy in favourable positions. Another bright-looking plant, and one that lasts well, is *Coprosma Baueriana variegata*. It is

useful from the time it is in the smallest pot when well established. It surpasses the variegated *Veronica* and the *Euonymus* as a pot plant under glass. When it has been grown on until it reaches 3 feet or 4 feet in height it is most effective, and need not even be potted into large pots. *Ophiopogon Jaburan argenteo-variegatus* and *O. spicatus aureo-variegatus* are two enduring plants, both easily grown in a cool house and readily increased by division. *Anthericum lineare elegans* is another plant of Grass-like growth also well suited to the cool house, and for use as a margin to groups. A plant not nearly enough met with is *Ligularia Kämpferi argentea*, one also that is easily grown and as easily increased by division; it should, however, be potted in poor soil to induce a better variegation. This is a plant that looks well associated with Ferns or anything with dark green foliage. Of the hardier *Dracenas*, one of the best still is *D. rubra*; of this there is an improved form with longer leaves, rather paler in colour, and quite as hardy, called *D. Danielliana*. As a smaller plant *D. congesta* should be grown; no variety keeps better than this in small pots. *Aralia Sieboldi* and the variegated forms are all plants of noble growth, possessing leaves of great substance and durability. The first named is easily raised from seed, and when fairly established can be grown in a cold frame if needful, the others being kept in the greenhouse. In a temperate house the dwarf growing form of *Asparagus plumosus* will thrive well; in small pots it lasts a long time in rooms. Where a stock of ripe berries can be had its increase is easy.

PLANTSMAN.

Clivias.—When the soil is in a dry state during the winter these plants will keep without injury in a much lower temperature than is usually supposed, as if frost is just excluded they will remain in good condition. Soon after the advent of the new year additional heat should be given them, otherwise if the blossoms expand in a low temperature they will be wanting in both the size and richness of colouring noticeable in those that open in a warmer structure. An intermediate house is the best place for them, but where it is desired to prolong the flowering season as far as possible all the plants should not be removed into a higher temperature at the same time, as where brought in by degrees a succession is kept up for a considerable period, and if some are wintered altogether in the cool end of the stove or intermediate house they will as a rule be the first to flower. After removing them from their winter quarters into a warmer home, they must not be allowed to get very dry, as if this takes place the flowers suffer a good deal. Few classes of plants have shown so much improvement within the last few years as the *Clivias*, and in some of them the blooms are not only very richly coloured, but well formed and borne in large massive heads. They are certainly very imposing when in flower, and extremely useful where a display of bloom has to be kept up at all seasons.—H. P.

WINTER-FLOWERING SOFT-WOODED PLANTS.

THE necessity in all gardening matters of looking ahead is always in evidence at this season of the year when, the *Chrysanthemum* cuttings out of hand, one has to think about the plants that are to furnish a supply of bloom for next winter after the display of *Chrysanthemums* is over, and side by side with plants propagated for the coming summer months in the flower garden will be found such things as winter-blooming *Pelargoniums* and *Begonias*, *Bouvardias*, *Eupatoriums*, *Sparmannias*, *Libonias*, *Goldfussias anisophylla*, and the like. It is useless to think of a display from these things during the dull months without sufficient warmth; a minimum of 55° is not too high. Given this, however, a steady and continuous supply of flowers is guaranteed, and structures devoted to this race of plants are a very pleasing sight through December and January. Different methods of propagating are used with the several varieties of plants,

some, as the *Pelargoniums* and *Sparmannias*, singly in 3-inch pots; others, as the *Libonias* and *Goldfussia*, as common bedding stuff; whilst I generally strike some four or five *Begonia* cuttings in a 3-inch pot, and shift on without disturbing them. In all cases, with perhaps the exception of the *Bouvardias*, similar treatment is given when they are ready for potting off, viz., a shift into 5-inch or 6-inch pots, using for potting a fairly stiff compost, the greater part a friable loam. No long, rank growth is made in such a soil, but short stocky wood which ripens up well and throws an abundance of flower when the plants are introduced into a little warmth when autumn is fairly well advanced. A good place for all such stuff during the summer months is pits or frames that have been cleared of Potatoes; they should be well up to the glass and stand on a good ash bottom, with plenty of air day and night. There is a difference of opinion as to the necessity for shading, and this will depend greatly on the season, but in hot, dry weather I have always found a very light covering during the hottest part of the day decidedly beneficial. If no shade is given, the plants in their prominent position dry out so quickly, necessitating a too frequent use of the water-pot. From their distinct colours, the freedom with which they flower, and their value in a cut state, *Pelargoniums* take high rank as winter-flowering plants. If I were confined to three varieties, it would be *Raspail*, *Queen of Whites*, and *West Brighton Gem*, although these, good as they are, are likely to be eclipsed by the coming novelty, which, if rumour is correct, combines the truss and colour of *Raspail* with the habit and free-flowering properties of *West Brighton Gem*—an acquisition, indeed; the raiser has only to give us in addition a double pink and white of similar type. It is needless to enlarge on the value of winter-flowering *Begonias*. Their flowers are always appreciated, and are of great value for large vases. If only two or three varieties are required, *fuchsoides*, *Carrieri*, and *nitida* may be grown. It is difficult to speak too highly of *Eupatorium ageratoides* for the season under notice. Flowering from every shoot, it lasts a long time, and there is a great wealth of bloom for cutting; for all kinds of floral decoration, in the way of wreaths, crosses, &c., it is of great service. *Goldfussia anisophylla* is not showy, but flowers freely and continuously; it is of very easy culture, and makes a pretty and effective display associated with such things as *Libonia penrhosiensis* and a good strain of white *Cyclamen*. A nice batch of the last-named, together with a few *Cypripedium insigne*, *Epiphyllum* in variety, and some double white *Primulas*, may also be grown in the structure devoted to those things named at the commencement of these notes. Just at the worst time of the year, and at the decline of the earlier flowering things, as the *Bouvardias* and the members of the *Orchid* and *Cactus* families, the more strictly greenhouse plants can be transferred to a cooler and more airy structure.

E. BURRELL.

Claremont.

Reinwardtia tetragyna.—This, which was, I believe, re-introduced by Messrs. Veitch after being lost to our gardens for many years, must on no account be omitted from any list of winter-blooming plants for the stove or intermediate house, or in fact the warm part of the greenhouse, for it will flourish in a rather lower temperature than its better-known relative, *Reinwardtia trigyna*, usually met with under the name of *Linum trigynum*. *R. trigyna* is a freely branched plant of a half-shrubby character, whose brilliant orange-coloured flowers are borne for months together, while *R. tetragyna* is of a rather more woody nature, with the flowers collected together in larger heads, and in the colour of the blooms a good deal of difference exists, those of *R. tetragyna* being of a much lighter tint than the other. Both are of very easy culture, the most satisfactory way being to propagate them by means of cuttings in the spring and grow them on freely during the summer months, when they will under favourable conditions flower throughout the winter. Cuttings of the young growing shoots strike root

readily enough in the spring if just dibbled into pots of sandy soil and kept close after the manner of most soft-wooded subjects. As the summer advances they may with advantage be removed to a cool house or frame, but in all stages care must be taken not to over-water them, while at the same time a liberal use of the syringe is necessary in order to keep down their greatest enemy—red spider, which, if unchecked, will soon permanently disfigure the foliage. An open soil, consisting of loam and leaf-mould with a liberal amount of sand, will suit these plants well.—H. P.

TUBEROSES FOR EARLY WORK.

THE early consignments of these are now to hand; therefore a few remarks concerning them may be seasonable and of service. In the first place, it is satisfactory to note that the tubers themselves are not sufferers to the same extent as last year's importations by reason of the very severe and prolonged frost which completely ruined whole consignments, so much so that the heart would by the slightest touch come away readily, leaving a comparatively sound, though, of course, so far as we in England are concerned, useless exterior. At the best of times it is not easy to define what is a good flowering bulb, though, of course, size and solidity in proportion carry much weight, and where the two go hand in hand there is little fear but that the sample is fairly good. Other external signs of health and strength are a good heel still attached to the base of the tuber and a full complement of old roots; beyond these see that the neck is very firm; if this is so, then all is well. It is a significant fact in the case of Tuberoles that a greater percentage of them are flowerless than any other forced bulb, not that it is a natural result of forcing, for the same results ensue where they flower at about their usual time in frames or even in the open, and even in large batches of 20,000 or 30,000 it is a rare occurrence to get a greater proportion than 75 per cent. to flower. Even this percentage may be much reduced if account was taken of those plants that only perfect about two-thirds of their flowers. Fine selected samples will yield three dozen flowers to a spike, perfecting every one; while inferior samples will hardly average half this number, and, of course, of smaller flowers; consequently, the finer samples, say, costing a third more, with a double yield of better quality blooms, would be much the cheaper, and do away with the disappointment which generally follows the flowering of inferior or undersized samples. For these reasons as well as the saving in pots, potting and repotting, I strongly advocate selected samples at an increased rate. As soon as the bulbs are to hand the first thing to do is to divest them of all side shoots; this should not be put off, even supposing the bulbs are not required for early forcing, and they quickly put forth these side eyes when stored away. Sufficient having been cleaned to constitute an early batch, pot them at once into 3-inch or 4-inch pots, burying them to nearly two-thirds their depth, as they root freely almost to the neck. So far as soil is concerned, any good ordinary material will do if fairly rich. Tuberoles may be plunged in bottom-heat; indeed, they emit roots more readily when thus treated than by any other method. Supply water plentifully from the first and provide a humid atmosphere where this is possible or not injurious to more important crops. In various ways the Tuberose is somewhat accommodating, and a succession of flower is sure to be obtained even by the most haphazard treatment. For instance, if a few hundreds are placed on bottom-heat the same day as potted, some will in the course of a week or two be pushing up the flower-stems, while the majority will take twice or thrice as long; a few also, though not many, will push their flower-stems without making the usual leaves first, and such as these may be allowed to complete their flowering in the small pots, which they do quite well. But when they make a more natural start and plenty of roots is formed, they should be shifted into larger pots without delay. At this stage bottom heat may be continued or dispensed with, according to circumstances, but keep them well watered and frequently syringed. Thrips

and red spider play great havoc with Tuberoses if they once get established, and the only way to keep them away is to adopt preventive measures. Nothing is better for this purpose, cheaper, or simpler than syringing with Quassia and soft soap. I use about a 6-inch pottul of the former and a large tablespoonful of the latter to 3 gallons of soft water, gently boiling the water containing the Quassia chips for an hour or so till these have all sunk to the bottom of the vessel. Apply the mixture with a syringe in a lukewarm state.

E. J.

ORCHIDS.

RESTREPIAS.

I AM induced to say a few words about these plants through having received flowers of two from Mr. F. Moore, Glasnevin. Mr. Moore sends me flowers of *R. pandurata*, a species I had not previously seen. It is a very pretty and richly coloured form. *R. striata*, the other variety sent, I recently saw in bloom in the nurseries of Messrs. Low and Co. at Clapton. The flowers of *Restrepias* are indebted for their beauty to the enlargement of their lateral sepals, which ordinary observers take for the lip. These are brought up on the same level as the lip, and are more or less streaked and dotted with purple and gold, the petals being reduced to mere threads, the dorsal sepal also being much reduced. They are dwarf-growing plants, resembling in appearance the *Pleurothallis*, of which I used to grow many species. *Restrepias* come from great elevations, and consequently require but cool treatment. I like to grow them in shallow earthen pots, draining them well, and using for soil good peat fibre and chopped Sphagnum Moss. They should be hung up near the roof-glass in the *Odontoglossum* house, choosing the coolest end for this purpose, and at no season of the year should these little gems suffer by being kept short of water.

R. ANTENNIFERA.—This is a very elegant plant, and the best variety is a very showy species. This I purchased in M. Linden's establishment in Brussels about the year 1869, this being the first time, I think, the species was seen in flower in this country. The plant figured in the *Botanical Magazine* some eight years later is certainly not the same variety, if the same species. It is a robust grower. The stems bear a single leaf, which is thick and fleshy in texture and deep yellow. The dorsal sepal of the flower is lengthened out into a tail-like point, yellowish white, streaked with purple; petals very slender and, like the dorsal sepal, clubbed at the points. It is the large connate lateral sepals, however, which give the beauty to the plant. These are boat-shaped, divided at the point, reddish crimson, profusely dotted with purplish black. The oblong lip is nearly of the same colour as the lower sepals, but numerous colour varieties exist.

R. ELEGANS is similar in growth and habit to the last-named plant. The flowers, produced usually in pairs, stand up above the leaves. The dorsal sepal is white at the base, streaked with purple, clubbed at the point, where it is yellow; petals similarly coloured, but very much smaller; the boat-shaped connate lateral sepals bright yellow, profusely, but regularly dotted with bright reddish purple; lip small, of the same colour. This plant is a native of Caraccas and various places in Venezuela, where it grows at from 5000 feet to 6000 feet elevation.

R. NUDA.—This I remember to have seen in the Botanic Gardens of Berlin in 1861. It has white flowers, streaked with reddish purple, and is said to come from Venezuela.

R. PANDURATA. This is an exceedingly pretty species. The flowers are large, the dorsal sepal

and the petals white streaked with purple; the connate lateral sepals are each over an inch in length and nearly half an inch wide, whitish, flushed with rosy-crimson; dotted with lines of crimson-purple; lip small, rather deeper in colour. Native of Colombia.

R. VITTATA I have not seen for many years. I used to have a very nice specimen of it in the Kingston collection. It is a small-growing plant, having white flowers dotted with rosy-purple; the small lip yellow streaked with purplish-rose. This plant flowers very freely in the summer months. It comes from Colombia.

R. STRIATA.—This plant resembles *R. elegans* very much, but it differs from that species in having somewhat longer flowers, and in having the lower sepals regularly lined with stripes of reddish-brown.

R. XANTHOPHTHALMA.—This planted I flowered for the first time in 1861, it having been received the year previous from Mr. Salwyn, who, I believe, was connected with an expedition for obtaining the insects of Guatemala. The flowers of this are amongst the brightest and prettiest in the

nearly thirty years earlier by Linden. It is a native of New Grenada and Venezuela, where it was originally found at 6500 feet elevation. Roezl, however, mentions that he collected it at 12,000 feet and upwards. It has oval-oblong, compressed pseudo-bulbs, each of which bears a single narrow lanceolate leaf over 1 foot in length.

Dendrobium speciosum.—Although the species of *Dendrobium* inhabiting the mainland of Australia constitute a fair proportion of the genus, they do not as a whole compare either in beauty or horticultural value with the species found in India and the archipelago extending between it and the north of Australia. There are exceptions to the rule, however, and *D. speciosum* is undoubtedly one of them. In habit it is perhaps the stoutest of all the *Dendrobes*, its pseudo-bulbs being 1 foot high and nearly 2 inches in diameter at the base, whilst the three or four leaves at the top are exceptionally thick and leathery. Its flowers, produced during the present month, are borne in great numbers on an erect cylindrical raceme, which springs from the apex of the pseudo-bulb and is a foot or more long. The flowers, which are small



Part of a bed of white Spanish Onions.

family. The petals and the dorsal sepal are strongly clubbed at the apex, pale yellow dotted with rosy-purple; the connate lateral sepals have a bright yellow ground colour irregularly dotted with purple.

W. M. HUGH GOWER

Odontoglossum ramosissimum.—This uncommon *Odontoglossum* was represented at the Drill Hall meeting on February 9 by a fine spike from the late Mr. Statter's collection at Stand Hall. Evidently, it was from one of the finest forms of this Orchid yet seen in cultivation. The spike was branched and over 2 feet in length, the flowers it bore each measuring 2½ inches in vertical diameter. The sepals and petals are white, spotted with rich rosy purple towards the base, their markedly undulating margins not only adding much to the beauty of the flowers, but giving also a very distinctive character to the inflorescence as a whole; the lip is similar in colour. On the whole, it may be said that the species, as represented by the Stand Hall plant, is equal in beauty and elegance to any of that section of the genus with long branching racemes. It was first introduced to cultivation by Gustave Wallis, who sent it to Ghent in 1871, but it had been discovered

and pleasantly fragrant, are of a creamy or yellowish white. Like several other of the Australian species, *D. speciosum* requires cool treatment for the greater portion of the year, but from the time the young growths begin to push till they are say three-fourths grown the plants should have extra heat and moisture. It is found in New South Wales, Victoria, and Queensland, its first introduction to England being due to Allan Cunningham, who sent it to Kew in 1823. It was, therefore, one of the first Australian Orchids known under cultivation. It is known in its native country as the "Rock Lily."—B.

Phalænopsis casta. This beautiful variety has appeared again amongst an importation by the Messrs. Low, and a fine plant carrying twelve blooms is now flowering in their establishment. This is a supposed hybrid between *P. Aphrodite* and *P. Schilleriana*. The leaves are slightly variegated when young, but this passes away with age, and the flowers greatly resemble those of *P. Aphrodite*. The sepals and petals are pure white, full and rounded, with a slight flush of rosy-purple at the base; the lateral sepals are also spotted slightly with red with a light yellow tinge near the base. The three-lobed lip is also slightly tinged with yellow at the base of the side lobes and streaked with

crimson, the front lobe being white with a central streak of red, the base spotted with deep red. The tendrils in front are shorter than in *P. Aphrodite* and straight.—G.

PUBLIC GARDENS.

A recreation ground for Great Driffield.—Petitions have been presented to the Treasury from the Local Board for Great Driffield, and also from the ratepayers in the town, praying that a sum of money may be granted out of the large estate of a deceased resident gentleman, which has fallen to the Crown, for the purpose of providing a public recreation ground for the use of the inhabitants.

Open spaces.—The Tottenham Local Board has decided to purchase Bruce Castle and grounds, situate at Bruce Grove, Tottenham, at a cost of £15,000, for the purposes of a recreation ground for the use of the inhabitants of Tottenham, and negotiations are in progress for acquiring other open spaces for similar purposes in other parts of the parish. The St. Luke's Vestry has undertaken to maintain the "Oval" at Windsor Terrace, City Road, as a recreation resort. Trees and seats will be provided by the Metropolitan Public Gardens Association.

Expenditure on Parks and Open Spaces.—The report of the Parks and Open Spaces Committee included a large number of recommendations for the expending of money for the improvement of the parks and open spaces under their control, and among these amounts were: £600 for an additional children's gymnasium in Battersea Park, £500 for an additional gymnasium in Victoria Park, £750 for the purchase of a strip of land on the south-west corner of Well Street Common, Hackney, and £630 for the purchase and erection of band-stands. The committee reported that the Council having voted for the maintenance of its parks and open spaces from April 1, 1890, to March 31, 1891, the sum of £65,325, they had been able to carry out the work of maintenance for £57,965, or £7360 less than the estimate. The committee further recommended that the sum of £2000 should be contributed towards the £8000 required for the purchase of 9 acres 2 rods 12 poles of land on the summit of Telegraph Hill, Hatcham. These recommendations were adopted.

Alexandra Park and Palace.—The Parks and Open Spaces Committee reported upon this matter as follows: The Council has already, on the recommendation of the Parliamentary Committee, dealt with the question of the Bill introduced by the London Financial Association, as owners of the Alexandra Palace and grounds, to enable them to sell the property, by freeing it from certain restrictions which were imposed by Parliament upon a portion of the grounds. We have had before us, however, a letter from Mr. Littler, Q.C., chairman of the Middlesex County Council, suggesting the purchase, jointly, by that body, the Corporation of London, this Council, and certain other local bodies, of the whole of the property, comprising some 414 acres, including the palace, for the sum of £275,000, of which London is to contribute £120,000. We think that the question of contributing so large a sum should be left to the next Council, and for the present recommend that Mr. Littler be informed that the Council will oppose in Parliament any Bill promoted by the London Financial Association as owners of the Alexandra Palace and grounds. The chairman asked the chairman of the committee whether this was not rather too vague, as to "any" Bill being promoted. Should it not, he asked, be "the" Bill? Mr. Dickenson said that was so. The Council then adopted the committee's recommendation, with this slight amendment.

Superintendent of Parks and Open Spaces.—Much discussion took place on the presentation of the General Purposes Committee's report, submitting the names of three candidates for selection for the position of Superintendent of

Parks and Superintendent of Parks and Open Spaces, at a salary of £700 a year. The names of these gentlemen were: Lieut.-Colonel F. Bailey, Colonel J. C. Walker, and Mr. C. J. Ponsonby, and the committee recommended that Colonel Walker should be appointed. It was stated that the terms of the advertisement inserted in the newspapers had been departed from in respect to the limit of age being fixed at fifty years, and further, that the choice of the committee had previously fallen upon Mr. Ponsonby. Mr. Corbett moved as an amendment that the matter be referred back to the committee for further consideration, because two of the candidates above mentioned exceeded the age of fifty. Lord Rosebery, in supporting the amendment, said he felt compelled to oppose the committee in their recommendation. Whatever the critics of the Council might say, the reputation of the Council had been preserved without the possibility of contradiction from the suspicion of jobbery. There could be nothing of the nature of jobbery attached to this appointment, and that being so, he would not impute it, but, in the face of the terms of the advertisement issued by the Parks Committee, he felt bound to vote against the committee. Mr. Corbett's amendment was then voted upon and adopted by a large majority. Mr. Beachcroft moved as another amendment that the post should be re-advertised, without limiting the age to fifty. On being voted upon, this was lost. Mr. Campbell moved that the name of Mr. Ponsonby should be inserted in the report of the General Purposes Committee in the place of Col. Walker. This having been seconded, it was put to the council and rejected also. Mr. Corbett's amendment was then agreed to as a substantive motion.

RAINFALL.

I BEG to enclose, as I have done in former years, the rainfall at my own residence in Ireland, and that at Belvoir Castle, for 1891. Both places are situated in similar positions—inland, and about thirty-five miles from the sea. The last winter was much more disastrous at Belvoir than in Ireland. I lost little and no Roses to speak of. I have a large collection both of tender plants and Roses in the open. The principal plant I lost was a Madeira Palm I was trying to acclimatise in the open air.—BRINSLEY MARLAY.

BELVEDERE, WEST MEATH.

Month.	Total depth. Inches.	Greatest fall in 24 hours. Depth.	Date.	Number of days on which '01 or more fell.
Jan. ...	1.16	.26	22	12
Feb.29	.13	21	5
March ...	1.02	.23	25	10
April ...	2.72	.85	3	13
May ...	3.04	.42	23	16
June ...	2.20	.41	3	15
July ...	1.02	.24	1	9
Aug. ...	7.69	.85	17	26
Sept. ...	2.68	.80	5	16
Oct. ...	3.93	.83	13	13
Nov. ...	2.69	.80	10	12
Dec. ...	5.89	1.15	6	17
Total ...	34.33			164

—JAMES BAYLISS.

BELVOIR CASTLE, LINCOLNSHIRE.

Month.	Total depth. Inches.	Greatest fall in 24 hours. Depth.	Date.	Number of days on which '61 or more fell.
Jan. ...	1.14	.34	21	15
Feb. ...	0.69	.62	1	3
March ...	1.14	.20	8	17
April ...	2.53	.98	6	17
May ...	3.73	.83	28	16
June ...	2.32	.67	5	13
July ...	3.35	.90	8	17
Aug. ...	3.30	.42	18	23
Sept. ...	1.63	.30	22	17
Oct. ...	4.96	.98	7	24
Nov. ...	3.16	.59	16	21
Dec. ...	3.21	.38	9	20
Total ...	31.16			203

A remarkably dry February; the last three months of the year exceptionally wet (11.33 inches). Harvest operations much hindered by wet and sunless weather, protracted until October, even later in some instances. Very poor prospects of a fruit crop, the ripening of the wood being all-important, and this cannot be secured in a wet, cold, and sunless autumn.—W. INGRAM.

"The English Flower Garden."—The second edition of this is now quite out of print. The plates will be broken up and the book, as soon as possible, printed from new type by Messrs. R. and R. Clark, of Edinburgh.

Calcined bones.—Can burnt bones be utilised in any way for horticultural purposes? The bones when fresh are put into an iron pan, into which is packed steel and iron work to be case-hardened. The pan is then closed and put into a heated furnace for twenty-four hours, after which it is taken out and the contents emptied.—S. W.

Cypripedium insigne.—I forward you by this post a few flowers of *C. insigne*; you will see that there are many twin flowers. This *Cypripedium* does exceedingly well with me in a cool house. Some of the plants in 10-inch and 12-inch pots had fifty and sixty flowers. The first flowers opened in October.—T. R. CUCKNEY, *Eden Hall, Langcathy, R.S.O.*

Pollarding Willows.—I am about pollarding about 150 Willows from 50 feet to 60 feet in height growing on the banks of the lake here, and propose to cut them down to the height of 10 feet to 12 feet, at which height the wood is from 12 inches to 15 inches in diameter. The trees in question are every alternate one. When these have refurnished themselves with a good head (say in three or four years' time), the others will also be taken in hand in a similar manner. What do you think of the above method of treatment? and particularly I should like to know how best to dispose of the timber; it is fine and straight, the trees having never been cut down since they were planted about twenty-five years ago. Would any correspondent please state the approximate value per foot run of such Willow timber (averaging 10 inches to 12 inches in diameter)?—W. H.

Names of plants.—W.—The *Oncidium* were unaccompanied by any account of bulb or growth, so we could not name them; they are difficult.—J. James.—1, *Restrepia lineata*; 2, *Lælia anceps Williamsiana*; 3, *Dendrobium heterocarpum*.—F. G.—1, *Stenochlana heteromorpha*; 2, *Lindsea trapeziformis*; 3, *Hymenophyllum javanicum*; 4, *Trichomanes superbum*.—T. Rawson.—*Lælia anceps Percivaliana*.—Mrs. H. Franklin.—1, *Iris alata*, probably; 2, *Eranthemum pulchellum*.—Thos. Louther.—*Bertolonia guttata*.—James Nunn.—1, *Dendrobium heterocarpum*; 2, *Cirrhopetalum ornatum*; 3, *Cypripedium venustum spectabile*.—T. J.—It is *Platyterium Stenmaria*, and not *biforme*.—M. Austin.—*Sciadocalyx Warszewiczii*.—G. Doullton.—1, *Heterocentron mexicanum*; 2, *Medinilla farinosa*.—C. Trevis.—1, *Dictyocline Wilfordi*; 2, *Trichomanes Kaulfussii*; 3, *Lomaria fluviatilis*; 4, *Paragramma longifolia*.—H. Tracey.—1, a very fine form of *Cattleya Trianae*; 2, good form of *C. Percivaliana*.—W. Williams.—*Andersonia sprengeloides*, a plant rarely seen now.—H. Douglas.—1, *Cyrtanthus lutescens*; 2, *Griffinia Blumenhavia*; 3, *Hæmanthus deformis*.—G. T.—The small-flowered form of *Sisyrinchium grandiflorum*.—W. Carr.—*Rhododendron arboreum*.—J. A.—1, *Dendrobium speciosum*; 2, *Cestrum aurantiacum*.—W. Cliban & Son.—The common Butterbur (*Petasites vulgaris*).—T. F.—*Odontoglossum Rossi majus*.—T. M.—1, *Lælia autumnalis*; 2, *Oncidium pulvinatum*; 3, *Odontoglossum Lindleyanum*.—H. B.—1, *Boronia elatior*; 2, *Erica gracilis*; 3, *Cestrum aurantiacum*.—Reader.—1, *Retinospora pisifera*; 2, *R. p. aurea*; 3, *Thuja Lobbi*.

Names of fruit.—R. C. Coode.—Probably Fearn's Pippin.—F. S. S.—1, Wellington; 2, Sturmer; 3, Blenheim Orange (very small).—X. Y.—Apple, Wellington; Pear, Winter Nelis.

BOOK RECEIVED.

"Philosophical Notes on Botanical Subjects." By E. Bonavia, M.D. with 160 illustrations. London: Eyre and Spottiswoode.

WOODS AND FORESTS.

THINNING HARD-WOODED TREES.

THE style and extent of thinning hard-wooded trees greatly depend upon the varieties that are planted. Some trees require more room to mature than others, while others ought to be kept close together to check their straggling habit and ramifying side branches. The Oak, for instance, requires ample space to develop itself, and as considerable revenue is derived from the bark, and in some places from the branches as cord-wood, it should at all times have plenty of room. The Wych Elm and the Beech, on the other hand, although growing to large dimensions, and of a wide-spreading habit, should not be allowed more room than is necessary for their healthy growth, as neither the bark nor the branches are of much value. They also exhibit a tendency to produce much too rough branches and short stems, and the timber, if not of good quality, is unsaleable. The Ash, English Elm, Sycamore, and Birch require plenty of room, and are not so straggling, especially in their young state. The great point to be kept in view in thinning hard-wood plantations is to commence in good time, and not to wait until the trees become drawn up and weakly. It is not uncommon to see plantations left without thinning until the saplings have arrived at a marketable size. This is false economy, for it is better for the main crop to thin in time, even if the first thinnings are of no value. The loss on the thinnings will be made up in the health and extra growth of the trees left. It is equally objectionable to continue thinning longer than necessary with the view of deriving immediate revenue. In both cases the value of the main crop, which ought to be the principal object, is lost sight of, and the certain result is material loss in the end. It is by some recommended in thinning with a view to profit, that operations should commence as soon as the branches touch one another. A little careful pruning may sometimes defer it for a year. The thinning of hardwood plantations should, of course, commence before any injury is sustained; but not, in ordinary circumstances, before the second or third year after the side branches have met, and in no case should the operation be deferred until the side branches show signs of decay or till they have closed into one another well up the stem towards the leaders, as in such a case the trees will be deprived of the amount of light and air necessary for their healthy growth. Hard-wooded trees require more room for the spread of their branches and healthy growth than Conifers, but the plantations are generally filled in with Larch, Spruce or Scotch Fir as nurses for the intended crop. Under these circumstances such Conifers as are encroaching upon the hard-woods will generally be removed at the first thinning. Although Firs are the best nurses for hard-wood plantations when young, and also more valuable when of small size, great care must be taken not to let them crowd or over-shade the hard-woods. While their shelter is better than that of hard-woods, they are more ready to overgrow and destroy them. In the case of any hard-wooded tree dying out or getting damaged, it is advisable to leave one of the nurses to take its place for the time being. Any such tree left during the early thinnings can be removed as opportunity occurs. The great aim should be to preserve the hard-wooded sorts, however irregular the appearance may be at the early thinnings. Presuming that the nurses have all been removed, it is desirable to preserve the best and most healthy trees, irrespec-

tive of sorts, and never to cut a healthy, vigorous growing tree to make room for a small unhealthy neighbour for the sake of regularity. Such thinning must in the end turn out a great loss and disappointment to the owner. A little opening or larger gap is preferable to a sickly or ill-grown tree, and such openings can be rectified at the next thinning. No definite age can be given for commencing to thin for the first time, as all depends upon the soil and situation in which the trees are growing. Thinning may be performed too early as well as too late, and it may be overdone as well as carried too far. Great care should be taken not to err in either direction. X.

TOWN PLANTING.

(Continued from p. 156.)

THE WHITE BEAM TREE (*Pyrus Aria*).—In the chemically impure air of Glasgow, and even in the most confined parts, this hardy, medium-sized tree thrives in an almost remarkable way. Being a tree of hardy constitution, and also well able to luxuriate in the poorest of soils, perhaps afford to it additional facilities over many other kinds for continuing to thrive and look well in the midst of smoke and the impurities that always attend the town and city atmosphere. So far as ornamental qualities are concerned, too, the White Beam Tree is of considerable importance, the ample leaves, of a decided whitish tint on the under sides, being very different to the foliage of most of our commonly cultivated trees. But not only does *P. Aria* do well in the smoky atmosphere of our large towns, for most members of the family, including the highly ornamental Rowan Tree or Mountain Ash (*P. Aucuparia*), grow with the greatest freedom and flower and fruit from year to year. *P. Sorbus*, too, seems quite at home in many of the Glasgow and Sheffield squares and gardens, and is a highly ornamental species of not too large growth. The greatest value of these trees is their power of maintaining a healthy vigorous condition under not only atmospheric impurities, but when planted in soil of the poorest description. The Beam Tree in particular, and Mountain Ash as well, may be seen flourishing on some of our denuded limestone cliffs, and where hardly a particle of soil is to be found.

THE INDIAN BEAN (*Catalpa bignonioides*) has proved itself to be another excellent tree for the particular purpose under consideration. In many of the smoky districts of London the Indian Bean looks surprisingly happy, the big leaves being freely produced, while the whole appearance of the tree indicates at least a certain amount of unity with its surroundings. Certainly, it is not to be despised as a town tree, and its value in this way is doubly enhanced by the profusion of flowers which established trees of fair size produce. When broken over by accident or otherwise, a valuable trait in the character of the Indian Bean is that it will sucker or send out numerous young shoots from the old crown or stem. Perhaps the Indian Bean is to some persons a rather ungainly specimen, and such is, no doubt, in plenty of cases perfectly true, but as it stands pruning well, shooting out with the utmost freedom from any amputated limb, the heavier and more ill-proportioned branches can be trimmed to almost any required shape. It is perfectly hardy when once established, a rapid grower, and does well in a great variety of soils, but is all the better of a position that is not too exposed—at least to cold draughts of long duration.

THE HEART-LEAVED ALDER (*Alnus cordata*)—an uncommon tree in most parts of the country—has been found in London to be most valuable for withstanding prolonged smoke and chemical fumes; indeed, in that particular respect it has, so far as present experiments show, few rivals. Unfortunately, it is not particularly hardy, though why is, to me at least, a mystery, for I had a large number killed outright during the last winter. Un-

like the common Alder (*A. glutinosa*), the species in question does not, when unfavourably exposed, die back bit by bit, and this, if maintained in old trees, will certainly make the heart-leaved tree of increased value over its fellow species. The Heart-leaved Alder has been planted experimentally in a garden that, practically speaking, has been set aside in one of the worst districts of London, so far as soot, smoke and a heated atmosphere are concerned, for the trial of such trees and shrubs as have been considered at all suitable for town planting, and it has quite surprised the originators of this novel, but commendable method of getting together a suitable list of trees for withstanding the city atmosphere. Better, perhaps, under the name of *A. cordifolia* is the present species known in our books on trees, but that here used is generally applied by the few nurserymen who keep the plant. It is a native of Southern Europe generally, and is readily enough distinguished from our British tree by the general aspect resembling that of a Poplar, while the bark of the tree is light in colour, the leaves glabrous and shining and in outline ovate-cordate, with distinctly serrated margins. So far as we at present know, it is not particular as to the soil in which it is planted, one specimen in rather damp and poor soil growing away with great rapidity.

THE COMMON MULBERRY (*Morus nigra*) will be admitted by everyone who has taken notice of its growth in two at least of our most smoky cities—Liverpool and Manchester—to well merit a place in our list of town trees. Even in the great metropolis, and where built in by bricks and mortar and almost without breathing room, may be seen not a few fine old Mulberry trees whose battered stems and sadly mutilated limbs but too openly betoken the ill usage to which they have been subjected. The Mulberry is a peculiar tree in its way, for to-day we may see it fresh and healthy almost in the heart of our greatest centres of industry, while to-morrow, at a great altitude and where fully exposed to cold and wind, it branches well out, only seeming to branch more freely where the winds and cold are worst to deal with. No one need hesitate to plant a healthy young Mulberry with plenty of roots in his garden in the centre of any English town, for experiments have already demonstrated that it is well suited for such a place.

THE HONEY LOCUST (*Gleditsia triacanthos*) may be seen flourishing in the worst smoke-infested parts of Manchester, and in London, where only a limited number of trees and shrubs can cope with their atmospheric surroundings, this tree maintains its own in an almost surprising manner. Further to its value as a town tree may be added the pretty flowers, the curious seed-pods being an additional attraction. The Honey Locust is a Privet in its hardy nature, for plant it as you will, and in poor, stony soils, too, it soon takes root and grows away with perfect freedom. In habit it is rather too spreading for a town tree, but this objection, as before stated, must at once be waived in recognition of its thriving so well in a vitiated and impure town atmosphere. A. D. W.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols., price, cloth, £29 8s.

"Garden" Illustrated Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—Giving descriptions of upwards of thirteen hundred of the most ornamental species with directions for their arrangement culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

No. 1058. SATURDAY, February 27, 1892. Vol. XLI.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakspere.

ROSE GARDEN.

HYBRID PERPETUAL ROSES.

WHEN these are well grown under glass and obtained so early in the season as the present, I do not think there are any flowers more acceptable. Even the flowers of the Tea-scented varieties cannot surpass well-finished blooms of dark-coloured Hybrid Perpetuals for general attractiveness. To-day (Feb. 19), while we are surrounded with 6 inches of frozen snow, half-a-dozen flowers of this class of Rose are enlivening my room in a very cheerful manner. During midsummer of last year I gave an article upon Hybrid Perpetuals in pots. It is from the earliest batch of these that I have been able to cut the flowers now before me. There is a peculiar richness about the perfume of the darker-coloured Hybrid Perpetuals that is never found among the Tea-scented class. General Jacqueminot is the sweetest-scented flower of the lot, but it is very closely followed by Duc de Montpensier. This latter was introduced about twelve years ago, and is very seldom met with now. I find it an excellent garden Rose, and also one of the best for early forcing. Its colour is a most intense scarlet with deeper shadings of velvety richness, very free-flowering and sweetly scented. To my mind it is these sweet-scented, free-flowering and deep or dark red-coloured Hybrid Perpetuals that are so invaluable where the forcing of Roses is carried on. We cannot get anything approaching these shades from among the Teas or Noisettes, and very few other flowers provide them. Lighter-coloured Hybrid Perpetuals I would not force, because these shades can be had in much better form and quality from a few plants of the Tea-scented section, which also produces quite three times the number of blooms obtainable from a Hybrid Perpetual.

To give a brief description of how these plants have been grown, so as to supply a few dark Roses at the present time, and which enhance the beauty of the more easily forced Teas, I will start from the time when they were potted up from the open ground. This was in the autumn of 1890. They were put into a good compost of turfy loam, leaf soil and well-decayed manure. It is necessary to be very careful to secure good drainage to the pots, as the plants will remain in them for some three years. As soon as potted they were placed in a deep frame and plunged about 3 inches over the tops of the pots. Here they stayed until February of 1891, merely having the protection of a light during the severe weather of that time. They were then hard pruned and grown on very steadily in a temperature of 45° to 60°, increasing it gradually as the days lengthened. When the pots were fairly full of roots the plants had a little liquid manure. By the end of June last they had made the bulk of their growth for the season, and were then stood out in the open air, being plunged and kept rather dry at the roots. During August and September they were almost as well ripened as plants in the open would be during the months of November and December. They were allowed to receive the first slight frosts of last autumn and then were overhauled to make their drainage secure, the top soil being removed as deeply as practicable without injury to the

roots and a mulching of stiff loam and manure given. When this was done they were placed in the frame again and the lights put on. This caused their roots to become active. Early in November some of them were pruned and introduced into a very gentle heat, being well syringed overhead during all bright weather. The remainder were also pruned and introduced in small batches at a time. The plants soon pushed into growth, and were still subjected to a cooler treatment than Roses generally receive. Those that the blooms in front of me were cut from were removed into a warmer section of the house during the early part of January, and are now looking very healthy and fairly well covered with flower-buds. By treating the remainder in the same way, and giving all of them a little stimulant twice a week, I shall have a succession of dark-coloured Roses to intermix with the chaste and delicate colours of the Teas. The following twelve varieties are by far the best for this purpose, and I have placed them in order of merit: General Jacqueminot, Fisher Holmes, Duc de Montpensier, A. K. Williams, Countess of Oxford, Souvenir de C. Montault, Mme. Victor Verdier, La Rosière, Ulrich Brunner, Abel Carrière, Docteur Andry, and Duke of Wellington.

The chief errors made in forcing these Roses are too high a temperature—especially during the first stages of their growth—and not securing an efficient ripening of the wood during the previous autumn. They are easily kept clean and free from all insect pests if one will but keep a close watch on the plants and apply remedies upon their very first appearance. A frequent syringing with a weak solution of soft soap or any other harmless insecticide will prevent insects and diseases from gaining any hold upon the plants. RIDGEWOOD.

ROSE WILLIAM A. RICHARDSON.

THIS Rose does not give general satisfaction. I am acquainted with a plant that, although it is trained to a south wall and the roots have the run of a good border, only produces an insignificant number of flowers in the summer and none in the autumn. I must confess the plant makes ample growth and appears in vigorous health. I am, however, disposed to think that unskilful pruning has something to do with the scarcity of the flowers. I think the roots are so well nourished that the wood does not get properly ripened, and further, for the sake of neatness the growth during the summer is so often cut away, that that which is made later is too sappy to bloom either in the autumn or following summer. I am strengthened in this opinion because there is another plant not more than three miles distant that flowers regularly twice a year. This plant covers the south front of a gardener's cottage, as well as the porch, and gracefully arches over the windows. A similar case occurs in Mr. Baker's garden at Exeter. There I have seen this Rose reaching to the top of a high wall, with the branches trained in the most informal manner, yet producing hundreds of flowers in the month of June. It is very evident that the secret of getting this Rose to bloom freely is to allow the growth plenty of freedom. The young growth which it makes after the first lot of flowers is over should in a great measure be preserved, and some of the old wood cut out in the winter to make room for it. Even then it should not be secured to the wall in the same stiff and formal manner as the branches of a fruit tree, as is too often the case with climbing Roses. Instead of cutting off so much of the young wood, it is better to tie some of it across the old stems and cut some of it out after the early lot of flowers is over. I do not find this Rose of much value when its roots are not restricted. It grows freely—too freely in fact—and flowers abundantly, but after

the middle of April the flower-buds expand so quickly in warm weather, that even in a few hours they open and are useless.

For growing in pots for early forcing there is not a more useful Rose, as it makes growth freely, and when this is well ripened it produces plenty of flowers. I find plants in 12-inch or 14-inch pots most useful, and the best way to manage them is to only have one lot of flowers in the year. When worked on these lines they should be rather severely pruned as soon as the first lot of flowers is over. If they are then kept under glass until midsummer and the roots receive during that time two top-dressings of some concentrated manure, they will make good growth. Very little pruning is required in the autumn, except to remove any weak growth. All the long shoots that are made should be trained in an informal manner to sticks, taking care that the ends are lower than the base; each shoot will then produce several bunches of flowers. The sportive character of this Rose is without a parallel, except in one instance. This freak of Nature is often a source of disappointment to some people. I have known instances in which the plant has been condemned as not true to name because some of the flowers come of a creamy white colour instead of orange-yellow. This sporting is, however, characteristic of the variety, but more so in some plants than others. Invariably these whitish-coloured flowers are more numerous in the autumn than in the summer. There is evidently a good deal of relationship between this Rose and another introduced from France about twelve years ago under the name of Shirley Hibberd. Both have the same tendency to produce white and yellow blooms on the same branch. There is, however, a great difference in other respects, W. A. Richardson being hardy, while the other is rather tender, and instead of being a climber, the variety Shirley Hibberd is dwarf. J. C. CLARKE.

ROSE NOTES.

ROSES IN MASSES OR UPON BANKS.—It is a great pity that bold masses of Roses are not planted in the manner suggested by "D. T. F." in THE GARDEN of February 13 (p. 141). Almost all Roses in gardens are subjected to an annual pruning, the practice being slightly varied to suit the special needs of the kind. We might treat them more as we should flowering shrubs, only using the knife when necessary to cut out old or weak useless wood. It is easy to imagine how delightful a bank of such Roses would be. Although "D. T. F." would regard Gloire de Dijon as head and shoulders above its fellows, yet some of them, such as Bouquet d'Or, have nothing to lose by comparison, and we shall not be far wrong if we mass them near each other. We may clothe the longest and highest walls with these rampant and all but ever-blooming Roses, and then we shall know nothing of that greater beauty developed by huge bushes growing and flowering freely. They have this extra advantage, too, in being easily rooted from cuttings and growing quite as strongly and flowering as freely upon their own roots as upon foster ones. The formation of new groups or the replanting of old ones with young plants is therefore simplified, or, at any rate, cheapened, because we can raise a stock of plants for the purpose at little cost. In gardens where there are neither walls nor fences to clothe, these fine Roses often are not to be found, yet they are second to none in the matter of hardiness, vigour, and long season of blooming.

ROSES AND THE WINTER.—Those who cling to the idea of artificial protection suffer considerable vexation almost every winter. Perhaps in a few very exceptional cases protection is necessary, but it is wiser and saves labour to try if it cannot be dispensed with. It is not often we get such a winter as that of 1890-91, when the Roses might have been covered and left for eight weeks. We had a short spell of sharp weather at the opening of the present year, succeeded by mild weather, which caused the buds to swell. It was a matter of importance to at once withdraw protection where it had been applied. This is where the danger comes in, for no sooner has the protec-

tive material been cleared away than our fickle climate once more changed. As I write (February 19) 20° of frost have been recorded, and the Roses are covered up with Nature's best protector—a thick mantle of snow. This may not last long through lengthening warmer days, but sharp frosts are likely to continue, and if we do protect our Roses we must continually cover up and uncover them, because, owing to the uncertainties of our climate, we cannot say when it will be needed or for how long or short a period. The only gain that many can show for having protected their Roses is the preservation of some weak or unripened wood that later on has to be cut away when pruning, and therefore it matters not if such wood is killed. Tea Roses make much of such wood, and when unchecked by early cold it is often growing till near midwinter. Such plants left unprotected might appear as if they had been hard hit by frost, and yet they would be pruned as usual and then appear all right.

SPRING PLANTING.—Circumstances sometimes necessitate deferring planting until spring, but when such is the case an early attempt should be made to finish the operation. Unless forced to do so, I would not plant later than that time when plants can be lifted from the open ground. I know that even after Roses have made some inches of growth, and removal of open-air plants is entirely out of the question, we are advised that we may plant pot Roses with perfect safety and fair success. Some go to considerable length to justify this practice, because it is said to give the plants such an excellent opportunity to become well established before the following winter. The same might be said on behalf of plants from the open ground planted a month previously, and I should have no doubts concerning the future welfare of these. But as regards the pot plants I do not think that the ball of roots as turned out of the pot and planted in the ground is conducive to the prolonged life and well-being of the plants. I may cite a case to prove this, but admit it is an extreme example. A large wall Rose, *Rêve d'Or*, suddenly died from no apparent cause. The plant originally occupied a pot, and when taken up after death the main roots were so coiled and interwoven, that they could not be separated. They seemed to have impeded each other's work and doubtless caused the death of the plant. This extreme case shows what to a less injurious degree is going on with other plants, and a free, healthy root-growth is almost an impossibility. On one occasion, and in the month of May, when I had to plant several large groups of Tea Roses, the plants of course being in growth and in pots, the ball of each plant was carefully washed out in a tub of water placed beside the bed. The roots were disentangled, and after planting, the Roses were copiously watered and grew away freely, though warm weather followed. These are now old established groups, and the plants have always done well. If open-air plants or those from pots, provided their balls are disentangled, cannot be planted between the months of October and April, it is in the end better to lose a season.

THE MANETTI STOCK.—Many amateur Rose growers are now learning the truth as regards the value of this stock. I was recently conversing with a policeman who had spent some years of his early life in gardens and nurseries, and consequently is often consulted upon gardening matters by his fellow-men. He mentioned several instances in which he had been asked to look at Roses which were growing vigorously enough, but failed to produce a flower. The reason to him was readily apparent, for the supposed Roses were nothing but Manetti bushes. A large trade grower told me last year that he was called in by a gentleman to see his Roses, which grew but never flowered, and what he saw was a grand lot of Manetti bushes.

A. H.

Rose stocks in America.—I saw in THE GARDEN, p. 16 of the present year, just the thing that I have been looking for, that is, a more suitable stock for working Roses on. The Dog Roses

are subject to some fault at the roots; they die from no apparent cause in July and August when the Roses that are on them are in full bloom. The roots always go first; I have lost several hundreds in a season. *Rosa cinnamomea* is the variety that I have used mostly for standards and also for dwarfs. —G. A. KNIGHT, *Victoria, B.C.*

Rose Climbing Devoniensis.—For years I looked upon this Rose as not worthy of the name of Climbing when compared with such as *Gloire de Dijon*, *Cheshunt Hybrid*, and many others. It does seem strange to see the behaviour of this Rose in the same garden. For instance, here we have a plant of it growing against a partition of a cold Peach house. Although it has been planted for six or seven years, it has not made double that number of feet of growth. On the opposite side a *Lamarque* has made a stem as thick as one's arm. *Cheshunt Hybrid* and *Gloire de Dijon* have made equally as much growth. We have a plant of the Climbing *Devoniensis* growing against the abbey and in this position it grows freely. My own idea is that the fault is in the stock. That it is a grand climber in some places is proved by a plant growing and covering the roof of a *Camellia* house at Cricket St. Thomas, Chard; also one growing and covering the roof of the conservatory at Farnboro' Park, Hants; both of these have stems as thick as one's arm. —J. CROOK, *Furde Abbey.*

ORCHIDS.

CATTLEYA SPECIOSISSIMA.

It is rather a curious time of the year to see this plant in bloom, but I have received a magnificent flower of it from Mr. Woodward, asking if it is the true *C. labiata*, adding that he had bought it as that plant. "J. W." may rest assured that he has a very superior form of *C. labiata*, although not the typical plant. So few people now-a-days know what the typical plant was like, that they jump at conclusions, and many persons have got what they call the true old *labiata*, but which has really little or no resemblance to it, saving in the fact that it has a double sheath and flowers in the beginning of winter. In some instances the flowers I have seen are very inferior to those of the true *C. labiata*. I had the charge, some years ago, of a piece of the original plant in Mr. Cattley's collection. The closest approach to the flower of the true *C. labiata* was a bloom received last autumn from Mr. Broome, of Llandudno, in which the sepals and petals were full and the colour a rich bright rosy crimson, not a rosy blush, as it has been frequently described; the front lobe of a deep velvety magenta-purple, creamy-yellow behind, and with a broad streak of this rich colour passing into the throat; the margin almost white, and the edge beautifully fringed. Mr. Woodward's flower is of very much the same colour, the lip being rich magenta, deeply bi-lobed in front, with a band of the same colour passing into the throat. Beyond this colour is a zone of rich yellow, and beyond this again a zone of white, this coming up on to the reflexed edges of the lip, which meet over the column. I think there can be little doubt but that this plant is *C. speciosissima*. True, the growth of *C. speciosissima* is very different from that of *C. labiata*. In *C. speciosissima* the pseudo-bulbs are closely and deeply furrowed, forming an almost terete stem; in *C. labiata* they are stout, club-shaped, and become furrowed with age. The leaves of *C. speciosissima* are somewhat thick and in the way of those of *C. Eldorado*, but in *C. labiata* they are large, deep green and frequently tinged with rosy purple beneath; so that "J. W." should be able to tell at once if his plant is *C.*

speciosissima. It may be a form of the old type, because, no doubt, it will vary as well as *C. Trianae*, *C. Mendeli*, and others. One thing is certain: if the plants now in the country as *Lindley's* old and true *labiata* do not produce anything worse than the flower before me, they will be glorious. I am only presuming this bloom is from an imported plant. *C. speciosissima* is a plant which has always with me proved a somewhat shy bloomer. Although it makes strong growths, they do not always produce flowers. Quite the opposite must be claimed for *C. labiata*.

WM. HUGH GOWER.

Cypripedium Morganiae. A flower of this which I recently saw in the collection of Mr. Measures at Streatham is certainly the finest which has yet come under my notice. The flower is large, having a wonderful pouch, the ground colour of the dorsal sepals and the petals being very bright, heavily spotted and streaked. It is a very fine variety, and the parents chosen to produce this plant must have been of extra good form and colour. —W. H. G.

Lissochilus giganteus. I have received a flower of this plant from Mr. Williams, of Holloway, he having received it from France from the Duc de Massa. The flowers are of a rich rose colour with a saccate lip some 2 inches across. This plant is said to grow in ground which is liable to be flooded by the rise of the tide. Mr. Williams says it was growing in the Cattleya house when he saw it in the autumn, and the spike from which the flower now before me came was carrying twenty-five blooms. The plant is also in the collection of Sir Trevor Lawrence. —G.

Cattleya Trianae.—A flower of this species has been received from Mr. S. Kerslake, gardener to the Rev. E. Handley, Bath. The lip is large and the front lobe has a solid blotch of rich crimson-lake an inch broad, bordered with a white frilled margin, which is beautifully crisp. The throat is stained with pale orange-yellow, and the side lobes are stained with rich rose; the sepals and petals are lilac, the latter crisp at the margins. It is these which spoil it, for instead of being large and rounded, filling up the space between the sepals, they are narrow. It may improve, however, and I should like to see it another season. —W. G.

Imported Dendrobium nobile.—W. Denison, gardener to Mr. T. A. Gledstanes, The Manor House, Gunnersbury, sends me some blooms of this species for my opinion. Some of them are remarkably good, those marked 2, 4 and 6 being particularly noticeable for their size and their deep rich markings. No. 5 has somewhat the appearance of *Dendrobium Dominianum*; I should like to see this again another season. No. 9 is *Dendrobium luteolum*, while the one without a number was surely not imported with the others. It is *Dendrobium Ainsworthii*, one of the most beautiful amongst the garden hybrids. The *Vandas* are both varieties of *V. tricolor insignis*, not *V. insignis* without the tricolor. —H. G.

Cœlogyne cristata.—I am much interested in the article on *Cœlogyne cristata* which appeared on p. 135. I started six months ago with a very small collection of Orchids, intending to confine myself to those that would do with the coolest treatment, and began with the cheapest kinds until I had gained a little experience. But I was persuaded by a neighbour to buy (very cheap) a few which I knew were not strictly cool-house Orchids. The best of these was a large pan of *Cœlogyne cristata*, apparently in very good condition. I kept it in the vinery during the autumn, but since October it has been in a fernery where the temperature in frosty weather occasionally falls as low as 42° or 43° at night. The plant showed no signs of suffering during the cold weather and began to push several flower-spikes, but I find that as soon as they get about 2 inches long they begin to shrivel, and I think even the pseudo-bulbs now show signs of shrivelling. This last symptom may be due to

water having been entirely withheld for the last week or two, with the idea that too much moisture might have caused the flower-spikes to decay. From what "A. W." says, I think it is possible that the pseudo-bulbs are too much crowded and insufficiently nourished, and so cannot perfect the flowers. Two or three *Calanthes* (Veitchi and vestita) which have been treated in the same way have also begun to push flower-spikes, which have rotted away when 2 in. or 3 in. long. Here, again, I was told that too much moisture was the cause, but I suspect it is too little heat. I should be very grateful for any advice.—G. G.

Dendrobium philippinense.—Flowers of this plant come to me from Mr. Cypher, of Cheltenham, for a good variety of *D. heterocarpum*. I have no doubt that it is a variety of that species, but the growth is very distinct, the bulbs being much taller, the flowers also larger, with all the parts more acute, while the tip of the lip is not recurved, as in the typical *heterocarpum*; the whole flower is creamy-yellow; the base of the lip is of an orange-yellow, streaked with dull reddish-purple, but it lacks the delightful fragrance which is so strong in the other forms of *heterocarpum*. This plant was imported by the Messrs. Low and Co. a few years ago in considerable quantities, but it was sent to the Messrs. Loddiges by Hugh Cuming fifty years ago from the island of Luzon, where it grows mostly on trees near the sea-coast.—G.

Warscewiczella velata (W. Hunter).—This is the name of the pretty flower you send me, or, at least, one of the names which it has received. Botanists seem to waver between *Bollea*, *Pescatorea*, *Huntleya*, *Zygopetalum* and *Warrea*, so that you may call it by whichever generic name you please. The above is, however, the name under which it has been described by Bateman, and to this I adhere. I am pleased to see the *Orchid* world more alive to the beauties of the various plants which have received the above names. The plant in question bears a single flower upon the stem, the sepals and petals of which are creamy-white, the dorsal sepal being of about the same size as the petals, the lateral ones smaller. The lip is large and spreading, creamy-white on the outside, the margin broadly bordered with rose in the flower before me, and the disc streaked with bluish-purple. It is pleasantly fragrant. These plants are not difficult to grow, the cool end of the *Cattleya* house being quite warm enough for them. They enjoy moisture to their roots and in the atmosphere all the season.—W. H. G.

Trichocentrum triquetrum.—*Trichocentrum* is a genus of *Orchids* so little known, that it was gratifying to see a plant of this charming little species at the Royal Horticultural Society's meeting on February 9. *T. triquetrum* is the latest addition to the genus, having been described by Mr. Rolfe last year. The leaves are flat and scimitar-shaped, the whole plant being 4 inches to 6 inches high. The Iris-like habit of the plant is one occasionally met with amongst *Orchids*, but by no means frequently, and, as a rule, in species of little horticultural value. This, however, is an exception, a well-grown plant making a very pretty picture. The scape is produced from the centre of the growth, and bears a single flower. The sepals and petals are of a pale yellow, the lip being darker and stained with orange-coloured blotches. The striking features of the flower are the large, almost disproportionate, size of the lip and the long, slender, pointed spur which stands out behind. This interesting plant was introduced from Peru by Messrs. Charlesworth, Shuttleworth and Co., and flowered for the first time last May. It should be grown in baskets or pans suspended near the glass in the warm house, giving it plenty of water during growth.

Pleione humilis.—Not only does this species differ from the better-known kinds of Indian *Crocuses* by flowering three or four months later than they do, but its pseudo-bulbs are different in shape and its flowers quite distinct. Whilst not, perhaps, of so great value as a garden *Orchid* as *P. lagenaria* and *P. Wallichiana*, it is well worth cultivation. This is well shown by several pans now

flowering in the cool house at Kew, which prove that the species presents no exception to the free-blooming properties of *Pleiones* when well grown. The pseudo-bulbs are of a uniform rich green, and they do not have the sudden narrowing at the top seen in the earlier-flowering species, but taper gradually from the base upwards almost to a point. The flowers are produced either singly or in pairs on the scapes, and each measures 3 inches to 4 inches across. The sepals and petals, which are narrow and pointed, spread almost to their full extent; they vary in colour slightly. The plants under notice have them of a pale purple-rose, but sometimes this is reduced to a mere tinge and occasionally they are pure white. The lip is large and funnel-shaped, expanding widely at the mouth, where it is at least an inch across. It is also pale purple-rose, but marked with lines and blotches of a deeper and more definitely purple shade. The margin is ciliated, and there are several rows of hairs running lengthwise. The species occurs at altitudes of 7000 feet to 8000 feet in Nepal and Sikkim. It was introduced to England in 1850. The cultivation of *Pleiones* has on more than one occasion been detailed in *THE GARDEN*; the treatment of this is identical with that of the other species above mentioned, except that owing to its later flowering it should not be potted until March (or as soon as the flowers are over).

MASDEVALLIAS OF THE CHIMÆROID GROUP.

I AM induced to say a few words upon these plants through having three flowers of remarkably fine forms of *M. Chimæra*, *M. bella* and *M. Roezli* sent me from Mr. Cypher, of Cheltenham, where plants of this section are remarkably well done. The plants belonging to this section naturally grow at a lower elevation than many others; indeed, we are told that many of the brighter-coloured species occur above the limits of the forest, so that although *Masdevallias* are usually grown in the same house with the *Odontoglossums*, they really require a separate house. Although this is the case, the plants of this section of the family require a warmer position than the great majority of the *Odontoglossums*, and Mr. Cypher tells me these plants are usually wintered in the *Cattleya* house at Cheltenham, and here they do well. A large amount of soil should not be placed about their roots. They also require thorough drainage, because they are plants which require plenty of moisture to their roots and in the atmosphere. At no period during the whole season should the plants be allowed to suffer from want of water, although less will be required during the dull dark days of winter. The plants of this section mostly make pendent flower-spikes; therefore it is best to grow them in open wire baskets. Wire baskets I like better than teak wood, because they are more lasting. The plants like light, but during the summer months they must not be exposed to the sun.

M. BELLA.—The form sent by Mr. Cypher is a very fine one. It was first introduced by the Messrs. Low some fifteen years ago. It is much like *M. Chimæra*; its flowers, however, are more triangular and the surface is smooth; moreover, it has a large pure white shell-like lip which readily distinguishes it; the sepals are tawny-yellow on the inside, profusely spotted with very deep purplish-brown; each sepal is lengthened out into a tail some 4 inches in length. The outside of the flowers is deep purple. It comes from New Grenada, and is found in company with the next species,

M. CHIMÆRA.—The flowers of this kind measure from 12 inches to 18 inches from tip to tip of the tail-like points of the sepals; the flower is triangular, but not so squarely cut as in *M. bella*, the slipper-like lip being very much smaller than in the

latter plant, white; the sepals ovate, more or less hairy, pale yellow in colour, thickly spotted and barred with deep purple; the tails are wholly of a blackish purple. These flowers, which resemble huge spiders, will last in full beauty two or three weeks. The spike should remain intact and not be cut, as several blooms will be developed in succession.

M. ROEZLI.—The flowers of this kind appear to be smaller than those of the two previously named plants, and the sepals appear to be more pointed. The whole surface of the sepals is thickly studded with deep purplish spots; lip larger than in *M. Chimæra*, white, tinged with rosy-pink.

WM. HUGH GOWER.

Aerides vandarum.—This was figured in the *Botanical Magazine* in 1857 as *A. cylindricum*, and is known in some gardens still under that name. This *Aerides* is, however, quite different from the species to which the name properly belongs. *A. cylindricum* is a native of Southern India; whereas *A. vandarum* is found in Sikkim and Khasia. There are several points of resemblance between the two, more especially in the slender, terete stems and leaves, but they differ considerably in the flowers, the lip of *A. cylindricum* having a short, stout spur, whilst that of *A. vandarum* is long, pointed, and curves forward very markedly. The latter species is now in flower at Kew, one of the spikes carrying three fully developed flowers; this number is the highest recorded as being borne on one spike, although four may evidently be produced. The sepals and petals are white, flushed with rose, especially towards the tips, and much undulated. The lip is of remarkable shape; the side lobes are erect at each side of the column, being broad at the base and tapering upwards to a jagged point; the middle lobe, on the other hand, is bent downwards, and attached to it is the long, tapering, horn-like spur. The colour of the lip is similar to that of the sepals. The whole flower is $2\frac{1}{2}$ inches in diameter. This *Vanda* is of as easy cultivation as the generality of the genus. Coming as it does from Northern India, at elevations of 4000 feet to 5000 feet, it does not require the most tropical treatment. The coolest part of the East Indian house is as suitable a position as any. Imported plants may be fastened to stout pieces of wood, to which, if kept constantly moist, they will soon attach themselves by their roots. It flowered in England for the first time at Hornsey in 1857.

SHORT NOTES.—ORCHIDS.

Lælia anceps Williamsi (H. E. G.).—This is the name of the variety. It appears to me to be the finest form which has come under my notice; the petals broad and the whole flower large and of good substance.—W. H. G.

Odontoglossums (W. Ganser).—It is a somewhat difficult thing to know what to call these. They both appear to be natural hybrids, *O. crispum* being one of the parents, and I should think *O. gloriosum* the other. They are exceedingly pretty, but I do not think them distinct enough to bear a name. I have frequently seen similar forms. The *Vanda* is a form of tricolor insignis.—W. H. G.

Phalænopsis Stuartiana.—This kind I noted flowering with Messrs. Low, and I have received a bloom of a very fine form from Messrs. Seeger and Tropp. This appears to resemble a form of *P. Stuartiana nobilis*, the sepals and petals being round and full, slightly over 3 inches across, pure white, the lower half of the lateral sepals being stained with bright yellow and profusely dotted with bright reddish-brown; the lip is also similarly coloured.—W.

Dendrobium chlorops (T. T.).—This is a somewhat unusual flower, but it is not by any means a new species, it having been introduced by the Messrs. Loddiges, of Hackney, nearly fifty years ago. The want of brilliancy has perhaps something to do with its being so seldom seen, the flowers being of a creamy-white with a green centre. It appears to be abundant, and is frequently sent home with other *Dendrobies*.—W. H. G.

Pleione humilis with two flowers (C. R. L. S.).—I do not remember to have seen the typical plant

with two flowers upon a peduncle, but I have heard of the variety known as tricolor frequently producing two flowers. It is this variety, I should think, which you have now flowering. Other species, again, will occasionally produce a pair of flowers upon one stem; this is, however, due to culture. The kind known as *P. birmanica* is usually two-flowered.—G.

NOTES OF THE WEEK.

Apple Cockle Pippin.—This is a first-rate Apple for the dessert during January and February. It is not so much grown as it should be. Except from healthy vigorous trees, it is of small size. It is remarkably firm in the flesh, with a crisp and pleasant aromatic flavour.

Aralia Sieboldi.—In your last issue "F. H." states that *Aralia Sieboldi* does not appear to seed freely in this country. I have several plants fifteen years old and upwards. They have been in the conservatory during that time; temperature of house about 50° during the winter months. Annually one or more plants mature several bunches of good seed. The seed is now nearly ripe, and will be sown as soon as gathered. I sow the seed in heat, and grow the plants in the same until large enough for use; then a greenhouse temperature will suit them. I find the plants useful for plunging in beds during the summer.—GEORGE HARRIS, *Alnwick Castle Gardens*.

International fruit show.—The promoters of this exhibition, which it is intended shall be held in September or October next, petitioned the Court of Common Council on the 18th inst. to grant them, for the space of four weeks, the use of a plot of ground on the Thames Embankment within the precincts of the City. The deputation was introduced by Alderman Sir James Whitehead, Bart. The prayer of the petition was granted, and the provisional committee will at once proceed to elaborate a scheme, and appoint the executive committee to carry the same into effect.

Iris reticulata purpurea.—We forward herewith a bloom of *Iris reticulata purpurea* (new) for your inspection. It has been grown in a cold frame. Kindly give your opinion of it in your columns.—JOHN LAING & SONS.

* A fine distinct form. We have, however, seen it before, although it is still very rare. It has a fragrance of Violets like the type. The flowers are a trifle small, and the colour, though distinct, is not so bright as in the type. Flowers deep purple, with white and dark brown markings on the falls. It is well worth a place in the spring garden.—ED.

Chimonanthus fragrans.—This delightfully perfumed shrub has again flowered well. It annually ripens here a moderate crop of seed-pods, those of 1891 still hanging. The tree is trained against the wall of my cottage and pruned similar to a Peach tree. The pleasing perfume which scents the surrounding atmosphere, is especially agreeable when the weather allows us to open the windows. The seed-pod, resembling a Filbert Nut, contains two seeds, very much like small French Bean seed in size and appearance.—W. CRUMP, *Madresfield Court, Malvern*.

Saxifraga luteo-purpurea is one of the earliest to flower in the open air, being a very little later than *S. Burseriana*. The flowers of luteo-purpurea are clear primrose-yellow, in loose corymbs. It is a natural hybrid between *S. media* and *S. aretioides*, and is the form nearest the latter parent. The form nearest the former species is *S. ambigua*, which I have not seen alive, but it has the purple flowers and spicate inflorescence of *S. media*, which it also resembles in habit. *S. luteo-purpurea* is a splendid rock plant and always flowers with freedom. It is not so subject to the attacks of slugs as *S. Burseriana*, and is of a hardier constitution.—K.

The Glory of the Snow (*Chionodoxa*), the species or distinct varieties of which have increased in the last few years from two to seven or eight, are coming into bloom, and, contrary to our expectation, they are going to flower well. *C. gigantea* or *grandiflora* is one of the most robust and

prettiest of the whole genus. The flowers are larger as a rule than those of *C. Lucilia*, of a violet-blue, and are very striking when seen in dense tufts, as they certainly ought to be. All the forms seed freely, and if left undisturbed soon form a large group. They all do well in Grass. Our bulbs, planted in Grass several years ago, are very strong now, giving much larger flowers than the newly-imported ones. The flowers of *C. sardensis* are small, but they are of the most intense gentian-blue, with little or no white in the eye.

Cœlogyne cristata.—I enclose a photograph of a plant of *Cœlogyne cristata* which is in flower with us at present; number of spikes, eighty-three; diameter of plant, 2 feet 7 inches. It is growing in an 11-inch pot.—JAMES ROSS, *Burys Court, Reigate*.

* The most beautiful photograph of this we have ever seen, showing a remarkably fine specimen. We should have been happy to have engraved it had we not done the plant so often.—ED.

Lectures on fruit culture.—A course of lectures is about to be commenced on fruit culture by Mr. P. Rodbard Malleon, F.R.H.S., late sub-agent to Lord Sudeley. These lectures are promoted by the County Council. The attendance of gardeners, farmers, and others interested in fruit-growing is particularly directed to what will unquestionably be a valuable means of gathering information. The course will commence on Tuesday at Sandy, on Wednesday at Biggleswade, and on Thursday at Bedford, when the Mayor will preside, and there are six weekly lectures. The subjects embrace planting, pruning, raising young trees, cultivation and manuring, insect pests, gathering and marketing.

Odontosoria aculeata (syn., *Davallia aculeata*).—Can Mr. Gower or any reader of THE GARDEN say whether the above Fern is to be found in English collections at the present time? It is so distinct in growth and elegant, that I am induced to ask the question out of admiration for an old favourite. Twenty years ago it was a popular plant in collections of Ferns, and I well remember about that date, large specimens—4 feet high and as much through—were exhibited at one of the late summer shows of the Liverpool Horticultural Society when they were held in the Botanic Gardens, Edge Lane. When well grown it is one of the most beautiful fine-foliaged plants I know. I am afraid the present generation of Fern growers is not acquainted with it.—FILICES.

The Midland Carnation and Picotee Society.—We are pleased to see that the interest in the Carnation is on the increase, and that a society has been formed in the midlands to encourage its cultivation. From a schedule to hand, we learn that the exhibition will be held on August 6 at Birmingham. The schedule is a very comprehensive one, and comprises classes for florists' varieties, border Carnations, sprays, and plants in pots. The prize list and medals amount to over £100, and the promoters announce that should there be a surplus, they will give donations to the Gardeners' Orphan Fund and also the Gardeners' Benevolent Institution. We hope that growers in every part of the country will endeavour to make the show a success, and that the institutions referred to may be largely benefited. Copies of the schedule with all particulars may be had of Mr. R. Sydenham, Tenby Street, Birmingham, or of Mr. W. Dean, Dolphin Road, Sparkhill, Birmingham.

Cypripedium Lindleyanum.—Whilst, on the whole, the South American section of the Lady's Slippers (the *Selenipediums*) are inferior in beauty to those from the Eastern Hemisphere, they show, on the other hand, a more marked peculiarity of form and structure. The highest development of this is found in *C. caudatum* and its varieties, but in the species under notice the same character is also strikingly shown. As is usual in most of the *Selenipedium* group, the scapes are high, frequently attaining a length of over 3 feet; they are conspicuously pubescent, a character which also extends to portions of the flower. The flowers, which in vertical diameter measure about 3 inches,

are of various shades of green, relieved and enlivened by red-brown veins on the sepals and a network of similarly coloured nerves on the helmet-shaped lip. The petals are deflexed, their margins being undulated and furnished with short hairs. A spike bearing several flowers was exhibited at the last meeting in the Drill Hall. The species has very stout rigid leaves $1\frac{1}{2}$ feet to 2 feet long, of a bright green, and rendered distinct by a thin band of yellow round the margin. It flowered at Kew in 1885, and the plant, having been gathered on rocks at the Kaieteur Falls, in Demerara, was named *C. kaieteurum*, not having bloomed previously in England. It was found, however, to be identical with a plant discovered in Lindley's time by Schomburgk near the Roraima Mountain, and named in compliment to that great orchidist.

The weather.—Mr. J. Forbes, in writing to us from Hawick, N.B., says that the thermometer fell to zero on the morning of February 19.

— Seldom have we in this part of the country a spell of such severe weather as we are passing through at present. On the morning of the 17th we had 20° of frost, and during the day a fall of 2 inches or 3 inches of snow, which still lies; on the 18th, 16°, and so on up to the present date, freezing all day long. Worse than the frost itself, and increasing its intensity, is the howling blast of remorseless east winds which accompanies it; it fairly takes one's breath away. Even strong labouring men working in exposed wind-swept situations are compelled to abandon their work, utterly unable to withstand its penetrating keenness and intensity. The effects of such severity will assuredly prove disastrous to vegetation. Previous to this visitation we had some fine bushes of *Rhododendrons* in full bloom, one of which I intended having photographed and sent to you for engraving, but of course now all are destroyed.—J. R., *Tan-y-bwlch, N. Wales, Feb. 20*.

— On Monday, February 15, at 8 a.m., snow began to fall, and by 1 o'clock there was a depth of 10 inches. Cedars, Scotch Firs, and various Conifers were very much broken down. On Tuesday, at 6 a.m., there were 15° of frost; on Tuesday night, 34°; and at 6 a.m. on Wednesday morning, 40°. Thursday, 6 a.m., 18°; Friday, 6 a.m., 32°; Saturday, at 6 a.m., 7°, with snow-storms at intervals every day during the week ending February 20. The thermometer was 4 feet from the ground.—E. JAMES, *The Gardens, Wanlip Hall, Leicester*.

Camellia reticulata.—In size of flower this is much the finest of all the *Camellias*; in colour, too, it is inferior to none, the petals being of the softest and richest rose. Its greatest charm, however, undoubtedly lies in the beautifully informal arrangement of the corolla. Unlike the stiff, evenly-set flowers of many varieties of *C. japonica*, the petals are irregularly placed in two or three whorls on the outside, the centre being occupied by a bunch of yellow stamens. Both in colour and arrangement the flower presents a considerable resemblance to that of the Moutan *Prœny*. The petals are each about 2 inches across and undulated, the whole flower being 5 inches or even more in diameter. *C. reticulata* (which is a true species) is easily distinguished from *C. japonica* by the leaves being of a dark, but not shining green. The specific name refers to their more prominent network of veins. This *Camellia* has already been brought to the notice of the readers of THE GARDEN by a coloured plate, and the plant from which this was prepared is now flowering beautifully in the large temperate house at Kew. It has been planted out in this house for many years and now stands 10 feet high and nearly as much in diameter. It was introduced from China in 1820 by Captain Rawes, an officer of the East India Company, in an importation memorable on account of containing *Primula sinensis*. Four years after it was again brought over by Parkes, one of the Horticultural Society's collectors, and flowered at Chiswick in 1829. The species may be said to stand amongst the very first of conservatory plants, and the fact of its blooming as early in the year as February adds greatly to its value.—B.

FLOWER GARDEN.

THE ASTILBES.

THE robust-growing Astilbes are somewhat similar in appearance to the Spiræas of the Aruncus set, but coarser and bolder, and perhaps better suited for the margin of a lake or pond or for the shrubby border. They belong to the same order as the Saxifrages, and although one species in particular, viz., *A. japonica*, has been long known as *Spiræa japonica*, it will be found on examination to have only three carpels. There are seven or eight species in cultivation at the present time, the best known of which are *A. japonica* and *A. rivularis*, the accompanying cut of which gives a good idea of the elegance and grace of its feathery flower-stems. Moist places in the woodland or wild garden will be found most suitable for such kinds as *A. decandra*, *A. rivularis*, *A. rubra*, and *A. Thunbergi*, the last being also known as *Spiræa Thunbergi*, and long cultivated in collections of hardy flowers. Astilbes lend themselves readily to grouping, the varied foliage, which in a few of the species is very handsome, making a healthy and beautiful undergrowth, over which the tall feathery plumes of white or red flowers tower with telling effect. On large rockeries, and with a background and rich free soil they are very effective summer-flowering plants, though requiring perhaps more room than can well be spared on the majority of rockeries. As mixed border plants they are only eclipsed by *Spiræa Aruncus*; they are, however, more varied in character, and have bolder and more massive foliage. All are increased with facility by division of the roots, and some by the runners or toes, which are produced in abundance. They all affect moist ground, in which they grow luxuriantly and produce a wealth of foliage that would otherwise be lost.

A. CHINENSIS, only recently introduced to cultivation through, I believe, the exertions of Mr. W. E. Gumbleton, of Cork, is a dwarf species more nearly resembling *A. japonica* than any of the others. The whole plant rarely exceeds 1½ feet to 2 feet in height, the leaves triternate, thin in texture, and pale green. The flower-stem is branched; the flowers, white tinged rose or purple, and closely packed on shortish spikes, are very pretty. A native of China, flowering in July. *A. odontophylla* is a synonym.

A. DECANDRA.—An American species introduced into English gardens about 1812. In habit it resembles *Spiræa Aruncus*, but is a stronger and coarser plant, growing from 3 feet to 5 feet in height. The leaves are biternate, of an unusual glaucous blue colour, the flowers white in branched spikes. A massive and very handsome leaved plant well adapted for shady woods and similar places.

A. JAPONICA is too well known under the names of *Spiræa* and *Hoteia japonica* to require more than passing notice. It is a splendid hardy herbaceous plant, of dense tufted habit, growing from 1 foot to 1½ feet high. The leaves are triternate, produced in great abundance, leathery in texture, and of a dark glossy green. The flowers, which appear in early summer, are produced in large panicle clusters, pure white, and very effective on the ground of dark foliage. It is largely used for greenhouse work in spring, being as a rule forced early. These forced plants, instead of being thrown away, should be planted out in groups in the woods or pleasure grounds, where they will soon recover. Its failure in the open air is due largely to dry and poor or cold clayey soils, and if attention is given to this I have no fear but success will result. It is a charming plant and well repays a little trouble. Native of Japan. The variety *multiflora* sent out a short time ago has a stiffer habit and a more

branched inflorescence. The variety *variegata*, with yellow and green variegated foliage, is a very pretty sort, in which the flowers are more numerous and more closely packed than in the type.

A. RIVULARIS, from the temperate Himalayas from Cashmere to Bhotan, where it is found in abundance from 5000 feet to 9000 feet elevation, is a charming species with an airy elegant habit, which makes it a useful associate of other bold foliaged plants. It grows about 3 feet in height; the biternate leaves, of a usually rusty green, last until late autumn. The flowers, yellowish-white or tinged red, are produced on large loose arching panicles, and are very effective. A most useful plant for the margins of ponds and damp shady woods.

A. RUBRA.—A beautiful and perfectly hardy plant from the Khasia Mountains, 4000 feet to 6000 feet elevation, where it was originally found by Dr. Griffith. It has the habit and general appearance



Astilbe rivularis.

of a *Spiræa*, flowering freely throughout late summer and autumn. The rhizomes are horizontal, giving off long fibrous roots; the flower-stems, usually from 4 feet to 6 feet in height, are covered with long brown hairs. The leaves are biternate, with clasping stipules at the base. The flowers, rose or deep red, are very numerous, in dense panicles. Introduced about 1851, and well adapted for grouping in sub-tropical gardening.

A. THUNBERGI (*Hoteia Thunbergi* of botanists) is a handsome *Spiræa*-like species introduced from Japan about a dozen years ago by the Messrs. Veitch. It grows from 2 feet to 3 feet in height with a bold graceful habit, resembling somewhat the better-known *Spiræa Aruncus*. The leaves are bipinnate and the yellowish-white panicles of flowers rise well above the foliage. A charming plant for the mixed border, and better still in rich soil in shady woods. It is figured in the *Floral Magazine* (new series), tab. 457.

D. K.

INTERESTING WILD FLOWERS.

MANY of the plants which grow wild in our fields and hedges are as interesting and as pretty as those which are cultivated in our gardens. In climbing plants the great wild white *Convolvulus* (*Calystegia Sepium*) has exceedingly handsome large white flowers, and its bud, enclosed in bracts, is very beautiful also. Its rapid growth and the way in which it flings itself over everything within its reach make it an undesirable weed when it gets into the garden, though the beauty of its large flowers seems to make it worthy of a place there. Bindweed is the right English name for this plant, and it is a very appropriate one, for it binds itself to every kind of brushwood until its own leaves and flowers have hidden its support from view. Black Bryony is another handsome climber which we frequently see in our hedges, its fine heart-shaped, glossy leaves looking almost as if they were varnished. This plant belongs to the class

of endogens, which are distinguished usually by having parallel veins in the leaves, as in the case of Lilies and Daffodils. But the veins of the leaves of this black Bryony (*Tamus communis*) are reticulated, and therefore form an exception to the rule. The scarlet berries in autumn when the leaves are turning black or yellow are familiar and striking, but the plant is most beautiful in the summer, when its leaves are green and bright. This plant illustrates the singular power of climbers for holding on to things which are suitable for their support. The tendrils are at first almost straight, but as they sway about in the wind they come in contact with a neighbouring branch, round which they rapidly coil themselves. Before this they are extremely soft and flexible, but as soon as they have coiled round their support they become rigid, so that they cannot be taken from it without breaking. If a wide flat leaf be presented to the tendril it will have no effect upon it, as it cannot twine round it; it must be a twig or something small enough for this delicate member to enfold. All this is equally shown in that common climber on our walls, the blue Passion Flower.

Another curious form of climbing plants is shown in those which twist themselves about other plants on which they live as parasites. A familiar instance of this may be found in the wild Dodder (*Cuscuta Epithymum*), which may very often be found twisting itself in a most singular manner about the Gorse which grows on our wild breezy downs. Sometimes a plant of Furze is almost hidden by the mass of red thread-like stems of this parasite. This and other true parasites, such as the wild Broom-rape (*Orobanche*), are distinguished from the great bulk of the members of the vegetable kingdom by having no green on any part of

them. Green colouring, or chlorophyll, has a very important function to perform in plants. It is the presence of this which enables the plant to feed on inorganic food taken into the body of the plant in solution. Hence those parasites which live only on organic matter derived from the plants on which they live have no chlorophyll. Mistletoe has got on a stage beyond the *Cuscuta*, and has food and water from the tree on which it lives, but having green in its leaves, it is capable also of deriving inorganic nourishment through these from the air like ordinary plants.

The plant or tree on which a parasite lives is usually called its "host," but the hospitality which the guest obtains is enforced, and is a great injury to its host. Broom-rape is an ugly, but curious looking plant, having only different shades of yellowish brown, and a careless person might easily pass it by as a withered leaf. It has absolutely no chlorophyll or green colouring matter. It lives on

organic food which it draws from the roots of Brom or Funz.

On a wild, breezy, sandy warren in South Devon may be found a little plant which grows there, and there only *Trichonema Columba*. It is a pretty little flower with a bulbous root, and comes into blossom, as so many of our bulbous plants do, in early spring. Bulbs are not common with us as wild flowers, but there is the lovely little Vernal Squill (*Scilla verna*), which is one of our most interesting wild flowers, and where it does grow it is usually most abundant. It seems to like the sea air, and will grow on the short Grass which is generally to be found on cliffs. It comes very early in the year. Another *Scilla*, which flowers in the autumn, is not nearly so pretty as the spring species. I saw lately in some periodical that a man boasted of digging up some thousands of these beautiful wild flowers. It is a pity they cannot be protected.

Worcestershire and some other counties have quantities of the wild Colchicum (*Colchicum autumnale*), or Meadow Saffron, growing in their large flat pastures. This *Crocus* is also common in gardens and well merits a place there, partly on account of the time when it flowers, which is just when autumn days are getting short and chill. Cottagers often take up the roots and leave them to flower on the window-sill without any earth. After the flowers are over the bulbs are again planted out. Bluebells have a habit of massing themselves in open glades in our woods, so that in early summer they add a peculiar feature to woodland scenery, and one which has a most striking artistic effect. Ramsons (*Allium ursinum*) will do the same in the densest shade, but, beautiful as the flower of this *Allium* is, the stench produced by a quantity of its flowers does away with the possibility of any pleasure in seeing it. Bluebells, on the contrary, give a pleasant odour as you pass them by in the woods. The wild Fritillary (*Fritillaria Meleagris*) is another of our wild flowers which is permitted a place, and a well-deserved place, too, in our gardens. It is popularly called Snake's-head, and the colour of the flower somewhat resembles that of the common barred snake or adder. It seems to like abundance of water, as it grows in damp meadows, being well known for making its appearance annually in Christ Church Meadows, Oxford. It can scarcely be called a common wild flower, but I have met with it in various places.

On the sandy beaches round about our coast there are several plants of great interest. First amongst them is the Sea Holly, which Leader has so beautifully introduced into his pictures. The whole appearance of this plant, *Sea Eryngo* (*Eryngium maritimum*), is most striking. It is Thistle-like with remarkably rigid and glaucous leaves, which are spiny and crisp. It is a plant which seems to have the power of living almost without water; the sand in which it grows seems generally so dry and powdery. But its long fleshy roots go out in search of water, and though every shower is rapidly drained away, the roots can assimilate and keep what they need of moisture, they are so tough and strong. The plant is interesting in many ways, but by no means so beautiful as our garden species (*amethystinum* or *giganteum*). The flowers of the whole family are so singularly tough and leathery, that they will make a winter room decoration with other so-called Everlastings.

Near this *Eryngo* will sometimes be found the yellow Horned Poppy (*Glaucium luteum*), a curious plant, glaucous like the *Sea Eryngo* and having large yellow flowers, which, however, like most of the Poppies, do not last long in bloom. As soon as the flower has gone, a long seed-pod takes its place. So long are these pods, that they almost look like stems without leaves. Both these curious seaside plants grow on the sandy beach near Par Station, Cornwall, and as I feel that it is utterly impossible that any destructive tourist in his search after strange plants could do either of these any real harm, there is no reason why a place easy of access where they grow should not be mentioned. Taken from their sea breezes and their sandy soil, they would soon probably cease to be objects of interest

to anyone. On another beach not far from Par grows a most singular plant, out of reach of the waves, but not out of reach of the salt spray from them. This is the common Henbane (*Hyoscyamus niger*). It is a singular-looking plant with fetid leaves, which are striking from the juice which exudes from them. It has altogether a wicked look about it; if a plant can be said to be wicked-looking, I think this one can. It is tall in its mode of growth and its flowers are rather prettily veined with purple on a cream-coloured ground. It is very poisonous, but, like most poisons, it is used in medicine. I had experience of its powerful effect once when recovering from typhoid fever. It was given as a narcotic. On the same coast will be found Sea Lavender (*Statice Limonium*), not at all worthy of its name, for it has no scent. The Sea Thrift, which clothes the grassy cliffs with its pink blossoms, contributes, with that strange plant Lady's Fingers (*Anthyllis vulneraria*), to make a rich garden by the sea in summer-time.

A GLOUCESTERSHIRE PARSON.

GENTIANA ACALULIS.

DESPITE the fact that this is one of the oldest and, perhaps, the most familiar of garden plants, it is also one that we too rarely see in good condition. In some gardens where heavy soils obtain this *Gentian* will grow, but will hardly flower at all, certainly not with the freedom it displays in other gardens where it may have no more attention paid it. I know two gardens where the natural soil is heavy and clayey, and where this *Gentian* grew freely enough, but it only in either produced very few flowers. Nor was this the result of neglect altogether, for in one of the gardens to which I allude I attempted to remedy the existing state of things, but without avail. The patches were a foot across, the growth densely crowded, but one or two flowers at most was the total that each plant carried in any season. I divided some of these clumps into ten or a dozen pieces, planted them in good soil and rammed them firmly against a stone edging, adding old mortar rubbish to each in planting. After this they grew freely enough, but their flowering was by no means satisfactory, and when I saw them some eighteen months ago there appeared but very little improvement. The soil was clay, the subsoil lias clay. Yet in the same garden, in fact in the same border, such things as Globe Flowers, Dodecatheons, Fair Maids of France, St. Bruno's Lily, Pæonies, Muscari, Hepaticas, and many such things grew freely. Double Pyrethrums, however, were not a success any more than the *Gentian*, while a frail little thing like *Campanula pumila alba* grew and spread like a weed. One always finds this *Gentian* extremely happy in those gardens where the subsoil is sand, gravel, or sandstone, always growing freely and also flowering freely. The thing needful to keep up a rich annual display of flowers is occasional transplanting. It is a mistake to allow individual plants to develop patches a foot or more across, for these do not flower so freely or in proportion to the amount of young growth as do the smaller-sized plants, and where effect in large groups is needed, this is best secured by planting pieces or tufts about 4 inches across at a few inches apart. These young plants will blossom freely and produce fine flowers. There are two months of the year which I prefer for planting this useful flower—they are October and February, the former preferred because the autumn rains always thoroughly settle the plant, while the cool moist nature of the atmosphere seems consistent with a fair start. The latter month is also good, but should the rude winds of March put in an appearance before the plants have got hold of the soil, a thorough soaking of water and a scattering of short litter all over the plants will do much for their benefit. A most essential detail is very firm planting. This cannot be done to excess. In planting a new bed I have repeatedly trodden the surface and afterwards beaten it quite firm with a spade, and after planting I have repeated the operation without fear. I was led to

adopt these apparently extreme measures by noticing many years ago that a line of plants constituting an edging to a path and bed did so much better than the plants in the bed itself, and I was well assured that many of the plants came in for a good deal of treading.

The worst season of the whole year to transplant this *Gentian* is when it is in full bloom, and yet we see baskets of it at flowering time in Covent Garden and other markets for disposal, too often, I fear, to complete their flowering and disappear, particularly if a hot summer ensues. Plants of it in bloom always command a ready sale, and though the price be not high, an acre of so of land in a favoured locality devoted to its culture for market would not entail much expense beyond planting, while the results would amply repay the venture.

E. J.

FLOWER BEDS ON LAWNS.

I HAVE heard it remarked on several occasions by visitors to a certain well-known garden when they were upon the terrace in front of the house, with a broad expanse of turf in front of them and fine large trees around belted by ever-green shrubs, "What a splendid place for some flower beds this would be!" I do not myself share this opinion at all, but am rather entirely opposed to it: in this respect I think I should carry many with me, yet more without doubt would share the opposite opinion, and be disposed to add the flower beds to afford garish colour where none really was required. What a mistaken idea this is on the part of some to be so enthusiastic over beds of flowers, more particularly such as are usually termed bedding plants, being planted out in May, probably June in some localities, and cut down by frost in October with not much more than four months of an actually good return for the labour of first storing through the winter, and then working up a stock to the required number in the spring. On the face of it, if looked at from a sensible standpoint, it seems absurd to expend so much labour and to allow so much valuable room to be taken up whilst under glass for such a short season of display. I am more fully persuaded than ever that we should seek further for decorative material amongst our hardy ornamental trees and shrubs than we do. If this were done, what a saving there would be! I have frequently heard gardeners say that sufficient labour is not allowed to keep an establishment in a high state of perfection. When and where this is the case, begin at once by reducing the amount of tender bedding plants and rely more upon hardy subjects, more particularly when any of these flower beds are situated upon the lawn, as alluded to at the commencement of this article. I do not mean to say that bedding out, in the common acceptance of the term, should be obliterated from our gardens; far from it in some instances; but probably in others, if considerably reduced, the permanent appearance of the garden would be conspicuously enhanced, more particularly where any large number of flower beds is dotted here and there in a promiscuous manner about the pleasure grounds. For my own part I would prefer to see all such bedding out confined to the flower garden proper, and not be allowed to extend itself upon the broader expanses of turf. In this way it would not intrude upon the scenery in an undesirable manner, as must of necessity be the case where large beds mainly composed of one colour constitute an important, but not truly effective feature. If beds upon lawns are filled with tender subjects, it is much better to rely upon sub-tropical plants of such kinds as are easily grown and which soon make a good display, as Cannas,

Castor-oil plants, Giant Hemp, Nicotiana, and other plants which make a rapid growth and present a bold appearance.

When there is not room to prepare a good stock of such as these, others of a hardy constitution can be chosen; indeed, I would prefer them in very many instances; such, for instance, as the Giant Fennel, a truly noble and most elegant plant, and one also that is quite hardy in nearly or quite all parts of the country. This variety of the Fennel should be much more grown than it is. Those who have not thus far grown it will do well to give it a trial. The seed should be sown now or as soon as possible; in this way a stock can easily be had. For the first season or two this Fennel does not appear so satisfactory as one would desire, but when once well established it is a fine object in any garden of good size. Then there are those beautiful fine-foliaged plants the Funkias, some with glaucous, others with glossy foliage; these make effective margins to taller plants. Of other plants, sufficient use is not often made of the ornamental Nuts or Filberts. I refer to such as *Corylus Avellana laciniata*, *C. A. aurea*, *C. A. pendula*, and, above all, to *C. A. purpurea* (the purple-leaved Filbert); these will all bear pruning to keep them within proper limits. The silvery variegated Maple or *Negundo* can be utilised far more than it often is. This is more frequently than not seen as a standard, but dwarf bushes are most effective, and may be kept within due bounds by the use of the knife. *Prunus pissardi* can be adapted to the same purpose, and will likewise submit to annual pruning. Then there is the valuable series of hardy Japanese Maples, all most effective and distinctly ornamental plants. *Aralia Sieboldi* as an evergreen, and *A. japonica* as a deciduous variety, should both be added to the list; so also should *Iris pseudacorus variegata*, *Euonymus radicans variegatus*, and the forms of *E. japonicus* with golden and silvery variegation where not too much exposed. By the judicious planting of any trees or shrubs which assume rich tints either in the spring or the autumn, it is easy to add to the beauty and attractiveness of our pleasure grounds. This should be a subject of far greater study than it is, not only for effect where close under the notice, but also for distant effect. In this latter case those things should be chosen that are of bold growth, whilst in the former instance it is easy to select many things of smaller size, yet equally as interesting in their way. The smaller Conifers can be used much more than they are, looking exceedingly well when grouped; thus planted, the Golden Yews, the *Retinosporas* of compact growth, and the smaller of the *Cupressus* all produce a good effect. By an extended use of these hardy ornamental plants thousands of tender bedding plants may be dispensed with, and that with no loss, but rather a manifest advantage not only in labour, but also in cost of material. I recommend these remarks to the thoughtful ones who yet meditate as usual upon just now working up their stock of tender subjects for planting out a few weeks only before midsummer. H. A.

Seedling Christmas Roses.—The other day I had the pleasure of examining a bed of seedling Christmas Roses raised from seed imported from a nurseryman on Lago Maggiore. They are now flowering for the first time, two years from the time they were sown. To my great surprise nearly all the flowers are of the finest types, and throw themselves far above the leaves on long stalks. There are flowers as large and vigorous as those of *H. maximus*, round in petal and both pure white or pink tinged in colouring; there are flowers exactly

like those of the Bath variety; there are forms with prettily frilled petals; there are green-stemmed, pure white flowers like those of *H. St. Brigid* or *angustifolius*, and there are varieties only now showing flower, so that every beautiful form is reproduced. The leaves alone seem less varied, as all at present are rather coarsely serrated and lie close to the ground; but more character may develop as the plants grow older. I would urge all who want fine Christmas Roses to raise seedlings from imported seed.—E. H. WOODALL.

GENTIANA VERNA.

I HAVE seen many rockeries and gardens where alpine plants are cultivated, but in very few have I seen this plant well done; indeed, one of my first questions to a grower of alpinists is, "How do you manage *Gentiana verna*?" The response is generally one of a hesitating character: "I find that it has been a failure." "I obtained," said one to me when I asked the question, "twenty plants last year from Ireland and have not one of them left," and many others have a nearly similar tale to tell. Now why is this? If in the multitude of counsellors there is wisdom, then we ought to be very wise about this plant, for I think more has been written about it than about any other.

There is one very comforting theory which people have concerning it: "Oh! of course it is difficult, you know; it is covered with snow during all the winter; it is not exposed to the changes of our climate, and therefore we cannot succeed with it." But, alas! for all this comforting solace for our failures. *Gentiana verna* is a British plant and grows in the greatest luxuriance on the west coast of Ireland and on the storm-swept island of Arran, off the Bay of Galway, right out in the Atlantic, where rain and mist are characteristic, it flourishes well; it is found along the coasts of the counties of Clare, Galway, and Mayo, all on the limestone formation. Now as far as position is concerned, nothing can be more different to its alpine habitat than this. I have seen it on elevations of 5000 feet or 6000 feet, where it filled the meadows with its brilliant blue flowers, and it had been covered with snow all the winter. But what is its position in Ireland? I have a letter before me from a zealous native botanist in Clare who tells me that it is found in abundance there from 3 feet above sea level to 1000 feet, that is down on the very seashore amongst the sandhills. It is found, too, in North Teesdale, in Durham, and also, I believe, in North Wales, for I think it was in this locality that the late Mr. James Backhouse told me he had found it, but that as he could get plenty of it from abroad he left it there, and took care to keep its habitat a secret. I think, therefore, considering the immense variety of the localities where it is found, it will be idle to say that our failures are to be attributed to that cause.

But although the positions where it is found are so different, they have one point of similarity which cannot be ignored. These are all on the limestone formation, and therefore it is a lime-loving plant. I do not know about its position on the sandhills on the coast of Clare, but it is possible the sand may be largely composed of limestone. Its love for limestone is strikingly shown by a fact mentioned to me the other evening by my friend Mr. Selfe-Leonard, that he found on visiting the Dolomite region, where limestone and granite formations are so very oddly mixed together, *Gentiana verna* abundant on the limestone, but that when he came on to the granite formation it was absent. The adaptability of plants to varied climatic con-

ditions is exemplified by other plants, such, for example, as the common Maiden-hair Fern (*Adiantum Capillus-veneris*), which is found in abundance not only in such opposite situations as Devonshire and the west of Ireland, but which is also abundant in the warm climates of the south of Europe. Sir W. Hooker found it lining the wells at Vauluse, while even in the sun-struck island of Malta the natives have an ingenious plan of covering the outside of vases with Moss kept in its place by wire netting, in which are inserted plants of this Fern; they receive no water directly, but the porous vases are kept filled with it, and it oozes out through the vases and so keeps the Fern moist, while the finest plants I have ever seen of it were in a moist stove, where it seeded freely and covered the walls. It is also so with bulbs. Take as an example the lovely *Chionodoxa Luciliae*, which is found on the mountains above Smyrna, in Asia Minor, and, as its name implies, on the very borders of the snow which covers it in winter, and yet it is perfectly at home in some of our sunniest borders in the south of England; so much so, that it scatters its seed about in all directions and plants spring up all over our borders. Again, *Parnassia palustris*, which, as its specific name implies, is a marsh plant, and flourishes in the sandhills on the Lancashire coast. Other examples might be adduced, but these will suffice to show, I think, what I confess I have imperfectly considered before, that climatic conditions are not our chief difficulty in growing this and other alpine plants. There must be some other things wanting in our culture which renders such plants as *Dianthus glacialis*, *Gentiana bavarica*, *Eritrichium nanum*, and others failures.

There are two things which it seems we have to consider in the culture of this plant, first, that as it is a lime-loving plant we must take care that we have lime or chalk in the soil; and secondly, what my friend Mr. Burbidge, of the Trinity College Botanic Gardens, Dublin, has pointed out to me, that it loves moisture at its roots. I wrote to him a little while ago about it, and in his reply he says, "You know we are on calcareous soil, and we find no difficulty in growing it, and we use lots of sea-shell sand." He adds, "*Gentiana verna* is a great lover of underground moisture, and during hot weather we poke holes round the tuft, so that the water we pour, not on, but around the plant, may reach its roots below the soil. Another plan is to lay flat stones around the tuft; these prevent parching of the top soil, and we find the roots enjoy the shelter of the stones. As you know, it does grow in peat or bog earth, but is happier and more abundant on the limestone."

An unknown correspondent to whom I was referred, Mrs. Taylor, of Castle Taylor, in the county of Galway, has most kindly written to me on the same subject: "I think everyone failed in transplanting it until I suggested the plan which I have adopted and found successful. It is to plant a piece in a pot or pan or in the open ground exactly as it is taken up, and then to remove gradually the grasses and weeds in which it is embedded until nothing but the Gentian remains. In this way the delicate roots are not disturbed, and the plant having its own soil about it flourishes. It likes good drainage. The soil in which it grows is very fibrous, close and hard, and we find it always on rocky limestone soil quite in the open. It does not like shade or coddling. It and the *Dryas octopetala* grow and flourish together in these parts." What a charming mixture this must be!

I am sure there is a good deal more to be learned concerning the cultivation of many of our hardy plants, and that we shall be more

surprised the more we note it at the adaptive power of many plants. I have, for instance, long been puzzled about *Lilium Krameri*, having failed with it over and over again, as many others have done; but my good friend Mr. Ewbank, in writing to me some little time since, taking me up short for saying that except in a few districts true alpine plants could not be grown in the open, says, "If you plant *Lilium Krameri* in well rotted cow manure and sand you will have no difficulty with it." It is perfectly clear this is not the kind of soil in which it grows in Japan, and I hope to prove the matter this season.

The plans adopted both by Mrs. Taylor and Mr. Burbidge are in strong opposition to many schemes I have seen recommended for growing this plant, both in *THE GARDEN* and other papers, but they are founded on experience and knowledge of the plant. One can understand the pleasure of being able to walk out and see in its native habitat this charming plant from the pleasure one has in seeing our native Orchids at home, and I hope that the hints which I have given in this paper will induce cultivators to try one or other of the methods of culture recommended. DELTA.

NOTES ON HARDY PLANTS.

Anemone baldensis.—There are two very different plants of this name, and both well-authenticated. As one belongs to the true *Anemone* group and the other to that of which *Anemone alpina* is the typical species, they can be easily distinguished from each other. The plant I described (p. 251, Vol. XL.) is *Anemone baldensis* (Lam.), "Encyclopédie Méthodique Botanique," vol. i., p. 614. According to De Candolle, the same plant is a variety of *alpina* with the varietal name *micrantha*; and other authorities simply call it by the same name as its type *alpina*. If my note is referred to, it may be seen that the description corresponds with the place these authorities have given it. As my plant is a well-matured one, it may be useful to state that the root, leaf, and involucre character all agree with the corresponding parts of *alpina*; and the additional name of *micrantha* (De Candolle) is so appropriate as to at once direct notice to the difference that exists from the type, and to make one wish that the confusing name of *baldensis* (Lam.) did not obtain, especially when the same name had been applied by Linnæus to a species also occurring on Mont Baldo of the same section as our common wood *Anemone*, and indeed rather near to it. I am pleased to think that since my last note I may have been put in possession of the species of Linnæus through the kindness of Mr. Boyd, of Melrose. I trust that the above may explain how my plant should have the seeds with long awns, as this will be quite consistent in the case of *micrantha* (De Candolle) = *A. baldensis* (Lam.).

Viola pedata.—This is a varying species, but I have never succeeded with any of the varieties in keeping them healthy longer than three years—I mean in the open ground. But there is an accidental circumstance of which I have taken note for the last two years, and I have acted upon the hint afforded in such a way as, to my mind, to prove that it may be worth knowing. In the first place, I may say that I know many of my garden friends have failed in a similar way to myself in keeping this charming Violet in vigour. I noted the fact several years ago that I had better success with my pot plants than with those in the borders. I wondered why this should be; but on examining the tuber-like roots I imagined that the annual overhauling of the pot plants, by which process the roots might be set deeper or potted on annually and the plants so given a fresh mulching of soil, might be the cause of their continuing to thrive and increase. I must admit that my border plants had not had commensurate treatment of this character. I am all the more inclined to believe that

a deep mulching of leaf-mould and sand on our rockeries and borders may tend to improve the vigour of the plant, because not only are its tuberous roots apt to grow out of the ground and the best or new roots to issue from the upper parts, but I believe that in its native habitat it is annually covered with so much decaying vegetable matter as to receive in that natural way new food ready for its roots to take possession of.

Bletia hyacinthina.—We have heard something of this as a hardy Orchid. I believe that it will only prove to be hardy under special management—that is, there must be something in the way of a mild climate, an extremely sheltered corner, deep planting, heavy winter mulching, protecting by handlights, or some other such precautions, all or any of which, when placed as directions ament the culture of a hardy plant, carry suspicion to the minds of old hands at growing hardy flowers. If this Orchid has proved to be hardy under ordinary conditions, I for one shall be very pleased to hear of the fact.

Phlox amœsa.—With me this has always transplanted with but indifferent success, excepting that either the plants were very young or the operation had been done in summer or early autumn. I would not say it is so in all gardens. I could readily believe that in a garden on the chalk it might be moved with impunity at any time, for as a matter of fact it is a very vigorous grower. All I wish to say is that it is not exceptional for it to transplant badly, but rather the rule. The best way to deal with this plant is to raise a stock of cuttings every summer, taking the most vigorous green points directly after the old plants have done flowering. They need not be more than 2 inches or 3 inches long, with only the points above the surface. These soon root in summer if kept watered and in full sunshine, and they form the best material for transplanting the following season. This is one of the very best plants that I could name for a bit of bright fiery-rose colour that is long sustained in the early summer. I have over and over again proved that this, like those of the *setacea* section, is better for pieces of limestone either in the soil about the roots or cropping up about the collar of the plant. It is precisely one of those things which—where large deep rockeries exist—should be planted in groups of 50 or 100 plants.

Lychnis neglecta.—I take this to be an obsolete name of G. Don's for the plant we now call *Lychnis Viscaria alba*. Still, there is some confusion as to the latter name being properly applied to a dwarf white *Lychnis*, which is much dwarfer and without the characteristic viscid or clammy matter found on the stems of the typical *Lychnis Viscaria*. There are also other features of foliage which render it very different from its supposed type. Not only did this plant remain a long time, as it were, neglected, but even now I cannot find that its origin can be traced. Is not this an instance of the mistake of changing from one name to another unless the change can be made with absolute certainty as to correctness? The older name in this case—*neglecta*—would almost seem to be the more appropriate. A word may now be said on the gardener's views of the qualities of the plant. Seen thriving in neat tufts on the rockery, with its somewhat rigid, short, broad and pointed foliage and neat little spikes of white flowers, 6 inches or 8 inches high, it strikes one as being more especially suited for rockwork and for doing duty in those spaces or near them where other occupants naturally leave the ground bare for several months of the year, because of its ever-green herbage. It is easily propagated if dealt with in late summer, but I believe that the plant, though not exactly scarce, is not grown in many first-class collections, which, however, it ought to be.

Sisyrinchium grandiflorum.—If the date of Maund's "*Botanic Garden*" be compared with the date of the introduction of this plant in 1826 it will be seen that there could not have been much time to find out all about the hardiness, date of flowering,

and proper culture of the plant when the description of it was written but a few years later. So that such minor errors could easily arise, as those where the height is given at only 6 inches and the flowering period May and June. It is no uncommon thing to see plants a foot high, both the type and the white form, and they are almost amongst the earliest plants to flower ere winter is gone. Even now through the melting snow the growths are pushing, and the swollen apices distinctly show that the flowers are capable of being developed during midwinter. There are other unimportant errors in Maund's description which go to prove that the gardeners' experience of this plant must have been imperfect. There are three distinct kinds, viz., a blue-purple, a red-purple, and a white, the last being smaller than the purple-flowered forms, and perhaps a little later in flowering.

Thermopsis fabacea.—A fairly descriptive popular name for this would be "the herbaceous Laburnum," only the clusters of flowers do not droop. I could imagine, however, that such a name might be too tempting, and I had better at once mention the fault of this plant when taken into the garden. In a year or two a plant will take possession, in light land, of several square yards—thicket fashion—by means of its underground stems. These take long jumps of 2 feet to 3 feet, and literally in time bind the earth together with their long, thick, rope-like stems. I would not grow it in the garden among other flowers on any account, and yet, seeing that wild and semi-wild gardens are becoming equally pleasurable places with the more dressed gardens, this is a plant that we could not well afford to overlook. It is showy and strong—two most commendable qualities in plants that are expected to hold their own among wild herbage. And further, the spreading feature that may be objectionable in a garden recommends it in the wild garden, where a plant in a short time can form itself into a telling mass. J. Wood.

Woodville, Kirkstall.

DIVIDING HARDY HERBACEOUS PLANTS.

It often happens even where this class of plants gets a fair amount of attention and rational treatment, that winter sets in before the work of dividing and replanting is finished, but this ought not to be made an excuse for leaving the work till another autumn, as a mild time in February will give another chance of doing it, and many plants will succeed equally as well if divided and planted then as they would if done at any other time of the year. The majority of herbaceous plants are greatly benefited by an annual or biennial replanting, as much to enable the grower to reduce the number of crowns and surplus root stocks to the quantity which can be supported in vigour on the site and soil given them, as to allow of fresh soil and manure being applied. Thinning the shoots of such things as *Phloxes*, *Michaelmas Daisies*, *Monardas*, &c., without replanting is not sufficient, as they cannot get away so strongly as they would if many of the old woody roots and weakly shoots were removed. Most of the *Campanulas* are much improved by an annual division, and in their case the strongest crowns only should be saved for flowering; the weaker ones if left will only act as robbers, preventing the high development of the flower-spikes. The old *Dicentra spectabilis* develops a corky excrescence or bark to the root, which in time prevents the living portion from swelling as it should, but if the plant is lifted and this bark removed it grows away again very freely. *Delphiniums* do almost as well when divided in spring as if done in the autumn. The old double white *Rocket* is sometimes spoken of as being difficult to keep, but if divided annually this difficulty disappears. It should not, however, be left till spring if it is expected to flower well the same year; it is better to do it then, however, than to chance it till the next autumn, or perhaps it may die after flowering if neglected. I make a rule of dividing this and other early flowering plants first in

the autumn to make sure of them. Lilies must not be replanted in the spring; in fact they are better left alone, being rather impatient of removal as long as they do well. If replanting is necessary it should be done directly after flowering. The *Doronicums* can hardly be divided too often or cut up too much; if this is not attended to the flowering season is short and the flowers themselves very puny, so much so, that the finest varieties dwindle down to the size of Paris Daisies in time. *Pæonies* are impatient of too much root-disturbance, and are better when treated only to an annual manuring, except when from some cause they have developed a large number of small crowns, division in that case being necessary for the renewal of vigour.

No time should now be lost in pushing forward this work, so that the various subjects may be well rooted and established before hot and dry weather comes.
J. C. TALLACK.

***Geranium ibericum*.**—A good dark blue hardy *Geranium* is a desideratum. Again, a good blue may be a matter of opinion; anyhow, in this species we have a thoroughly hardy and vigorous plant that produces vast quantities of flowers of the bluest shade for its genus. Moreover, the flowers are large and well held up in a truly showy fashion, and not sparsely borne along sprawling stems or on short scapes and nearly hidden in the leaves, as with most of the hardy kinds. Here we have a plant with the vigour of our native *pratense*, and whilst it can be strongly recommended for borders among other choice things where there is plenty of room or for other conspicuous places, it would prove an extremely valuable plant for the wild garden or if planted in clumps by woodland walks. Another profitable way of growing it would be in the kitchen garden or any spare piece of good land for cutting. Though the flowers may not last long, other buds open after being cut, and from the way they are intermingled with the foliage from the base of the umbels, they are handy for bowls or vases without any other mixture. The plant has a long season of bloom—about mid-summer. It thrives in any kind of good soil, and only requires to have plenty of room for its spreading tops and to be let alone.—J. W.

SHORT NOTES—FLOWER.

***Dracocephalum grandiflorum*.**—It seems there used to be a plant under this name of only annual duration, but it is certain that the plant now passing by the name is a true perennial, and I believe that it is considered to be identical with *altaense*. It is also further certain that the plant figured No. 563 in Maund's "Botanic Garden" as *altaense* is identical with the modern *grandiflorum*.—W.

***Rudbeckia pinnata*.**—This is a strong grower and, in my opinion, not worth a place in the garden, where every plant is expected to yield its quota of decoration. The wonder is how this big coarse plant can have found its way and have kept a place so long in so many gardens. Though so much grown, I do not remember to have ever heard anyone claim it as a favourite, or even as a useful flower. The heads of flowers are very thin, in the double sense of being sparsely borne and in having very few ray-florets, whilst the disc, a characteristic feature of this genus, is unusually high, dull, and cone-like.—J.

***Asphodelus fistulosus*.**—My experience of this *Asphodel* is very limited, as I had the misfortune to take it in hand when the first succeeding winter proved very severe, and the way in which the frost affected it gave me an impression that the plant was far from hardy. As it is a white variety, very dwarf, and of neat habit, it would be a desirable plant could it be coaxed to live through our winters. It is a South European species, and will no doubt need care, at any rate until it has become well acclimatised. I should be glad to hear if anyone has grown it fully exposed for two

winters or more in this country, and if so, in what part, and under what conditions as to soil and aspect.—W.

KITCHEN GARDEN.

POTATO IMPERATOR.

ACCORDING to my experience this is a remarkably heavy-cropping variety, or 50 per cent. more so than any other sort tried against it. With me it proved scarcely so disease-resisting as *Magnum Bonum*, *Abundance*, *Reward* and *Scotch Champion*; but allowing for loss from disease, there yet remained, each time I grew the variety, a heavy crop of large and fairly well-formed tubers, but the less said about the quality of these the better. Grown on our strong clayey soil, the tubers were far too large, and, if the truth must be told, quite uneatable. Yet the same soil and treatment annually produce profitable crops of *Magnum Bonum* of excellent quality, and after repeatedly testing *Imperator*, the stock was cleared off, and this

has only to take note of the market reports, however, to find that the quality is not by any means first-rate, the quotations for *Imperator* being nearly or quite the lowest of all. For instance, if it realises from 60s. to 80s. per ton, the chances are *Magnums* and *Bruce* would fetch from 65s. to 85s., and other kinds 90s. to 105s. per ton. Whether the gain in weight compensates for the lower prices obtained I am unable to say, but most probably it does. As far as consumers are concerned, better it were otherwise. According to what is stated on p. 164, *Imperator* has been found to be the very best variety for distilling purposes, and in France it is largely planted with a view to extracting alcohol from the tubers. On this side of the Channel, disappointed French buyers might easily purchase immense quantities for planting, and were they not hampered by severe protective laws, most probably the more enterprising of the farmers would patronise our markets. If there is any truth in the great increase in the weight of the crops consequent upon a change of seed, it would pay them well, in spite of heavy taxes, to invest in a large quantity of this variety. If it is a good speculation



Potato Emperor.

place, while I am in charge, will know it no more. Some of the labourers being attracted by the productiveness of *Imperator* also gave it a fair trial, the soil in this case being neither so rich nor so heavy as that in which the variety had failed so badly with me. Once more it proved disappointing, or not nearly good enough even for not very fastidious cottagers, and, all things considered, I do not feel justified in recommending anyone to plant *Imperator* extensively before having tested its qualities on a small scale. The illustration given represents a well-selected dish of this variety, and plenty such could have been had from our heaps that went a-begging. If they had only baked well, I should have continued growing a few rows of it, as it is just the stamp of Potato that should be baked. *Imperator* is certainly better adapted for field culture than for private gardens, and is very extensively grown for the markets. Without forming very much haulm, there is a vigorous appearance about it denoting good crops underneath, and if the ground is not poor, there is no mistake about the superior productiveness, that is to say weight, of the variety. One

to grow Potatoes on the Continent specially for distilling purposes, why should it not be a profitable undertaking in this country? Land is cheap in Essex and would grow *Imperator* well.

I. M. H.

Early Mazagan Bean.—I sometimes wonder that those who may be presumed to know something of what they may be writing about so persistently recommend the *Early Mazagan Bean* as an early variety. It is by no means an early variety. If sown at the same time as *Beck's Green Gem* and the *Seville Longpod*, it will be later than either of the two last-named, and very little if any earlier than the common *Early Longpod*. This was conclusively shown in a trial of these Beans made at Chiswick a few years ago. It is supposed to possess a degree of hardness not common in the *Longpod* section of Broad Beans, and therefore it used to be customary to sow it in November in the open ground, a practice now but little followed by gardeners, as they find it best to raise the plants in boxes or pots and transplant them to the open ground; but they do not use the *Mazagan* for the purpose. Messrs. Vilmorin and Co., in their work on the "Vegetable Garden," put the matter rightly when they say, "Though recom-

mended in every book on the subject, the Mazagan is for me the worst and most useless of its race. The seeds are small, hard, and dry, and decidedly wanting in quality—a kind of large Horse Bean in fact. The Mazagan is supposed to have been brought from a Portuguese settlement on the coast of Africa, where the seeds are said to be smaller than those of our common Horse Bean, but become larger when cultivated. The higher the cultivation this variety receives, the better is its quality, and it rapidly deteriorates in a poor soil. My model early Bean is Beck's Dwarf Green Gem. It originated as a sport from the Dwarf Fan or Cluster in a nursery at Shipton-on-Stour between thirty and forty years ago, and it was sent out by the then firm of Beck, Henderson and Child. As it is a green sport from a white Bean, we may reasonably infer the Green Longpod and Green Windsor originated in the same way. The Dwarf Fan, probably so named because of its fan-shaped habit of growth, has long been regarded as the earliest and dwarfiest of all the garden Beans, but in the case of the green form there appears to be superadded all that is desirable in the matter of high quality. It forces well, but it yields an excellent crop in the open air also, and it can be employed as an edging to some of the taller growing types. Unfortunately, seed appears to be always scarce, and it is one of the highest priced Beans.—R. D.

EARLY POTATOES.

It is difficult to raise a quantity of Potatoes in frames for use during May, as in most private gardens room is limited, frames at that date being required in quantity for so many other things. The earliest lots can be secured by planting in frames prepared sets in January or February, but as this only gives a limited supply other means have to be adopted. Pots can be utilised in various ways, especially where there are fruit cases or walls protected with glass coping. Those who require Potatoes for a couple of months before those in the open ground come in are obliged to make various shifts to furnish a small supply daily. Potatoes in pots are valuable for the first supply, and though they do not furnish a large quantity, they are acceptable, as they come in a few weeks before those planted in frames, and may often be started into growth early in January in fruit houses and pits, taking up space that would be unoccupied by other things. Another advantage with pots is that they can readily be removed from one house to another. They thus get the hardening off or ripening necessary to get flavour and finish. Any size most suitable to the grower, even boxes with ample drainage, may be used, but in either case they are best brought on quietly, as when hard forced they make too much top-growth and few tubers. The aim of the cultivator should be to get a sturdy top-growth, without which the results will be nil. Frames are used in preference to permanent pits for these when required to give a good supply, and in all cases the bed or heating material needs care in preparation, leaves and litter being best for the purpose, getting them into condition by placing in bulk before making up, so as to get them slightly fermented before making firm. Manure alone heats so quickly, that when used for vegetable forcing it creates a rapid growth at the start when only a slow growth is desirable, and when extra warmth is required to form new rooting material, the heat is wasted and the plants receive a check. Some years ago I had to provide new Potatoes daily from Easter whenever that came. I used Chrysanthemum pots largely, placing three or four sets in a pot, according to the variety; the frames then continued the supply afterwards. I adopted another plan, an old one, but always reliable. I got large quantities of leaves together, turning them two or three times while the carting was being done, and in January or February made up a large bed some 60 feet long and the same in width, using the leaves for the sides of the bed to keep up the sides and prevent the leaves littering about. After a few days the bed was covered with a layer of soil, the old leaves being used for the sides.

sifted with some new material, placing this 8 inches deep, making beds 9 feet wide with 15-inch alleys. Sets were prepared in boxes by sprouting in a house kept at 55°, not allowing much growth. These were planted as soon as the soil was chilled and then covered over with old Mushroom bed manure, and over this at night and severe weather some Bracken cut green in the early autumn. When the sets were well above ground and began to peep through the Bracken, straw hurdles of the same width as the beds (a rough framework being used to rest them on) were used. The hurdles answered admirably, and when carefully used lasted a long time. These beds furnished a supply for some time, as there were six rows of Potatoes in each bed, and in dry seasons manure water was given. A dwarf-topped variety was used. I used a local kind named Early May, very dwarf, and of excellent flavour. This bed always kept up the supply till those planted under a south wall and protected at night came in. These tubers were always superior to those grown in frames with less circulation of air. The beds during the summer months I utilised for various vegetables, such as Vegetable Marrows, Capsicums, and salads, and in the early autumn the old material was useful.

G. WYTHES.

SEED POTATOES.

In America some of the States provide the wherewithal to conduct a variety of experiments in connection with agriculture, and the Potato being a very important product of the soil has had every attention paid to it. A series of experiments, extending over about four years, was conducted at the agricultural station in Wisconsin, U.S.A., principally with the view to discover or demonstrate which are the most profitable varieties to grow, and also what kind of set gives the best returns. The results of the trial of varieties do not greatly interest British growers, for the simple reason that very few, if any, of the sorts that succeed so well in America give satisfaction in this country. They are not sufficiently robust for us, and require soil and seasons "made to order" to bring out their best qualities. If, therefore, Cook's Superb did yield such enormous crops as to nearly double what was obtained from Magnum Bonum, it does not greatly shake our belief (or, I will say, my own faith) in the latter. According to the returns given of the trial, Cook's Superb actually produced the grand crop of 183 bushels of large and 34 bushels of small tubers per acre, while some of our well tried favourites did not exceed 97 bushels of large and about 40 bushels of small Potatoes. There is yet another reason why this part of the experiment is of little value to us, viz., the fact of the immunity from disease enjoyed across the Atlantic not being shared in by us. What we want are varieties that will not only thrive and produce freely on a variety of soils, but we have also to reckon with the Potato disease, and require varieties that either mature early, that is to say, before the time the disease usually becomes rampant, or which are to a certain extent capable of holding their own against diseases of a fungoid nature. It is very doubtful if any trial of varieties, private or state-conducted, of Potatoes generally would be of any great service in this country, conditions of soil and climate varying remarkably, even within a radius of a few miles, and it behoves all growers, therefore, to discover for themselves what best meets their case. When once a few varieties are found that give every satisfaction to both cultivator and consumer alike, then ought there to be no hurry in discarding them in favour of some less well-tried novelty. When, however, we come to discuss the kind

of tuber or set that, when planted, gives the best results, the American experiments are well worthy of being taken into consideration. Not that the conclusions arrived at add anything fresh to what we already knew, but they are conclusive and ought to convince waverers on the subject. At the Wisconsin experiments three different kinds of sets were planted, one being large tubers with all the eyes but one cut out, and this gave by far the best results, the increase over that obtained by planting pieces of large tubers each having two eyes; while the worst returns resulted from planting small whole tubers. When it is stated that the crops obtained by planting whole large tubers were 50 per cent. better than those resulting from the cut sets, and 100 per cent. superior to those given by the small whole tubers, the full value of the experiment will perhaps be realised. Whether experiments have been privately conducted in this country on the same lines and for a like number of years, I am unable to say, but probably very many of my readers have been sufficiently observant during their gardening career to note for themselves what kind of seed Potatoes gives the best returns. As a boy I can well remember our village schoolmaster causing what might be termed a mild sensation among the cottagers and others by planting nothing but quite the smallest tubers, or those which were generally given to the pigs. If his theory that these gave the best results had proved correct, it would not have been long before the practice of planting only the smallest tubers whole would have been adopted everywhere, for at that period the Potato disease was very bad indeed, the old Rocks, "Irish Lumpers," and such like collapsing badly under its influence. It was soon seen that the haulm produced by small whole tubers was not nearly so strong nor disease-resisting as that emanating from cut sets and medium-sized whole ones, and from that day to the present time the two latter have more than held their own with the majority of Potato growers as being the most popular forms of set. Not till my exhibiting days arrived did I ever try what could be done by planting large tubers with all but the primary sprout cut out. I then found out that these, other conditions being favourable, produced not only the greater number of tubers, but a good proportion of the latter were also large and well formed. My practice, and that probably of many other exhibitors, was to lift and select all the best tubers, these being duly sponged clean and stored in a dark cellar till the best of them were wanted for show. Very often the show dishes were subsequently kept by themselves in a light, airy place, and unless the seed was scarce none were allowed to form more than one sprout. Merely rubbing out side shoots is not sufficient in the case of such strong sets, but the eyes have to be cut out, or the chances are there will be more haulm than desirable later on. Being carefully planted and the shoot well protected from late frosts, an extra strong, freely branching stem is obtained, and unless the season be extremely unfavourable a heavy crop of extra fine tubers results. Doubtless this kind of set, that is to say, large whole tubers, is still favoured by growers of Potatoes for exhibition, but it is scarcely to be recommended for already over-worked gardeners, or all who have to do their planting in a somewhat rough-and-ready fashion. Tubers with one strong sprout attached and with the rest of the eyes cut out must be very carefully planted, or otherwise the loss of the sprout may mean either a later or weakly growth or no haulm at all. If the planting tubers can from the first be kept from

those to be consumed, stored thinly, and given all the light and air consistent with safety, then the majority of varieties will not have sprouted to any appreciable extent before planting time, and cutting out all the eyes but one from large, whole sets may be safely and advantageously resorted to. In the case of the Ashleaf and Lapstone types, it is most unwise to cut up large tubers into two or more sets, by far the best results being obtained by planting medium-sized to large Potatoes with the primary sprout intact. It is advisable to cut off a small portion of the smallest end of the Ashleaves, or otherwise the seed-tubers may fail to decay and turn up with the new Potatoes, but this snipping is all the cutting that should take place. Where our seed Potatoes are prepared for planting, there are several bushels of the old Ashleaf and still more of Veitch's and Myatt's Ashleaves, but out of the number not a peck of small tubers could be found. Instead of following what might be considered the time-honoured custom of sending all the best of the early Potatoes to the kitchen and saving the rest for planting purposes, my plan is clear them off as we go on, reserving fairly large breadths solely for seed. If more adopted this practice we should hear fewer complaints of the degenerating of varieties, and there would be still less need to have a change of seed so often. W. IGULDEN.

TOP-DRESSING ASPARAGUS BEDS.

THE old plan of top-dressing Asparagus beds during the autumn or early winter months is gradually giving way to a more rational mode of top-dressing at the present time, as it is found that better results are obtained. In my earlier days, when living in a district famed for its Asparagus, the old system of forking the soil off the crowns in the autumn into the alleys between the beds, and then piling on the manure to be left exposed during the winter, was the mode generally adopted. Still, there were often many blanks, and upon examination it was found that the roots had decayed. This was looked upon as natural, and the outcome of what might be expected with such a fleshy-rooting subject as the Asparagus. Another belief was that the dressing put on strengthened the roots and enabled them to throw up stronger shoots during the following season. There never was a greater mistake, as in the first place it is impossible for the roots to take up nourishment whilst in a dormant state. Certainly the manure so applied would assist in storing the soil with fertility; but whatever might be applied, either in a solid or even liquid state, tended to keep the soil cold, although I must admit that on light or gravelly land the evil would not be so apparent as on cold soils.

Another mistaken idea is that a great quantity of soil is needed immediately over the crowns to enable a long length of blanched stem to be secured. Certainly tastes differ, but I cannot agree that the blanched part is equal to that which is green. Even if necessity compelled a blanched growth, there is a better system to adopt to enable these blanched stems to be secured than covering the roots over to an unnecessary depth. The roots, by being covered over with an undue depth of soil, are away from the influence of warmth and air; consequently they dwindle away and give but scanty returns. Instead of the tops of the crowns being within 4 inches of the surface, they are more often a foot, and this being the case, how can they be expected to thrive? In any such cases I should not hesitate to remove the whole of the surface soil down to within 2

inches or 3 inches of the crowns, knowing that there would not be the slightest injury by so doing, but a marked advance would be the result. Over these great depths of soil the beneficial properties of the top-dressing will but barely benefit the roots, even if any. I once saw a remarkable advancement in the produce of an Asparagus bed, upon a gardener adopting my views, where the crowns were unduly covered with cold soil. In the old order of top-dressing adopted with the raised beds, some people even do not rest content with merely surfacing with manure or whatever may be applied, but the sides are pared down when the beds are dressed, exposing any roots which may be in the way, and even where they have advanced into the alleys, they have to undergo the same course by being ruthlessly turned up. The whole system of raised narrow beds I am sure is an evil, and any benefits are more imaginary than real. The excuse for these narrow raised beds is where the soil is of a heavy and cold nature. If the system of culture which I have previously described in the pages of THE GARDEN were adopted, raised beds might be done away with on the coldest land.

The best material for top-dressing is equal parts of burnt garden refuse and rotten manure, the manure being first spread over the surface to the depth of 2 inches and over this a dressing of the burnt refuse. Such material never forms too deep a covering, for it becomes pulverised and the roots ramify freely in it. Our Asparagus bed is during the growing season particularly noticeable to visitors, and this on a soil not naturally adapted to the growth of Asparagus, being very cold and wet, but by being raised above the surface, and also receiving an annual top-dressing such as I have described, the growth made is very satisfactory. The surface now is a mass of small roots ready to respond to the top-dressing directly growing time commences. This top-dressing also forms a mulch for the summer months, and acts better in this way than by covering with soil; in fact, this latter is not at all necessary or even needed in any way. In any case where the beds have been surfaced with manure during the preceding early winter months, or even if the surface soil was partially taken off beforehand, an inch depth of soil for covering would be ample, taking care not to pare down the sides so closely as to expose any roots.

Being a native of the seashore, has led to the adoption in those districts of dressing the beds with seaweed, and in the Cornish district this is used largely. Salt, however, is a good antidote, or rather substitute, and is within everybody's reach, but it must not be added now, being more beneficial later on when the roots are working, and so available to take the food so applied. Salt, however, may be used to excess; hence its abuse when used on cold land; but when used in moderation it cannot but be highly beneficial, as it assists in dissolving and setting at liberty other highly fertilising bodies. In many gardens good rotten manure is a rare commodity, and burned refuse more so, and where this occurs artificial manures have to be relied on. On light or sandy soils these will prove of more benefit than on heavy soils. In the lighter or sandy soils the roots are working in a medium more suitable to their requirements, but in the heavy land this order is reversed, as the roots will not retain their vigour on account of being surrounded with a cold medium, and which in wet winters tends to their destruction. On the heavy land artificial manures will never replace the dressings such as I have referred to. On the light land a dressing of kainit, a form of potash,

in conjunction with an equal quantity of superphosphate of lime, applied at the rate of 2 ozs. to the square yard, will assist the roots greatly, this to be supplemented as soon as growth has commenced with soot, salt and guano. These are all mixed together and sown lightly over the surface at intervals of a fortnight or three weeks. The blanching process is best performed by heaping over the crowns a mixture of leaf-soil and sand. By this method the material is easily removed as the heads rise to the surface. A. Y. A.

BOTTOM-HEAT FOR CUCUMBERS.

I SHOULD like to have the experience of those who may have used hot-water pipes for giving bottom-heat to Cucumbers. My idea is to run three rows of gas-pipe about an inch in diameter, 9 inches apart, under the soil which forms the root-run. I have seen extraordinary crops of Cucumbers on plants that had the border made on a permanent stage without bottom-heat of any kind. This was in the summer months. My impression is, that with the aid of the above-mentioned pipes, Cucumbers may be had much earlier in the season. What sized house would be most desirable, and how wide ought the borders to be? Growing for sale is the object I have in view.—AMATEUR.

* * The idea of utilising small gas-pipes for the purpose of affording bottom-heat is not a good one, and "Amateur" will do well to adopt something more reliable, if more expensive. In order to have Cucumbers early they certainly ought to have the benefit of bottom-heat, and some of the most successful market growers completely enclose two 4-inch hot-water pipes with either clinkers or rubble and dispose a ridge of soil on this. Cucumbers will also succeed admirably on low staging disposed over, but not actually enclosing two or three rows of hot-water pipes, these serving to provide top as well as bottom-heat. In this case the staging ought to be supported on brick piers quite clear of the outside wall in order that the heat may ascend on each side of the soil, and if wooden bearings are used, these ought to be covered with slates. The side stages are to be recommended as being also very handy for other purposes when the house is not wanted for Cucumbers. Narrow pits 3 feet wide, formed by building a 9-inch wall, and enclosing bottom-heat pipes, also answer well. But in this case there must also be at least a flow and return 4-inch hot-water pipe all round the house to provide the requisite top-heat. It is possible to be far too economical of hot-water pipes, and also in fixing a too small boiler, as Cucumbers must have plenty of heat if wanted early, and small over-heated pipes parch the atmosphere to an injurious extent. A cheap and suitable form of house would be much as follows: span roof, running if possible from north to south, 9 feet high, 12 feet wide, with side 9-inch walls 4 feet high. Narrow top-lap ventilators should be provided, and although front air ought not to be admitted while Cucumbers are being forced, it is advisable to let in a few sliding shutters in the side walls. Blinds are indispensable, and with a judicious use of these and a free use of the watering-can and syringe, little or no top air need be admitted before the very hot days arrive. Blinds run over the roof during cold nights also conserve the fire-heat considerably. W. I.

Flavour of forced Rhubarb.—It may be worth asking readers of THE GARDEN what their experience is in the matter of flavour of forced Rhubarb. Has anyone observed whether Rhubarb forced without light possesses as good flavour as when grown in the light? Both last and this year I have been trying different ways of forcing Rhubarb. We generally commence using the first week in the new year, keeping up a regular supply till it comes in from outdoor plants. The true Rhubarb flavour is, I think, just in accordance with the light it receives. This day (Jan. 28) I had some

stewed, the leaves of which were green. This was far different from that which we had previously grown in the dark. When this most wholesome vegetable is brought on quickly under pots, &c., covered with a large heap of hot manure and leaves, or grown in dark, close houses of any kind, can we expect it to possess a fine flavour?—DORSET.

Seakale.—All Seakale required for forcing by the aid of heat should now be taken up and laid under cover, and the remainder which is left for blanching naturally should also be covered by whatever means at disposal, for if growth should start before being covered it will be discoloured. Not that discoloured growth is unpalatable, but the appearance on the table tells against it. All not required for blanching may well be let grow, and when it has started a few inches it may be cut and used as a green vegetable. People are so imbued with the belief that the green tops are uneatable, that they little think what a tender and delicious vegetable this makes. Whatever mode of covering is adopted to make a blanched natural growth, cleanliness as well as perfect immunity from light are of the greatest importance. Ashes or dry soil is sometimes used, but I do not care for this plan, for if a wet time should follow, the Seakale is apt to be dirty.—A. YOUNG.

GLOBE ARTICHOKE.

In the majority of large establishments the Globe Artichoke is considered a very important dish, and is looked upon as a delicacy amongst vegetables. In some gardens, especially those of smaller dimensions, I am afraid it does not receive sufficient attention. The Globe Artichoke is of a perennial habit, but yet, for the want of a judicious system of cultivation, the heads which are produced are so small, as to make them unworthy to be classed as a vegetable of the highest order. These small heads can bear no comparison with the well-cultivated larger heads in point of quality. I believe the taste has to be acquired, and when once this is gained, this vegetable will be continually looked for, and the better cultivated it is the more appreciated will it be. In France the Globe Artichoke is very highly esteemed. Of the varieties cultivated there are the Green and Purple Globe forms, but there are often spurious forms to be met with, and which are quite unworthy of the room that they occupy. These are of a thin and spiny nature, and probably have their origin from seed. Some people say that the stocks degenerate in course of time, but this surely is an error, the degeneration where such takes place being brought about by bad cultivation.

Although seed is sometimes adopted as a source of increase, this is not the best method, for probably the greater percentage will be spurious, and but little better than the ordinary Cardoon. It is very disappointing after waiting the whole season to find that the heads produced are not worthy of the room the plants have occupied. Such being the case, propagation is best effected by suckers from a known good stock, and if to be purchased, particular stress should be laid upon being true to name, as I have known even suckers from a spurious stock supplied as either the Green or Purple Globe. If it should be decided to increase stock from seed, this would either have to be sown in the open air in March or April, soil and weather permitting, or in the autumn. The plants may also be raised during the early part of the year, or not later than February, by sowing under glass in a gentle heat. By this latter method strong plants may be raised, and by planting out towards the end of April or early in May in deep well-worked and manured soil the heads will form the same

season, when all those of a spurious form could be rejected. The seeds should be sown thinly in a box of light soil, and placed either on a gentle hotbed or in any other fairly warm structure, when they will quickly germinate. The plants as they appear must be kept well up to the light, and when large enough be potted off singly into 3-inch pots, and from this size into 6-inch ones. The soil should be strong loam enriched with a fourth of manure, in which the plants will grow freely. The plants, by being hardened off, may be planted out at the time previously stated.

Being naturally a vigorous-growing subject, ample room must be allowed for the plants to fully develop. Where there is only a single row, the plants may be arranged 3 feet apart, but they must not be smothered up with other subjects. Where there are a few rows together, then ought the rows to be arranged not less than 4 feet or even 5 feet apart. The plants in the rows should also be arranged 3 feet apart, as overcrowding will not produce the best results. When the seeds are to be sown in the open air the soil must be in a well-pulverised condition, so as to ensure their germinating evenly. I like to draw drills, although it is only necessary to sow two or three seeds at stated intervals, the seedlings to be thinned out to one as they advance in size, so as to be able to select the strongest and best placed. Suckers, however, I prefer, and even if a few have to be purchased to commence stock, they will be found the most profitable in the end, as afterwards, when these become established, others may be taken from them and a good stock thus obtained. Even where suckers are planted, there is a limit to their duration, and after the third or fourth year the rows should be renewed. By planting good and strong suckers in well-prepared soil, heads will form late in the season, but the following season they will prove very productive, and also form large heads suitable for exhibition. During the exhibiting seasons, a good dish of Globe Artichokes is very telling. Before detaching the suckers, it is of the greatest importance that the site for their reception be well prepared. Globe Artichokes may be made to succeed well in any soil. I have heard it remarked, however, that a heavy soil is not adapted for their culture, as being a maritime plant, a light or sandy soil is really requisite, but this is surely an error, as in the deep, moist, and heavy soils where these are freely manured they appear perfectly at home and thrive amazingly. Being a strong-rooting subject, the ground must be deeply worked and well manured, a free addition of burned garden refuse also being an advantage. Trenches are sometimes formed, the soil being taken out and replaced with a richer medium to which decayed garden refuse, free from coarse matter, has been freely added. This may be necessary on dry or poor soils, as then the trenches would form a kind of receptacle for extra nutriment which might be applied during the drought of summer. On the generality of soils the ordinary system would suffice. By planting out strong suckers at the distances apart as stated above, and also mulching with rotten manure, they will grow ahead and produce heads during the latter part of the season, at which time they are very acceptable, and where such late produce is looked for, covering the heads as protection from frost is very often resorted to. The second season will be the time when the harvest is reaped, and also the third, but afterwards they decline in vigour even where rich annual surface dressings are applied. The reason is the stools become so crowded that they have no room for free development. I

should have mentioned that the suckers should be quite a foot or 15 inches in length before they are detached from the parent plant, as with growth commencing and fresh roots forming, they soon take hold and grow away and form useful heads late in the season. Being a vigorous feeder, annually in the early spring when fresh growth is commencing, the plants will repay any extra attention bestowed upon them in the shape of some good manure, and when growth has fairly started a sprinkling of salt over the surface will prove highly beneficial. Although ordinary winters will not destroy the plants, yet on the approach of severe weather a covering of dry litter will amply protect them. Covering, however, is often carried to excess.

A. Y. A.

Novelties in vegetables.—"S. D." in his further criticism on my article on "Novelties in Vegetables," now says that I condemn Ne Plus Ultra Pea; this I did not do, as anyone may see by referring to my article at p. 14. In the course of my observations on main-crop Peas, I stated that "I was not so one-sided as to think that Ne Plus Ultra was the very best amongst Peas, and that no other need be grown except this and the earlies." I look upon Ne Plus Ultra as one of the best Peas. What makes it so popular is the fact of its being such a reliable kind for late sowing, and if it was not for this particular trait, Ne Plus Ultra would not be grown so largely, its extreme height being very much against it. According to "S. D.'s" latest addition to his critique on my observations on early Peas, his remarks formerly made were quite superfluous. It was these early dwarfs that I made special reference to, and which I considered a great advance on the more inferior rounds. After the way in which "S. D." recommended Dilliston's Early I should have thought he would have brought forward other evidence in his support of it, but this he has failed to do. I commend William Hurst to the attention of "S. D." and readers of THE GARDEN. This is really a good advance on existing kinds, the quality being even better than that of Chelsea Gem. In answer to "A. D.," the Sandringham White Celery referred to by me is supplied by the trade under this name.—A. Y. A.

GARDEN FLORA.

PLATE 846. HYBRID GLADIOLI.

(WITH A COLOURED PLATE OF GLADIOLUS NANCEIANUS (1) KLEBER, (2) HARRY VEITCH.*)

WHEN using the term hybrid Gladioli, we can distinguish an early flowering and an autumn-flowering group. The large group of early Gladioli embraces innumerable forms of species and hybrids, where among the most common types are the Cape species *blandus*, *cardinalis*, and *tristis*, and the hybrids *ramosus* (*cardinalis* × *oppositiflorus*), *Colvillei* (*tristis* × *cardinalis*), &c. Space does not permit me to give particulars about this section, and I beg to refer the reader to former volumes of THE GARDEN where several interesting notes on the subject have been published, whilst coloured plates of early Gladioli appeared in these columns on Feb. 14, 1880; Nov. 28, 1885; Dec. 22, 1888; and July 19, 1890. Among the late-flowering Gladioli hybrids are some valuable garden plants, and the Cape species from which they originated have been surpassed by the latter, so that both horticulturists and amateurs now-a-days find the original species things of botanical

* Drawn for THE GARDEN by Miss Low in Messrs. Krelage's nursery at Haarlem, September 5, 1891. Lithographed and printed by Guillaume Severeys.



interest only. Five distinct races of autumn-flowering hybrid Gladioli have been sent out up to the present, and new forms of real merit are still being added.

GLADIOLUS HYBRIDUS GANDAVENSIS. This section should be treated first. Last autumn its half century could have been celebrated, for it was on August 31, fifty years ago, that it was first offered to the trade, the original announcement of the type having appeared in Van Houtte's catalogue No. 6, which was published on August 31 of the year 1841. There are two opinions as regards the origin of this hybrid. First we have the official statement in the "Flore des Serres," where it is said to be the result of a cross between *cardinalis* and *psittacinus*, and then the experimental remarks of that keen hybridist, Dean Herbert, who stated that the indicated cross, "if not absolutely impossible, is so difficult, that repeated attempts made during successive years (by himself and others) have all proved abortive." On the contrary, the Natal species *psittacinus* and the Caffrarian *oppositiflorus* have been freely crossed by Herbert and several English and Continental cultivators, and the result of this cross was exactly the same Gladiolus figured in the "Flore des Serres" as *G. gandavensis*. The hybrid created a sensation, and was, of course, soon surpassed. Since the first appearance of the original *gandavensis*, M. Souchet, of Fontainebleau, has been the most successful raiser of new forms on the Continent, and for a long period his seedlings were unrivalled. After his death in 1872, his successors, Messrs. Souillard and Brunelet, continued the collection and production of seedlings, and brought them to still greater perfection. Meanwhile, the Gladiolus had made its appearance in England, and it is well known what Messrs. Kelway, of Langport, have done for the improvement of the *gandavensis* race. Last year a collection of over 200 different *gandavensis* varieties was shown at a meeting of the floral committee of the Royal Netherlands Horticultural and Botanic Society. This was a chronological exhibit, beginning with the old hybrid of 1841 up to the novelties of the latest years, and there at a glance the gradual perfection of all the qualities in the flowers could be observed. Though at the present day the *gandavensis* varieties are still unrivalled in many respects, especially for bedding, they lack several valuable qualities of the newer races. They are not hardy, and, therefore, the introduction of a new species proving to be so was of the greatest interest. This hardy species, *G. purpureo-auratus*, has rather a poor flower, but M. Lemoine has turned it to good account.

GLADIOLUS HYBRIDUS LEMOINEI, the result of a cross performed by M. Lemoine between one of the best *gandavensis* varieties and the hardy *purpureo-auratus*, made its appearance at the Paris International Exhibition of 1878, and is now pretty well known, so that it needs no description. A good plate of it was given in Vol. XVII. of THE GARDEN, April 3, 1880. Everybody now-a-days has seen the beautiful seedlings raised since 1882, and every year the colours become more brilliant and effective. It is a pity that the more beautiful and distinct the colours become, the more the varieties lose their hardy qualities—a natural consequence of the little *purpureo-auratus* blood remaining in the progeny. M. Lemoine has sent out the largest number of varieties every year, but the firms of Delenil, Tréfour, Torcy-Vannier, Souillard and Brunelet, Haaze and Schmidt, and Krelage have also introduced many good varieties. As most of the best novelties have been described in these columns, I need not give further particulars about them. Three appeared on a coloured plate in THE GARDEN on July 24, 1886.

GLADIOLUS HYBRIDUS TURICENSIS.—This is not yet generally known in the trade, although it must have been raised for several years. It originated by crossing Gladiolus *Saundersi* *superbus* and some *gandavensis* variety. It is not quite hardy, like the first Lemoinei varieties, but its flowers are more expanded and of a rich colour. It was offered for sale by M. Froebel, of Zurich, and a description

of it appeared in THE GARDEN some two years ago. It is very remarkable that M. Max Leichtlin, many years ago, made a similar cross, the hybrids of which were sold first to a French nurseryman, from whom they were purchased by an American firm. Another strain of hybrids also raised by crossing *Saundersi* with *gandavensis* varieties was shown before the Royal Horticultural Society last year by M. van Tubergen.

GLADIOLUS HYBRIDUS NANCEIANUS.—The subject of the plate for this week are two fine varieties of another distinct race raised by M. Lemoine, and first presented to the horticultural public at the Paris Exhibition of 1889. I have already mentioned that M. Max Leichtlin and others used Gladiolus *Saundersi* for crossing, but whilst they attempted the hybridisation with some *gandavensis* varieties,

and the three lower ones (of rounder shape) still further render the symmetry of the flowers more perfect. The flower is quite open and looks you straight in the face. A single glance at the flowers of the *nanceianus* varieties will show how much they differ from the species from which they originated. *G. Saundersi*, a coloured plate of which was given in Vol. XII. of THE GARDEN, is a dwarf plant with weak stems and hooded pendent blooms. Gladiolus *nanceianus* possesses strong upright spikes and fully expanded flowers, boldly looking upwards. The flowers of *G. Saundersi* are of a pale vermilion colour, while those of *G. nanceianus* are bright-coloured, having red, crimson, carmine, and even bluish shades.

The varieties represented on the plate are two of M. Lemoine's seedlings of 1890, viz., 1, Kléber

(the light-coloured variety), and 2, Harry Veitch (the dark red variety). The flowers of these varieties left Messrs. Krelage's nursery correctly labelled, but by some later error the wrong names have been affixed to the plate. A description of the complete list of all the *nanceianus* varieties introduced, with an abridgment of their main characters, may be useful.

A. DE LA DEVANSAYE (1891).—Early flowering variety, with large fully expanded flowers of a brilliant shade of salmon, with large orange-carmine blotches, bordered with straw-yellow.

A. VAN DEN HEEDÉ (1891).—Enormous flowers of a beautiful scarlet colour, lower segments with blood-red spots on straw-yellow ground.

CHARLES BALTET (1889).—A remarkable variety with large flowers of a claret-violet shade, with a white throat bordered clear rose.

COMTE HORACE DE CHOISEUL (1889).—Gigantic flowers of a nice orange-cinnabar colour, with purple blotches, bordered with sulphur.

DE CANDOLLE (1889).—The flowers are of a clear shade of cinnabar-vermilion with purplish-crimson blotches, bordered with white spots.

DR. H. P. WALCOT (1890).—A very fine variety with fully expanded flowers of a pleasing rose shade, with a large sulphur blotch and spotted maroon in the throat.

HARRY VEITCH (1890).—This is the dark scarlet variety (erroneously called Dr. Walcot) represented on the right of the



Hybrid Gladioli (Lemoine's).

M. Lemoine was careful to employ in his experiments only the most characteristic of the Lemoinei race. It is remarkable that the two most beautiful forms issued from the cross when *G. Saundersi* was chosen as the seed-bearing plant, and that the seeds which resulted from the reverse cross came up in much larger numbers, and though producing many fine flowers, none of them were so rich in colour nor so characteristic in shape. The coloured plate may give an idea of the characters of the whole race. Most of the varieties are plants of great vigour, with dark green leaves and spikes 6 feet high, carrying large-sized flowers. It is not unusual to find flowers measuring more than 7 inches across between the tips of the two lateral segments of the corolla, which are developed in the form of two large, triangular, fully expanded wings. The upper segment is quite upright and very long,

plate. It is one of the most characteristic forms of the group on account of its brilliant, dark velvety maroon flowers.

KLEBER (1890), which is represented on the left of the plate, and erroneously called *Marceaux*, has large well-expanded flowers of a fine salmon-rose shade, with white blotches on the lower segments, and spotted with purple in the throat.

LE GRAND CARNOT (1890).—This is certainly one of the most beautiful Gladioli. Its flowers are of large size, and the colour is brilliant scarlet with large sulphur blotches spotted with purple.

MASSENA (1890).—Rather a dwarf variety with large flowers of a light rose shade blotched with cream.

MAURICE DE VILMORIN (1889).—A very distinct variety, the flowers being of a remarkable shade of

violet blotched and spotted with blood-red and purple.

MONS. HARDY (1889).—Claret-cherry - coloured flowers, marbled with maroon, the ground of the two lower segments being creamy-yellow.

MONS. LAFORCADE (1889).—This variety has flowers of a bright salmon-cinnabar colour, blotched with pale yellow and pointed carmine.

MONS. LEFEBVRE (1889).—The colour of the well-formed flowers is carmine-lake striped with vermillion, large sulphur blotches on the lower segments.

ONDINE (1890).—Slate coloured, rosy-violet flowers, with purple spots on the sulphur-bordered lower segments.

P. DUCHARTRE (1889).—A beautiful flower, brilliant velvety scarlet, with dark maroon blotches on the lower segments, marbled with creamy-white.

PRESIDENT CARNOT (1889).—This variety was sent out the first of all and may be considered as the type of the group. It has perfectly shaped flowers of a rich satiny cherry-red shade striped with carmine. The lower segments have a fiery scarlet blotch and are bordered with blood-red spots on a straw-yellow ground.

PRESIDENT CHANDON (1891).—Very large and erect flowers of a brilliant vermillion, blotched with maroon and bordered with sulphur.

PROFESSEUR LAMBIN (1891).—The flowers are lilac-mauve coloured, the lower segments being blotched with claret-violet, bordered straw-yellow and with purple spots. An early-flowering variety of a distinct new colour.

PROFESSEUR SARGENT (1890) has fully expanded flowers of a rich shade of carmine, large blotches of a cream shade on the lower segments.

ROBERT LINDSAY (1891).—Brilliant orange flowers with large blood-red blotches bordered with scarlet, spotted yellow.

ROSAMONDE (1889).—The colour of the flowers is rosy-salmon flaked with fiery-red, the lower segments being marked with purple points.

RUBENS (1889). The large flowers are of a carmine shade tinted with orange, the lower segments being blotched and spotted with fiery-red on a straw-yellow ground.

W. WATSON (1891).—A soft lilac-rose variety with large flowers, the lower segments of which are blotched with maroon on a straw-yellow ground and bordered with pale yellow.

GLADIOLUS HYBRIDUS MASSILIENSIS.—This is the newest hybrid Gladiolus offered to the trade. It has been announced as the type of a new race, and said to be of great merit. In order to appreciate it rightly, we must wait till next autumn. From what it has done last year the opinion on it cannot be favourable, and when we remember that the one parent is said to be the old psittacinus, which has been improved by hybridising for fifty years, the other parent being said to be some gandavensis form, our expectations cannot be very sanguine; indeed, the hybrid resembles too much the old psittacinus. It would be, however, very unjust to condemn it after one year's trial only.

Those who are acquainted with the culture of the older gandavensis section may try the hybrids of the other classes in the same way and be successful. In countries where the winters are rather wet than cold, most classes of Gladioli sufficiently resist frosts. After all, it is little trouble to lift the bulbs every year, and this treatment in no way will damage them, but secure their preservation. To conclude, I give a little pedigree to show the affinity of the principal hybrid races:—

psittacinus × oppositiflorus

purpureo-auratus × gandavensis × Saundersi

Saundersi × Lemoinei turicensis

nanceianus.

Haarlem.

ERNST H. KRELAGE.

THE WEEK'S WORK.

FRUIT HOUSES.

PINES.—The weather during the past few weeks has been anything but favourable for forcing generally, and not many of the earliest-started Queen Pines will have flowered in February. Not till they have flowered and set their pips should a very moist atmosphere be maintained, but after they have commenced swelling an occasional light dewing over with the syringe, this being done when the house is closed on bright days, will act beneficially. A brisk bottom-heat ought still to be maintained, or, say, not much below 90°, while the top-heat may be kept at about 70° by night, with an increase of 10° in the daytime, with a little air on sunny days. Close early so as to run up the heat to nearer 90°. Fruiting plants well rooted (and they will not produce fine fruit unless they have plenty of active roots) ought to be kept carefully supplied with well-heated and diluted farmyard liquid manure, varied with guano water. More fruiting plants should now be started. Plunge them in a bottom-heat of about 90° and subject the plants to a brisker top-heat ranging, say, from 70° by night to 80° in the daytime, or much the same as the more advanced plants should have. If this does not excite all of them into flowering, keep the refractory ones dry at the roots till they do start, and then take good care that they get a gradual and thorough soaking. Large old plants badly rooted frequently pay well for being repotted. Remove much of the sour or loose soil from the roots, pull off a few of the lower leaves, and then repot firmly and deeply in fresh soil and pots. Being plunged in a strong bottom-heat and very sparingly watered at the outset, numerous fresh roots will form at the same time probably as flower-heads show, and fairly good fruit, or better than would have been otherwise had, be produced accordingly.

POTTING YOUNG PINES.—The strongest and best rooted of the suckers struck last autumn ought now to be shifted into fruiting pots, the rest being kept as they are till they have fairly well filled their pots with roots. In potting use perfectly clean 11-inch pots, these being well drained, and a compost consisting of roughly broken-up fibrous loam from which all loose particles are separated, adding a 6-inch potful of bone-meal to every bushel of soil. Failing yellow fibrous loam of the best quality, use equal portions of loam and fibrous peat and the bone-meal, and if a little ballast or well-charred earth or clay is added, there will be less risk of the soil souring when liquid manure is used. Loam of a clayey nature is bad for Pines, and what is wanted is something that will promote and foster a strong root-action, this admitting of and necessitating a free use of liquid manure when the fruit is swelling. The compost must be well warmed through prior to being used, and instead of muddling it about in heated houses or over hot-water pipes, make several bricks red hot and bury these in the heap of soil. They will dry it somewhat and thoroughly warm the whole mass. In potting, remove any loose or unoccupied soil from about the roots and pull off a few small lower leaves from the plants, then pot deeply and firmly. Plunge them well clear of each other in a bottom-heat of about 85°, the top heat ranging from 60° to 65° by night to 70° and 75° in the daytime, a little air being given on sunny, warm days and closing early, spraying them overhead about three times a week. Maintain a fairly moist atmosphere by occasionally damping down the walls and floors, and if the potting soil is rather dry when used give a watering directly the plants are plunged, but if rather on the moist side, wait till it becomes a little drier before watering. These conditions must be closely observed, for should the plants suffer for want of water at the roots, they will most probably fruit prematurely.

MELONS.—There has been far too little sunshine for the young plants, and they are very weakly accordingly. Rather than plant out any puny things, it would most probably answer better to fruit only the best of them in large pots and to raise a fresh

batch of plants. The seed being sown singly in 3-inch pots, and these either plunged in a brisk hotbed or over hot-water pipes, the seedlings will be up in about a week, and will not be long before they are ready for fruiting quarters. There is nothing to prevent Melons sharing a house with Cucumbers, and where there are but few compartments available for these crops, they may well be grown together. At any rate it is better to start a few plants at one time, so as to leave good room for successional plants, the latter being the surest way of maintaining an unbroken supply. Never keep the plants starving in small pots, as should they once become yellow in colour and hard-stemmed, not much can be done with them afterwards. If the fruiting quarters cannot be got ready for them in time, then give small, well-rooted plants in pots a shift into larger sizes, and stake them upright. The earliest Melons ought to have the benefit of fairly strong bottom-heat either from pipes or heating material, and be raised well up to the light. They succeed well in somewhat clayey loam with a sprinkling of newly slaked lime added, a small heap being given each plant at the outset. It being intended to fruit them quickly and then clear them out to make room for more plants, dispose them about 30 inches apart, and firmly. There is no necessity to ram the soil about the plants as hard as a road, but it is of the greatest importance that the collars be kept rather high and dry, as a preventive of cankering. Keep them uniformly moist at the roots, train carefully up stakes till the roof trellis is reached, but do not stop them till they have nearly reached their limit. All side shoots formed below the trellis must be very early pinched out, when the wounds will heal quickly and surely; whereas if this is deferred till they have hardened somewhat canker may result. Also take good care of the primary leaves, and should any of them get broken, cut over the stalk close to the stem and apply quicklime to prevent the spread of decay. Maintain a night temperature of about 70°, increasing to 80° in the daytime, closing early and syringing freely.

PRACTICAL.

THE KITCHEN GARDEN.

INCREASING SEAKALE.—To secure a stock of roots suitable for forcing, the best returns can be had by the annual system of culture. Considering the undoubted merits of Seakale and the length of season it may range over, every effort should be made to secure strong crowns. All that is necessary is to secure some good root cuttings. Small and slender pieces are not of much use, neither is the system of cutting the roots up into short lengths of 2 inches or 3 inches. If the roots have been prepared as I have previously advised, they will now be forming incipient buds. Where the root cuttings are not already made, no time should be lost in preparing them. Roots the size of a finger make the best sets, and they should also be cut into lengths of not less than 5 inches. At this late date a little heat will be an advantage in assisting the buds to start. They may either be packed in layers in a box of light soil or on a gentle hotbed. In either case the top ends of the cuttings must be exposed. The buds only require to be just started when the cuttings must be hardened off preparatory to planting them out.

PLANTING SEAKALE.—This may take place at any time when the cuttings are ready and the ground in condition. One or two hoeings after the growths appear above ground and a light sprinkling of salt will be all the attention necessary until the time comes for lifting the roots again. The soil must have previously been well worked and also manured, decayed and burnt vegetable refuse being an excellent addition. Seakale is also partial to lime, and in old gardens rich in humus a dressing would be of marked benefit, this being simply spread over the surface and forked in. Do not make the mistake of planting too thickly; a foot between the sets is ample, and the rows should be quite 2 feet apart. In planting cut out the rows with a sharp spade, then arrange the sets with the tops an inch below the surface. If the soil should

be at all lumpy, a sprinkling of sifted vegetable refuse along the rows before filling in the soil will be an advantage.

EARLY CELERY.—For all practical purposes the present is the most suitable time for sowing the seeds of early Celery for general table use. At this sowing the white forms are usually chosen, although in Veitch's Early Rose we have a coloured variety which is equally useful with the white types, and the quality is also first-rate. In the cultivation of Celery it is very important that the plants be grown on from the earliest stage without the least check. Although a little heat is essential to ensure early and regular germination, yet this must not be carried to excess, the temperature of ainery just being started, an intermediate house, or even a gentle hotbed being all that is necessary. Directly the seedlings appear through the soil they must be inured to cooler quarters. Generally there is about ten times the quantity of plants raised that there is any need for, and very often they are all crowded together in either a pot or pan. For the generality of purposes, sufficient plants may be raised in an ordinary cutting box, taking the precaution to sow very thinly, so that each small seedling will stand clear of its neighbour. By placing in a gentle heat and also keeping the soil in an equable state of moisture, the seeds will germinate evenly. To prevent the young plants from being coddled, the box should either be placed in a cooler structure on a shelf near the glass, or even in a cool frame, ventilating this so that the plants will make a steady growth. By keeping the soil nicely moist, sturdy little seedlings will eventually be forthcoming. These should be pricked out as soon as ready—not into boxes, as in these the plants are liable to become root-bound and also to get dry. The better plan is to prick them into a specially prepared frame.

SHALLOTS AND GARLIC.—To secure hard and well-ripened Shallots it is very essential that an early start be made, for if planted late there is a difficulty in preventing them from continually growing. Select a very sunny spot, and the soil, although it must be fairly rich, must be firm. Choose medium-sized bulbs and plant in rows a foot apart and 6 inches in the row. The bulbs should be pressed into the soil about half their depth, also taking care to make them firm. Garlic may be planted in a similar way, but insert the bulbs up to the neck. The tops of these latter must be pressed over early in June, otherwise the foliage should be twisted and tied. If this is not done, the bulbs have a tendency to throw up flower-stems. A. YOUNG.

PLANT HOUSES.

STOVE PLANTS.—INCREASING BY DIVISION.—Whilst the usual routine of potting is being seen to, this is a good method to adopt when any further increase is requisite of such plants as cannot be propagated by cuttings in the usual way. Belonging to this class are such as the Marantas, which in course of time will often cluster around the sides of the pots or be found in patches; it is thus an easy matter to divide them, securing with each piece a good quantity of root. Even if an increase is not actually needed it is better to treat these plants in this fashion occasionally; a good quantity of fresh soil can thus be more equally distributed over the entire space available for root action, to the manifest good of these kinds of plants. All that is further needed is to take more care with the watering of these moisture-loving plants for a time with a little shade when the leaves are seen to curl; some of the older of these should at the same time be removed. Those of the Marantas, as *M. zebrina*, when pushing up flower-spikes should have these (not ornamental objects) pulled out as soon as they can be distinguished from leaf growths. *Maranta Warscewiczii* is, however, a notable exception in this respect; this variety is both interesting and ornamental when in bloom with its singular clusters of ivory-white flowers and bracts, all the better displayed by the addition of a couple of miniature leaves, and the fact of being borne upon slender stems well above the foliage. As the flowers fade

each of these spikes will form the nucleus for a nice young plant if looked after as soon as roots are seen pushing forth below this pair of small leaves; each of these if cut off and placed in a 2½-inch pot will soon become established. Anthuriums of any kind may also be increased by division, or by removing the offsets if it is not deemed advisable to disturb the parent plant. This may well be performed at this season of the year. *Asparagus plumosus nanus* can also be divided, although I would prefer to depend upon a crop of seed later on as an easier method, whilst it is also a better one for furnishing good plants of small size. *Burbridgea nitida* comes under the same head; so also does *Curculigo recurvata*, a very useful decorative plant. A closely allied plant to the *Maranta* is *Phrynium virgatum*, which I recently saw in beautiful condition; being a dwarf growing subject makes it all the more useful, whilst its foliage, which is of a pale green colour with irregular markings of creamy white, in some instances much diversified, makes it a striking object. This plant should also be divided for further increase. The *Peperomias* are very serviceable plants in moist stoves; these for increase should be broken up when the potting is being attended to. All of this kind of work should in fact be done at this season of the year before any really active growth commences.

PLANTED-OUT CLIMBERS.—These should have fresh soil added wherever it is possible, provided the growth is not already over-luxuriant with a disposition towards wood and leaves rather than flowers. In these latter cases a starvation course will sometimes bring about the desired result in a good crop of flowers. The *Granadilla* (*Passiflora quadrangularis*) is an instance of this; if too well treated it will produce far too much wood, but if starved it will almost invariably flower well. *Allamandas*, where planted out, may have a good proportion of the soil removed if it is accessible, so long as the main roots nearer the stem are not disturbed; the condition of the plants will indicate whether this be necessary or not; if predisposed to grow too freely it will not be advisable. The *Stephanotis* will, as a rule, bear a generous treatment with a fair quantity of fresh soil added after the removal of any that is sour and not permeated with roots. When this kind of work is being attended to, note should be taken of the condition of the soil; if very dry, a good watering will be most desirable.

CLIMBERS of some kind or another should always find a congenial home upon the roof of a stove. If none have been hitherto planted out, this system is recommended to the favourable notice of my readers. In many cases it saves labour, whilst the after-success of the plants themselves is far more satisfactory in very many instances. A stove without climbers is like a well-appointed room without any blinds to give a finishing touch to the whole. These should, of course, be chosen to suit each case; for instance, *Cissus discolor* thus produces a beautiful effect, at the same time affording a quantity of material for cut purposes. The division between two houses may very well be covered with this handsome foliage plant. In planting out climbers, a good provision of drainage is necessary if upon a level with the path or so situated as to receive any of the superfluous amount of water from that source. Back walls, where usually green or otherwise unsightly, should by some contrivance or other be covered. In such positions *Ficus repens* and *F. minima*—its diminutive form—may in this way be turned to good account; so also can such plants as *Hoya carnosa* and the varieties of *Smilax*; whilst if there happens to be sufficient room at disposal, *Monstera deliciosa* should find a home. A comparatively dry wall will be a better place for such plants as *Poinsettias* and *Euphorbias*. If a large space is bare where a fair amount of sunshine is available, the evergreen *Begonias* are plants strongly to be recommended, such, for instance, as *B. nitida*, *B. nitida odorata*, and *B. metallica*; the effect that these free-growing and as free-flowering plants produce can only be conceived by those who have

thus grown or seen them growing. An essential point in their favour is that but little space is needed for their roots. J. HUDSON.

ORCHIDS.

A WEEK or two ago I wrote about the treatment of imported Orchids, and as their importation and sale have become a regular trade all the year round, it may not be amiss to add a little more to what was published at page 147. Newly-imported Orchids are always interesting to the amateur cultivator, for this reason, that he is always hoping to obtain some almost priceless gem even in a small lot of plants. As I stated before, this is a good time to purchase Orchids, and there is a good deal to be said in favour of buying those that have not been long in the hands of the importer. They have a healthy, vigorous constitution to start with; they usually contain a great variety of forms; and mixed amongst numerous ordinary varieties there may be a pearl of great price. It is a satisfaction to importers to know that the growers of Orchids increase, and that there is, and doubtless always will be, a constant demand for clean, healthy plants. I have found in several instances small collections of Orchids in the most unaccountable positions where one would think that a breath of fresh, clean air could not by any chance reach them, and yet they have grown and flowered well where even *Pelargoniums* had to struggle for existence. There are few better plants to grow in large towns or cities. During the past week newly-imported *Cattleyas*, *Cypripediums*, and *Odontoglossums* have been sold, notably the ever-popular *O. crispum*. Superbly spotted varieties of this last-named species are being obtained in imported lots, and as a large proportion of the plants must be collected by natives when they are not in flower, it does not become purchasers to be greatly disappointed if plants that they have purchased for a few shillings are not *O. crispum* at all. I purchased some years ago 400 plants of this species in one lot, and they have not all flowered yet, but amongst them have been a few very prettily spotted varieties of the species—many poor forms, but none that are not useful for cutting. I had one *O. Wilckeanum*, a dozen *O. gloriosum*—not a showy Orchid, it is true, but very sweetly perfumed. I have flowered seven *O. luteo-purpureum* and a few plants of what I think the poorest of all, *O. Lindleyanum*. There was amongst them a better form with broader segments which Reichenbach named *O. Coradinei*. Moreover, none of the varieties of *O. luteo-purpureum* are like each other; some have broad, heavily blotched sepals and petals; others have the petals narrower and lightly blotched. Two other good things were sold last week—*Cattleya Lawrenceana* and *Cypripedium Lindleyanum*. The former is now well known as a distinct and handsome species, easily established and not difficult to grow afterwards. The same treatment may be followed for this species as to potting, &c., as recommended for *C. labiata*. It was surmised that a higher temperature than that of the *Cattleya* house would be needed for it when first introduced, but my plants have been grown at the coolest end of the *Cattleya* house, and they grow well, almost every growth having a flower-sheath. They are placed near the glass and where they are not much shaded. The *Cypripedium*, though not a newly discovered species, is really new to cultivation. The brothers Schomburgk discovered it in swampy ground on the Roraima Mountain about 1839, and it has been sent home by other collectors. A plant of it flowered by Mr. Drewett was exhibited recently, and I see it is described in THE GARDEN at page 154 as being "more curious than beautiful." I do not care to cavil at this description, for it is a very distinct and curious species, and not devoid of beauty. The immense broad leaves, strap-shaped, with a yellowish margin, seem well adapted to hold their own amongst the rank Grass of the swampy ground. The natural conditions under which it is found, and the 6000 feet elevation, will be a clue to the treatment required. These *Cypripediums* have

no thick, fleshy pseudo-bulbs to support them, such as the Cattleyas have, and they must be pretty well exhausted by the time they are ready to be offered for sale. The long leaves, limp and drooping, must be tied up to sticks. The plants should be put into flower-pots in a peat and Sphagnum compost. Great care is necessary to establish them.

The weather is still variable, requiring considerable care at the hands of Orchid cultivators to keep the temperature right. Recently I have gone into the matter of firing, damping down, and ventilating, but there is not much need of ventilating. As I write these lines Fahrenheit's thermometer has registered 16° of frost, and as a north wind is blowing directly on our exposed span-roofed houses, there is nothing to do but to keep the fires going nearly at full blast. I would rather have a zero temperature without wind than 16° with it. Next morning all the houses were 5° below the minimum I have recommended, but for this there is no one to blame; we might have, by over-heating, got a degree or two higher, but more harm is caused by over-heating pipes than by allowing the temperature to drop when the cold is of exceptional severity. This sudden change to such weather as we expect and like at Christmas proves the wisdom of not raising the minimum temperature much above its lowest point in February. It is something to have a bright sunny day; for this we are thankful after such a frost.

J. DOUGLAS.

TREES AND SHRUBS.

THE QUINCE.

(PYRUS CYDONIA.)

Too seldom by far is the ornamental quality of the half-forgotten Quince taken into consideration when planting lawn and park trees. I have lately examined a number of the oldest and largest specimens on the Holwood property, and without exception the finest trees are such as have been planted on the banks of streams, ponds, and lakes—indeed in such places where one would hardly expect to find aught save a hoary Alder, a wide-spreading Willow, or one of the big growing Bamboos. The preference shown by the Quince for a mill-dam bank or the margin of some rivulet or pond has not, I think, been particularly noticed before, but that it is, nevertheless, a fact can be amply demonstrated by lovers of the tree in various parts of the country. I am not far wrong either in saying that under these conditions it blooms more freely, produces a greater quantity of well-formed fruit, and attains to a far larger size than when planted, as we would naturally expect it to do best, in a free, rich loam, and where no stagnant moisture was to be found. In support of what I say, I can hardly do better than describe two of the largest specimens here. Both are growing on the banks of a stream and where many of their roots must be constantly submerged. The largest of these is growing in the garden at Hollydale, a fine well-formed, round-headed tree, with a rather rough-looking stem. The other was, until a few years ago, half buried by a Portugal Laurel and far-spreading Holly, and yet the dimensions to which it has attained are by no means trifling, nor does the bushy head seem to have suffered from the treatment to which it has been subjected. Both trees flower and fruit with unusual freedom. Several other specimens of the Quince, not, however, growing within the reach of water, but planted as orchard trees and in company with the Pear and Apple, have not, although of equal age, attained to anything approaching the same size, although, too, in

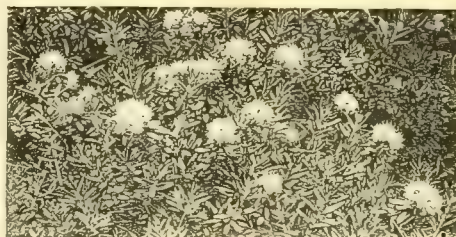
one instance at least they are growing within a stone's throw of the two above recorded.

At all times the Quince is an object of admiration, be it in early spring when developing its tender, light green foliage, at midsummer when crowded with its showy flowers, or in autumn when both fruit and leaves wear that enlivening tint of which our ordinary woodlands are so much in need.

A. D. W.

THE LEDUMS.

The genus *Ledum* is but a small one, there being only a couple of species in cultivation, viz., *L. palustre*, the subject of the accompanying illustration, and the Labrador Tea (*L. latifolium*). There are two or three varieties of the above, but none of them presents any marked divergence from the normal form. The first-named species—*L. palustre*—is a low-growing shrub, a little more than a foot in height, whose numerous branches are clothed with narrow leaves, and in May plentifully furnished with clusters of pure white flowers. The leaves are curiously revolute at the margins and covered with a rusty tomentum on the undersides. *L. latifolium* (the Labrador Tea) is altogether a larger-growing plant than the above, reaching a height of a couple of feet or occasionally more. The leaves, with which the shoots are somewhat thickly studded, are linear, oblong in shape, dull green above and clothed underneath, as in the other species, with a rusty tomentum. It



Ledum palustre.

flowers at about the same season as *L. palustre*, at which time every shoot is terminated by a many-flowered umbel of white blossoms. There is a variety (*globosum*) in which the flowers are borne in more of a rounded head than the others, and this is the most ornamental of all the *Ledums*. Another variety is *canadense*, which differs little from the ordinary Labrador Tea, the principal feature being that the tomentum which clothes the undersides of the leaves is lighter in colour.

A very near ally of the *Ledums*, and one well worthy of mention here, is the North American Sand Myrtle (*Leiophyllum buxifolium*), also known by the names of *Ledum buxifolium* and *Ammysine buxifolia*. It forms a little shrub from 6 inches to 1 foot in height, of a rather erect, yet very twiggy style of growth, clothed with dark green shining leaves, smaller than those of the Box, from whence its specific name is derived. The flowers are borne in corymbs on the points of every shoot, even to the tiniest twigs. The blooms are small and tinged with red on the exterior, but when fully expanded they are pure white. The contrast between the unopened buds and the flowers after expansion forms a very noticeable feature of this pretty little shrub. This Sand Myrtle, which is a native of New Jersey and Virginia, was introduced as long ago as 1736, while the *Ledums* have been grown in this country for over a century; yet they are at the present day rarely

seen and in fact but little known. Both the *Ledums* have a wide geographical distribution, *L. latifolium* being found in North America from Canada to the Arctic Circle, and *L. palustre*, in addition to much the same countries, also occurs in Northern Europe. As might be supposed from the districts they occupy in a wild state, the frosts of this country have no effect upon them, and they are thoroughly hardy in all positions. They are, however, by no means invariably met with in good condition, as a cool moist soil, largely consisting of vegetable matter, is essential to their well-doing. Where the natural soil is not of this nature, some peat or leaf-mould may be mixed with it for their reception.

H. P.

SHRUB NOTES.

DEUTZIA CANDIDISSIMA FL.-PL. has certainly few equals either for wealth or purity of flowers. Some notes taken when last this pretty shrub was in flower have just turned up, and they may now be opportune when the formation and renovating of our shrubberies go on from day to day. Although but a form of the old and well-known *D. scabra*, the pure white flowers, produced as freely as in the case of the typical plant, will at once be a safe guide to distinction, they being quite wanting in the purplish tinge of those of the parent, and being very full and double, have a charming effect when at their best. Few hardy shrubs, it must be admitted bear a greater quantity of flowers, the plant all over being thickly studded with the pure white and wonderfully showy blossoms. Then it is a plant of the simplest culture, no coddling and placing in sheltered, warm corners being necessary, for it succeeds admirably in any border and frequently where the soil is mainly composed of lime and stones. That it is worthy of very wide culture everyone who has seen the plant will admit, and being readily propagated from cuttings, it ought to be as frequently seen in our gardens as the equally valuable parent.

HYPERICUM MOSERIANUM is a dwarf almost evergreen flowering shrub that will, when better known and more readily procurable, receive a fair share of attention. We are all acquainted with the so-called St. John's Wort (*H. calycinum*), and a few at least with the equally good *H. patulum*, and it may be of interest to state that the plant in question is a hybrid from the two, and one that partakes of the nature of both parents in a marked degree. The flowers are nearly as large as those of *H. calycinum*, with tassel-like tufts of red-tipped stamens, which are shown off well by the rich golden hue of the flower. When out of flower the arching stems of evergreen foliage have a neat and pretty appearance, while the rather dwarf habit is, too, a valuable acquisition for many garden purposes. The plant remains in flower for a long time owing to the buds becoming developed one after the other, this often extending over a period of three or four weeks. About hardness it is almost needless to speak, the parentage proving this.

HYDRANGEA PANICULATA GRANDIFLORA is not noticed here as being one of the rarer shrubs, but simply to bring it more fully under notice, for it is quite surprising the number of persons—lovers of their flowers too—that go into raptures of delight and praise on first seeing a plant of it in full bloom. Unquestionably, it is in its own way one of the handsomest of hardy flowering shrubs, and one that should be cultivated and disseminated far and wide. The pyramidal panicles of white flowers often look like large bunches of Grapes, so far at least as shape and size are concerned. Perhaps no flower remains longer in a good state than that of this *Hydrangea*, for it is first white—a colour it retains for nearly a month—and then slowly changes to a dull pink, all the petals remaining intact for another month, or until destroyed by frost. Propagation of this shrub is readily effected from cuttings, and this is a point

in its favour, for not a few of our handsomest shrubs are by no means readily increased. Any good light soil would seem to suit this *Hydrangea*, and I find it is all the better of being planted in a warm corner of the garden.

PYRUS MALUS FLORIBUNDA is one of the showiest and most brilliant in floral tint of any spring-flowering shrub, or rather small-growing tree. In the opening weeks of May the long and lithe branches are literally wreathed in flowers, and these too of the richest crimson, particularly on the outer sides of the petals. But to my mind they are prettier in an unexpanded state, for then they resemble bunches of fully-ripe Cherries. There is a variety of this *Pyrus* named *atrosanguinea* which in the bud state is even more ornamental and brilliantly coloured than the parent, but either is worthy of a corner in any good garden of hardy trees and shrubs. The scarlet Siberian Crab (*P. Malus baccata*) must not be omitted here, as when in full flower it must certainly rank as amongst the most ornamental of our shrubby occupants. The flowers are rosy-tinted and produced in rich abundance, but can hardly compare in point of beauty with those of the first-named kind.

THE VENETIAN SUMACH (*Rhus Cotinus*) is a curious, and at the same time highly ornamental shrub, of easy spreading gait, and most remarkable for the curious feathery awns with which the plant is furnished, and which succeed the flowers. Generally the Venetian Sumach may be seen as a shrub of about 6 feet in height, with lithe, spreading branches and a neat and by no means stiff outline. Though the flowers are small individually, it is the change from these into the white fluffy awns which makes the plant so unusual and remarkable. In the garden of the late Charles Darwin there may still be seen an unusually fine specimen of this shrub, and which, owing to its having been allowed plenty of room, has developed into a noble plant. It is noted here as being so widely different from nine-tenths of our shrubs that it is sure to attract attention.

THE FEATHERY-LEAVED SCARLET ELDER (*Sambucus racemosa plumosa*), though not at all remarkable for its flowers, has the leaves so finely divided that the whole plant wears almost a plume-like appearance. For planting in a group it is peculiarly suitable, and when the plants have attained to a few feet in height, the appearance, by reason of the finely-divided leaves, is most pleasing. It only wants knowing to be appreciated. Whilst speaking of this variety I might well direct attention to the typical plant—*S. racemosa*—certainly a very handsome and distinct shrub, and one, moreover, that is far from common. When studded with its scarlet fruit it is a most interesting and desirable object, and offers a striking contrast to our commonly cultivated and wild *S. nigra*.

THE CORNELIAN CHERRY (*Cornus mas*), considering its great beauty and freedom of growth, is not half known. In early spring the umbels of small yellow flowers are produced profusely, and when we, as occasionally happens, see the pretty fruit of the richest scarlet, we are reminded of how this, one of the most ornamental of the berry-bearing section, is neglected. The foliage, too, dies off of the most pleasing tinge, and thus adds to the value of the shrub, or rather small-growing tree, as an ornamental-foliaged subject. Then, from the fact of its bearing pruning well, it makes a capital villa-garden plant, or, indeed, any place where space is somewhat confined. Few soils would seem, from my own experience, to come amiss to the Cornelian Cherry. A. D. W.

Aralia Maximowiczii.—In its native country this is said to attain the dimensions of a large tree, and though it is of recent introduction and but little known, it makes considerable progress in a young state and bids fair to reach a good size. It forms a stout, erect-growing specimen, furnished with very ornamental foliage, quite distinct from that of any other hardy shrub or tree. The leaves

are dark green, five to seven-lobed and on vigorous specimens about a foot in diameter, while they are borne on stout footstalks 9 inches or thereabouts in length. The entire plant when in leaf bears quite a sub-tropical aspect, while it is at the same time thoroughly hardy. In winter it is also very noticeable by reason of the bold erect stem, which is furnished with stout dark-coloured spines. This *Aralia* is a native of the northern part of Japan, and is there reported to reach a height of 90 feet with a trunk 9 feet to 12 feet in circumference. It is also known by the name of *Acanthopanax riciniifolia*. Like the majority of its allies, it can be propagated by cuttings of the roots, and plants obtained in this manner grow away quickly.—H. P.

Daphne Genkwa.—Among the more uncommon shrubs to which attention may well be directed during the present planting season is this *Daphne*, which is almost unknown here, though highly spoken of last year in **THE GARDEN** by Mr. Falconer, of Glen Cove, New York, so that its merits would appear to be more appreciated on that side of the Atlantic than they are on this. It forms a freely-branched deciduous shrub, a yard or so in height, whose flowers make their appearance before the leaves. The blooms, which are a good deal like those of the Lilac, are borne in such numbers that the slender shoots are quite wreathed with them. Their colour is a kind of



Melon Golden Perfection.

bluish-lilac. Its blooming season is towards the latter part of March or during the month of April, when shrubs in flower are, to say the least, very limited. This *Daphne*, which has been spoken of as the Japanese Lilac, was shown in good condition and awarded a first-class certificate at the meeting of the Royal Horticultural Society on March 10, 1885. It is said to have been introduced by Fortune, but would appear to have been again lost till re-introduced through the St. Petersburg Botanic Gardens.—T.

Shrub pruning (deciduous and evergreen).—In a recent note reference was made to a lamentable exhibition of the above within the metropolitan area, and having passed the spot lately, I can prove that the note was not one whit too strongly worded; indeed, one marvels at the lack of taste and absolute cruelty displayed by those in charge. I say cruelty, for it is mutilation pure and simple; there is not the slightest attempt at judicious pruning. All shrubs without exception are shorn in hard, and the whole stretch of shrubbery presents an unbroken line, though some shoots, it is true, are a little higher than others. In the whole course of his rambles, the young gardener could not possibly find a better illustration of "how not to do it." The true gardener will handle his choice flowering shrubs as tenderly and carefully as a hothouse plant, a little judicious pruning for a season or two after planting to lay the foundation for a shape'y head, and then just an occasional shoot will be all it is necessary to remove; indeed all deciduous shrubs require care-

ful attention for several seasons after planting. The aim is to cover the ground as quickly as possible without undue crowding with a set of well-balanced plants, and all pruning operations should be conducted with a view to that end. Evergreens, as, for instance, variegated Hollies, Minorca Box, *Cryptomeria elegans*, some of the *Retinosporas* and *Thuja*s and the deciduous Cypress, all things we are cutting more or less at different seasons of the year for various purposes, are never subjected to any regular cutting; any irregular and straggling growth is removed as we may require it. No subjects want more careful handling in pruning than the bushy Coniferæ. Planted often in small beds or in the immediate neighbourhood of walks, they must be kept within bounds, and require annual supervision. Always to preserve a symmetrical outline and to make sure no trace of the knife is visible are two hints essential in the pruning of such Coniferæ.—E. B.

ORCHARD AND FRUIT GARDEN.

GOOD EARLY MELONS.

To get a good crop of first-rate Melons early in May requires skill and a considerable amount of patience. For early work, no doubt pot culture is much best, but as that subject was fully treated of in **THE GARDEN** (pp. 69 and 148), I do not intend to go into details as to this. There is a considerable difference in the ripening of Melons, those with a thin skin ripening much sooner than the thicker skinned ones. I do not depreciate the latter, as they are equally useful for succession and late use, and keep much longer when cut in the summer and autumn than the thinner skinned varieties. Last autumn I had a house planted with a thin-skinned variety and a thicker skinned one. They were sown and planted on the same day, and there was more than three weeks' difference in the ripening, each receiving exactly the same treatment. Those who cannot give the seedlings every attention would do well to sow in the middle of December. I mention this date because it is important to get strong plants for early work. I do not like the seedlings starving in their seed pots, and with proper convenience prefer sowing a month later and growing quickly, as then with good management three if not four crops of fruit may be grown in the house in the year. I prefer to sow a couple of seeds in a 3-inch pot, destroying the weaker plant and growing the other near the light in a bottom-heat of 80° to 90°. Of course, with new varieties it would be a waste to sow two seeds. On the other hand, I would not advise sowing new varieties so early in the year, preferring to have some kind that has been grown previously for early fruiting. Sowing in small pots is now so generally adopted, that I need only point out the advantage over the old system of sowing in pans thickly, as when grown singly, every root is preserved from the start. With pot Melons my impression is that canker is less troublesome. I have found it so, and have grown Melons for years in this way. In pots the stem of the plant is more exposed to the air, being higher and often drier than when planted out.

VARIETIES

for sowing for early use are important. I have grown Golden Perfection (the Melon illustrated) in a variety of ways for early forcing; indeed at one time I grew nothing else. It was good for early and summer work, and I always did well with it on the exhibition table. I did not then grow late Melons, so did not use it for late fruiting. I do not know when it was introduced, but it has held its own for years, being

very handsome, of excellent flavour, and a free cropper. A Melon that holds its own in the seed catalogues for so many years must be good. A good Melon when sent out if grown with other varieties so soon gets mixed with them that its true character is lost, the variety is condemned as a failure, and what is the grower's fault is put down to the variety being bad. Melons are grown in this country better than anywhere else, and though imported fruits may be seen in quantity in the season, they are far inferior in quality to a good home-grown fruit. In the first place, they lack the rich aroma of a luscious home-grown fruit. There are often adverse comments on the raising or introduction of new Melons, but if those who object saw the great numbers rejected yearly and the few brought into prominence, they would be less severe. I consider we have of late, say for twenty years, made progress. For instance, Read's Scarlet was a valuable introduction, and it is still one of our best Melons and first-rate for early forcing, not large, but just the size for table, and invaluable for pot work. Davenham Early is also good for this purpose, and one of the quickest Melons to come to maturity. I have grown this variety in a much shorter time than others. Blenheim Orange, Benham Beauty, Eastnor Castle, Higheross Hybrid, The Countess, and Wm. Tillery may be included in the list of first-class varieties. There are also others equally deserving that I have not space to mention. Much depends upon the finish of a Melon, as when grown in a house with other plants it is impossible to get finish, and though Melons when in active growth revel in heat and moisture, when the fruits reach the finishing stage the plants require just the opposite treatment.

TEMPERATURE

is one of the chief points of success in early Melons. Though Melons will do well in ordinary frames in the summer months, top and bottom heat for early fruits is essential, a high temperature from first to last, especially at the finish, being necessary to get good flavoured fruits. Whenever possible the bottom heat should be kept at 80°, and the house temperature at 75° to 80°, with a rise of 10° to 15° more by sun-heat; indeed, with abundance of moisture when growing, no harm can result when the house is closed with a high temperature. Airing Melons early in the season is an important operation, as to admit cold currents of air in large volumes is most injurious, thus causing green and black fly and red spider. A high night temperature should be avoided, 70° to 75° being ample at the start, allowing more when the fruits are set, and during the setting, less atmospheric moisture with less moisture at the roots. A chink of air in mild weather with plenty of warmth in the pipes when setting should be given. Early fruiters must be sparingly cropped, so that a couple of fruits will often be enough, as they should all be set as nearly as possible at the same time. Plenty of feeding is necessary to quick growth, and during the growing season top-dressings of richer material should be given, encouraging the roots to increase till the plants have finished swelling their fruits. Watering at first must be done sparingly until the plants have made plenty of roots; after that, liquid manure should be given frequently. The stopping and training need not be described. With early plants often in a limited space there is less top growth than with late plants.

G. WYTHES.

Keeping Apples - It is very often found more difficult to keep Apples well over a long period than

it is to grow them. The very fine collection which Mr. Cummings, gardener to Mr. A. H. Snow, exhibited at a recent meeting of the Royal Horticultural Society impressed the fruit committee as much by the remarkable freshness and brightness of the fruits as by their variety and size. The Hackbridge collection doubtless owed much to the place of storing them - a span-roofed fruit house running east and west, also something to the general moist condition of the atmosphere of that locality, thus checking that shrivelling which is so prevalent where the atmosphere of a fruit house is too high and dry. But there can be no doubt whatever that the fruits also owe something in the process of maturing to the abundant moisture found in the soil and air at Hackbridge. I very much doubt whether it would be possible to have Apples in such a capital firm fresh state of preservation in the spring from dry gravelly soils as these Hackbridge fruits were. The point is one well worthy of discussion, because it is obvious that if we are eventually to make any considerable effort in the production of good Apples for late marketing, we must also find the best methods for storing them until the end of March at least. As showing the way in which Apples may be preserved in a damp place, we have but to remember the conditions of any fruits which in an orchard or elsewhere have fallen and become hidden in leaves or grass. Such fruits after several months have elapsed have been found in the freshest possible condition.—A. D.

PEACHES IN SUCCESSION.

THE Peach forer of the present day has many advantages over his predecessors of thirty or forty years ago. He has for the most part light roomy houses, and in hot water he has a better and more reliable means of heating, but especially is he fortunate in possessing varieties which are as good, if not better than the old sorts, and possess the advantage of ripening much earlier. If one plants properly selected varieties, a succession of Peaches may be obtained from one house for a much longer period than was possible in the past. Anyone who builds a Peach house and dislikes a glut of Peaches may bud two varieties on one tree that will succeed each other. I have often thought this would be an advantage to small families and where the glasshouses are limited in number. A full-sized Peach tree will, if well supported when the fruits are swelling, bear more Peaches than can be consumed unless they are largely used in the kitchen. I have often had to send more Peaches into the kitchen than could be used for dessert simply to get rid of them. To cut trees hard back in order to make a given space contain more trees is rather a barbarous system and is not generally profitable withal, as these much-pruned trees are not long-lived. The best early Peach under glass with me is the Alexander, an American variety that forces well and bears a good crop, and the tree is a good grower. Waterloo, another American variety, is an excellent Peach under glass and also outside. In appearance it resembles Alexander, but it is perhaps a trifle larger and a few days earlier. I have the two trees in one house under similar conditions, and Alexander commenced ripening before the fruits of Waterloo were gathered, and to a certain extent where space is limited it runs the Waterloo rather too close. Hale's Early comes within easy distance of Alexander, and this variety, too, is of American origin. The tree is a good grower, sets freely, and the fruits are large and handsome. Early York, one of Mr. Rivers' seedlings, comes in close to Hale's Early. A Bec, Royal George, Noblesse and Dymond follow on in the order set down, and may be succeeded, if there is room, by Barrington, Goshawk, Thames Bank

and Walburton Admirable. The last-named is a good-flavoured Peach, very rich and melting, which is more than can be said of some of the large late Peaches. The Salway Peach is good under glass without fire-heat beyond what is necessary for keeping the blossoms safe in spring. It is rather remarkable that when early and midseason Peaches are grown in the same house, the earliest trees to open their blossoms are not the earliest to ripen their fruits. Dymond and Grosse Mignonne opened their flowers some days before Alexander and Waterloo. Royal George is a good tree under glass, but in point of earliness now-a-days it is a long way behind, though it was always an esteemed forcing variety in the past; in point of fact, it is so still to come on in the second house. Large Peaches are essential now both for home use and for sale; in fact, small fruits are of little value, and to have large fruits, the trees must not only be healthy and strong, but they must be well supported. I always think it pays to feed liberally with liquid manure when the fruits are swelling, but feeding must be discontinued as soon as the fruits begin to colour.

E. H.

EXHAUSTED VINE BORDERS.

It has become so much the fashion to renovate or partially re-make Vine borders in the autumn, or while yet the Vines are in full leaf, that remarks on the subject now might at first sight be thought unseasonable. Yet such is by no means the case. That the autumn is the best time to carry out this important and highly necessary work I readily admit, for the simple reason that the Vines are enabled to form many fresh roots, or take possession of some of the new soil before all sap movement is suspended. The improvement thus inaugurated in the Vines is more than sustained in the following season, and it is the fault of the cultivator if it does not extend for some considerable time longer.

But what about the late Vines? When are the exhausted borders containing the roots of these to be restored to a more fertile state? As a rule, they are wholly confined to inside borders and are worked harder than almost any other class of Vines, but owing to the difficulty attending interfering with them while the bunches are hanging, they are very frequently badly neglected, as far as the bulk of the roots are concerned, liberal surfacings of rich composts and manures being the only extra attention they receive. As it happens, the work of removing a good portion of a border and wholly or partially renewing the same need not be deferred till either the foliage has changed colour or the bulk of the bunches are cut, and if need be I would unhesitatingly undertake the work in the autumn, or say in October, as, according to my experience, it may be done then with advantage to the Vines and without much detriment, if any, to the hanging crops. If this does not meet the views of other cultivators, then the best that they can do is to defer all operations till March or till such time as the upward sap movement is just taking place. It is really surprising what can be done with Vines at this period of their growth. I have more than once alluded to the fact of having moved quite large old Vines upwards of two miles early in March and yet obtained a crop from them the same year, and two seasons later I lifted supernumeraries that had been fruited twice and replanted these in a vinery three miles distant without the loss of a crop. So well did the latter take to their fresh quarters, that they the same season actually produced finer bunches

than strong old Vines in the same house. This took place about seven years ago, and those transplanted Vines have done well ever since. The varieties were Lady Downe's and Alicante. During the same spring, or very shortly after, a friend decided to completely lift and replant a number of strong old rods of Muscat of Alexandria, and they actually had their roots washed quite clear of the soil, these being suspended to the roof trellis, while a new border was formed for them. Yet those Vines produced excellent crops the same season. I mention these facts not because the practice of wholly lifting and replanting ought to be generally followed, but rather with a view to prove that no one need hesitate about disturbing the borders and therefore the roots at this period of the year. I hold, and it is no new idea, that this kind of work ought to be either done while the foliage is green or else deferred till the buds are bursting. If carried out in no half-hearted manner, very many roots must of necessity be broken and pruned, but they heal quickly and start afresh when autumn lifting is resorted to, while if similarly treated at any time between the fall of leaf and sap movement in the spring, the chances are many of them would fail to heal and decay badly. In the case of late-started Vines, root movement is not so very much later than the top growth, and lifting the roots and relaying in fresh compost stimulate rather than retard the formation of abundance of fresh fibres.

Many gardeners seem to have a dread of interfering with the roots of Vines in the spring, bleeding being the great bugbear, and, as a consequence, the borders are treated very carefully indeed. This, as I have attempted to prove, is quite a mistake, and even if a little bleeding does take place after the roots have been disturbed, this would have no marked ill effects upon the Vines, while the advantages attending the spread of fresh roots into congenial new soil cannot well be over-estimated. It is not such a great mass of soil that even the largest Vines require to have access to, but, on the contrary, the results are far more satisfactory if a comparatively narrow strip of fresh compost is placed within their reach. Top-dressings are doubtless of good service in many instances, but there are plenty of cases where the roots never take possession of these owing to their not being placed sufficiently near them in the first instance. The roots positively refuse to be attracted through a layer of inert, or, it may be, manure-sick soil, and yet owing to the tenderness evinced for these same roots by numerous growers, a fork is either not used at all or not half freely enough. Whether, therefore, a border is only top-dressed or the more radical measure of renewing a portion of it is resorted to, the fork should play an important part in the good work. Many a great, wide border might well be reduced to one-half or even two-thirds of its present dimensions, all long, old roots come into contact with being freely shortened back, the freshest and shortest of them being re-laid in fresh soil. A breadth of 3 feet or rather more of new border is sufficient at the present time, other additions being made to this in later years as the roots increase. Good turfy loam, strong and clayey rather than light and spongy in character, ought to be the principal ingredient used in these additions to old borders, half-inch bones, wood ashes, and mortar rubbish being mixed freely with it. If any solid manure is used, give the preference to nearly fresh horse droppings, and build up the mass squarely and firmly, some allowance being made for shrinkage or settling down.

Adding to the front of a border is not sufficient, as there is much that may be done from the surface. The whole of the hard, dry, or loose surface soil should be removed, so as to quite bare many of the uppermost roots, and if the soil below is found to be at all dry, that would be a good opportunity for giving a good soaking of fairly strong liquid manure. Composts for top-dressing ought to or may safely be richer than any used in bulk, or which is to long remain a part of the border, but even in this case a fairly free use of fresh loam is preferable to so much rich, solid manure that is sometimes used. In using any of the artificial manures, never exceed the strength recommended by the vendors, as it is possible to make the surface too rich for the roots to spread through or even to live in. Better, therefore, be on the safe side and apply powerful soluble manures somewhat sparingly and often, well washing their fertilising properties down to the roots with soft water. W. I.

STRAWBERRY FORCING.

JUDGING by the appearance of the plants, Strawberries should force well this season, the earliest now throwing up their flowering stems well. If this is so with the first batches, we may confidently expect the later kinds to do likewise. Where the forcing of Strawberries is carried on extensively this entails a lot of hard work, especially where the means are limited, and the plants have to be moved from one structure to another to pass them through the different stages. The preparation of the plants alone entails a deal of labour, and this being the case, every care should be taken that their wants are attended to. With the season now advancing, forcing may be carried on with still greater certainty, and the failures should be few indeed where there are good plants at hand to commence the work. Where anything like forcing has to be practised, the plants cannot very well be accommodated with less than two structures, although where this is carried on gently one may be sufficient, as the range of temperature will not vary sufficiently to either interrupt the setting or ripening stage.

In the forcing of Strawberries, watering is the principal detail, as on this depends failure or success. To lessen the labour of watering various means have been tried, such as standing the pots on turfs, in small pans, and also by plunging. However well adapted plunging is for later batches when arranged in shallow pits, it is not possible to adopt it in the ordinary details of forcing without a deal of trouble. Standing the pots in shallow pans certainly lessens the labour of watering, but it is a very unsatisfactory method at any time. In the first place, the growth is not satisfactory, and the flavour of the fruits is about as bad as it can well be. Standing the pots on turfs is the most rational, and although such a method may ensure more genial surroundings, it does not strengthen the plants, as many people suppose. Rarely, indeed, do the roots work through sufficiently for the plants to gain extra sustenance; therefore, this being the case, the labour of bringing in and placing the turfs had much better be given up, as any results are more fanciful than real. For all practical purposes, standing the pots on the bare shelves will still be found the most convenient, however closely they may require looking after in watering. As is well known, dryness at the roots is fatal to a satisfactory growth, for not only do the fruits swell unkindly, but

the plants become a prey to red spider, when all hopes of securing good fruits may well be abandoned. Letting the soil become so dry that it will crumble between the fingers is bad enough, but allowing it to shrink from the sides will prove disastrous. The soil must be kept in a genial state, as any approach to soddenness through over-watering will sour it almost as badly as standing the pots in pans of water.

There is also a difference of opinion as to the methods adopted with regard to feeding. In years gone by quite as good Strawberries were forced as now, and in some cases a deal better, for such kinds as President and British Queen are rarely seen now-a-days. These were fed up on the old-fashioned principle by liquid manure. This certainly is as good as anything to apply now if given carefully. When liquid manure is carelessly applied it very quickly sours the soil, especially so if at all in a stale state. It should be perfectly clear, so that it will percolate quickly through the soil and supply the roots with nutriment. Although I have made the above observations on liquid manure, I am fully alive to the beneficial properties of the concentrated fertilisers. Whenever these concentrated manures are applied care must be taken not to run them over the sides of the pots in watering. This is especially necessary for the first few waterings after the application. Wherever liquid manure is objected to, then might these artificial fertilisers be substituted, and there is also the satisfaction of knowing that there will be no disagreeable smell arising, and which some employers so object to.

As in the case of all other classes of fruits, securing a good set is the most important, as then the finishing off will resolve itself into the routine of watering and feeding, and forcing on the fruits as they may be required. During the earlier stages of growth a circulation of fresh air free from draughts is what is needed, and this with free exposure to light is the main essential in ensuring the flowers becoming strong and setting satisfactorily. A close, stagnant atmosphere, especially during the setting stage, will end disastrously, the blooms quickly becoming black through the moisture settling about them. A high temperature will bring about the same evil. A temperature of 50° to 55° during the setting stage is ample, and I do not care to hurry them much for a week or two afterwards, as, like other fruits at this stage, they are comparatively at a standstill. Whilst at a standstill they are forming seeds, and although only on a small scale, the fruits undergo the same changes as other fruits during the term of stoning. The number of fruits to retain will depend principally upon the variety and the size of fruits it is desired to have. For extra large fruit six or eight will be ample, and the smaller fruited ten or a dozen, always selecting the primary blooms. After the setting is well past, then might the plants be removed to a warmer structure, when, by keeping them well supplied with water and feeding, and also syringing on fine days, the fruits will quickly swell up. This treatment should not be adopted when once ripening has fairly commenced, for if so, the fruits will very quickly lose their bright colour. The conditions which ensure the blooms setting satisfactorily will also be necessary during the colouring and finishing up of the fruit. A cool and airy house as sometimes recommended is not the best for colouring unless later on in the season, as the sudden change is very apt to cause mildew, this being quickly noticeable by a white film spreading over the surface of the fruit. Close and hot

structures are apt to cause the fruits to be of poor flavour, but by treating them as I have advised, and also by lessening the water supply, the flavour would be improved. Y. A. H.

Me-lons.—Added to year by year, as are our Me-lons, by new kinds, as well as selections of old sorts, I think in real green-fleshed varieties there are as yet none to surpass in flavour the following three, viz., Wine Tillery, High Cross Hybrid and Exquisite—first-class varieties in all points. Of late years I have not grown many scarlet or pale-fleshed varieties, as my employers have an objection to them, so cannot speak as to the merits or otherwise of late introductions in this class.—J. R., *The Gardens, Tang-lack*.

Top-dressing fruit trees.—The top-dressing of fruit trees is a matter deserving more attention. Cordon fruit trees with the roots near the surface need annual supplies, as these are kept within a certain space and are often on a stock that requires nourishment, especially on light or gravelly soil. Trees that have become impoverished, especially pyramids, well repay for top-dressings of good loam and manure, or the manure may be lightly forked in and a new supply of loam given on the surface. Cherries, Apricots, Peaches and Nectarines would often be greatly benefited if a good dressing of loam alone was given. Old Pear and Plum trees on walls require help in this way to assist in bringing new roots to the surface and keeping them there. A good mulching at this season also prevents injury from drought in dry seasons. Gooseberries and Currants are often neglected. These, if mulched, would repay very quickly by the size of their fruits. Such fruits as Cherries, Apricots, &c., need abundance of manure when the trees are fully developed, especially when planted in dry positions. Raspberries delight in good mulchings at this season, placing them over the roots. Young fruit trees recently planted should always get a light surface-dressing, and old ones be assisted by both loam and manure, placing it as advised to encourage new roots on the surface.—W. S. M.

STOVE AND GREENHOUSE.

THE SINGLE CHINESE PRIMULAS.

WHEN a comparison is made between the Chinese Primula as now grown and what it was thirty years back, one cannot but be struck with the vast improvement that has been made therein by our best known growers and raisers of the present day. I can well remember the time when but a very few distinct varieties were grown—in fact, when the fringed white and the fringed purple were the two kinds chiefly found in any establishment. Not so now, however, for we have a great variation in colour of almost all shades from the purest white to the deepest crimson. The additions that have thus been made to the colours of the flowers have been further enhanced by the Fern-leaved and the crisped-foliaged varieties. The Fern-leaved forms, when well grown, make really beautiful plants, even when sparsely flowered, but when well bloomed, as in the case of the plant illustrated, the effect is all the more pleasing. The crisped foliage of some kinds is also very pleasing, but in most of this type which have come under my notice, there has been apparently a delicate constitution. This will no doubt be overcome in due course. I think this section might well be termed the Parsley-leaved varieties, as a contrast to the Fern-leaved kinds. The ordinary white type with green leaves and foot-stalks used to be nearly the only one seen with this shaped leaf, but now we have those with dark-coloured stems, also leaves, and a hardier growth with less disposition to damp off when under unfavourable conditions. The advent of the Chiswick Red, now some

few years back, greatly enhanced the depth of colour in this direction; improvements have further been made in the reds with well-defined eyes since that time. Of the Fern-leaved types with white flowers, one of the best, if not the very best, of all is Snowflake. This, when it was first shown, was considered a decided acquisition; it well maintains its character, and is not surpassed for general usefulness by any other Fern-leaved white. The plants are of robust growth, the flowers finely fringed and of large size, whilst the whole appearance of the blooms partakes of a massiveness not often seen in other kinds. Of the variations in colour previously alluded to, none, I think, are more pleasing than those pale shades of pink or blush now to be found amongst the Fern-leaved section. In some there is also a tendency to a pale lilac, also a pleasing and distinct shade. The greatest break in colour was undoubtedly obtained in Holborn Blue, but this shade does not, in some quarters, find favour. For my own part, I am in favour of it, although the plants are not so profuse in flowering as one

the plants. Neither system is at all necessary, but both have a tendency to increase the length of footstalks, whilst the foliage at the same time is devoid of substance—two undesirable features, to say the least. In raising the plants from the seed there are also many failures and disappointments; the seed may have been costly, but the nett results not what they should be. This, I think, is often caused by fluctuations in the condition of the soil in which the seed is sown; it should be kept in as equable a state as possible. Too much moisture and the opposite extreme are alike to be avoided. I have had good success by covering the pan with brown paper, tying it over the side, as with a pot of jam, and keeping it moistened instead of watering upon the surface of the soil. A grower whom I know, and who usually raises a number of plants, covers the pans with Sphagnum Moss lightly, keeping this moistened. A pane of glass to prevent evaporation is very good, but paper should also be used as a shading. In some instances there is a greenish scum found growing over the surface of the soil, particularly if peat or loam preponderates in the soil, and that in advance of the seed germinating; this I do not like to see. When good leaf-mould with a little light loam and a liberal addition of silver sand is the mixture, there is not this failing; this is, in my opinion, about the best that can be used. When the seed is sown before the hot weather sets in, it is best to raise the seedlings in a moderate warmth and gradually harden them off as soon as they are pricked off and are fairly well rooted. I have often noted that home-saved seed sown the first season after it is saved germinates well; this, I think, goes to prove that new seed is the most reliable. The after-treatment should be chiefly that of avoiding any excess of moisture by always having a gentle circulation of air, with the plants near the glass, only shading during the hottest weather. In potting, guard against extra large pots; these are a great mistake in Primula culture. As to soil, I prefer a light friable loam and leaf-mould,



Fern-leaved Chinese Primula White Perfection.

would wish, nor is the constitution, for some cause or other, generally speaking so good. This is probably caused by some peculiarity in its culture not generally known to the majority of growers. Old plants with flowers of this shade bloom the best, I think. At this season of the year there is scarcely a show or a meeting where one does not meet with good strains of single Chinese Primulas. In the midlands size of plant appears to be aimed at; this is chiefly brought about by growing on young plants of the previous year raised from seed sown as soon as it is ripe. It is doubtful, however, if these extra large plants are so generally useful as the smaller ones; no doubt they are an advantage as far as exhibition goes, whilst they also demonstrate good cultivation, but for use at home in the conservatory the smaller ones have many points in their favour.

In the general treatment of these Primulas the mistake of too much coddling is frequently made; some do this by shading the plants far too much, others by growing them under a north wall, so that the sunshine does not reach

with sand, potting moderately firm, and in such a manner as to avoid the after-use of sticks around the stems to keep the plants erect. I have further noted very beneficial effects from the use of a sprinkling of half-inch bones upon the crocks, the roots taking kindly to this addition. When the plants are grown in houses that are lofty, it is best to provide for them by means of swing shelves, for if far removed from the glass they soon become drawn. Avoid both extremes in watering, rather adopting a medium course, with applications of weak liquid manure or an artificial stimulant in a moderate quantity when the pots are well filled with roots. As the plants come into flower, a rather dry atmosphere is by far the best for preserving the blooms. A gentle heat in the pipes, whether it be in a house or a pit, with air on all favourable occasions, will ensure the best success.

PRIVATE GROWER.

Tulips failing.—I shall be obliged if you will kindly tell me why my Tulips are in flower with

only an inch of stem. The flowers are large and fine. The sorts Proserpine and Ophir d'Or look as though they would be just as bad. The bulbs have not been forced at all. They were potted in October, plunged out of doors, and have been since they started in a greenhouse temperature of 45° to 50°. I am very disappointed with them, as I hoped to have a fine show, and their appearance is quite spoilt.—A. M. D.

* * The varieties Proserpine and Ophir d'Or are not tall growers. The flowers of the latter show their bright yellow colour before they emerge from the leaves. There are but two reasons why they fail to produce good stout stems: that is, the bulbs are either not matured or they are forced in a dry atmosphere before they have formed roots. Tulips are easily forced if the pots are plunged out of doors until the bulbs have rooted well. Place them in a moderate heat at first and do not stint them for water. Place in a light position.—J. D.

Freesias.—The failure of R. Ryley to flower the above is, I think, that either he has been too liberal with manure or has put too many bulbs in a 5-inch pot. If he had followed the method I adopt, which I gave last year in *THE GARDEN*, I think he would have had success. The great point in Freesia culture is, after flowering, to get the bulbs thoroughly ripe. When done flowering, they should be placed on a shelf in the plant house as near the glass as possible. Water sparingly until the foliage changes colour, when water must be withheld. The bulbs remain on the shelf until I want to pot them in August. They are then potted in a mixture of loam and leaf soil, with a dash of sand and soot, in 5-inch pots, placing six bulbs in a pot. I then put them in a cold frame and cover with an inch of cocoa-nut fibre. No water should be given to them until they are an inch through the soil, when they are placed on a shelf in the plant house near the glass and are watered freely when growing. I have not been without Freesias for two months. I have had fourteen pots in the drawing-room at one time with from fourteen to twenty sprays on one pot, and from five to eight good flowers on each spray.—J. HARRISON, *Anley Hall, Settle*.

HARDINESS OF THE PERSIAN CYCLAMEN.

THE Persian Cyclamen is very much hardier than is commonly supposed, but "J. C. F.," who asks for information on this subject, may rest assured that it is not sufficiently so to be of much use in the open air. If we had not more than 10° of frost, we might grow Persian Cyclamens well enough in the open, for from repeated experiments I know that the bulbs will bear this amount of cold without injury, and the foliage will endure some 5° more without suffering much.

Some years ago I planted some bulbs with the hardy kinds, and for the first year or two they did very well. We happened to get two mild winters in succession, and in spring they threw a fair amount of bloom. The highest amount of frost registered during this period was 12°, and we had little of that bitter searching wind that intensifies the action of frost. The following year there came a period of hard weather which killed the foliage, and although the bulbs survived they never again made a good growth. I tried them again on various occasions and always with the same results. As regards plants under glass, my experience has been identical with that of "J. C. F." I once had a house of Cyclamens so much frozen, that I could hardly have thrust a pointed stick into the soil, but not a leaf suffered, and even expanded blooms were not damaged. Some of them later on carried twelve dozen expanded flowers. I never had a better lot of plants nor higher quality in the blooms. I have often seen it stated that Cyclamens require a winter temperature of from 50° to 55° to properly develop their flowers, but this is an error; they will give blooms of the finest quality, though, of course, later if kept quite cool through the winter months. An experience of about twenty years in their culture enables me to make this assertion very positively. Although not reliable as open-air

plants in the southern counties generally, I should say there are districts where they would be so. I should like to know if they have been tried in this way in such favoured places as Torquay, St. Ives, the Scilly Isles, and Fota, and with what results.

J. C. B.

Books.

TABLE AND MARKET POULTRY & FANCY FOWLS.*

THE publication of this work is undoubtedly a hint to poultry-keepers in general to take stock of the present situation, and to make a start on fresh lines if they intend to increase the products from their yards. To a casual observer the present outlook may appear a rosy one, especially if we compare the state of things at this moment with that which existed even twenty years ago. Then pure-bred poultry, although tolerably plentiful, were certainly scarce compared with the numbers now to be met with, and poultry shows were confined to thickly-populated districts, which are scarcely the spots where poultry keeping can be carried on to advantage. It is now possible to meet with pure-bred birds in almost every parish, while poultry exhibitions are numerous in all parts of the country. It must, therefore, be admitted that of late years an enormous amount of interest has been taken in poultry keeping; but, unfortunately, it does not follow that the pursuit is in an altogether satisfactory condition. In spite of the increase in the number of poultry-keepers and the number of fowls bred each year, our imports of poultry and eggs are annually on the increase; yet it is by no means certain that the public are becoming larger consumers of poultry products. If this reasoning be correct, it follows that our home-bred stock is becoming less productive. This statement leads us naturally to the question, "What is the cause of this?" An answer to this question is forthcoming in one of the sentences of Mr. Tegetmeier's introductory chapter, "I do not hesitate to affirm that no one breed of fowls has been taken in hand by the fancier that has not been seriously depreciated as a useful variety of poultry." To understand the full meaning of this assertion it is necessary to inform the reader that at poultry shows, as at present conducted, fancy points alone are considered by the judges. The profitable value, from a consumer's point of view, of the fowls exhibited is entirely ignored. It follows, therefore, as a matter of course, that fancy points alone are sought after by breeders, and economic properties are never taken into account. The result is that in a few generations the qualities which are of no value in the show-pen are seriously depreciated, while fancy points are cultivated to such an extent that one breed becomes a mass of useless feather; another seems to walk on stilts; a third class is endowed with crests as large as plates, which almost prevent the birds seeing their food; while the faces of a fourth breed are such an object of consideration, that the fowls are artificially treated throughout the whole period of their existence. In publishing the work under notice, Mr. Tegetmeier has had but one object in view, namely, the increase in the quality of marketable poultry and the quantity of eggs produced in this country. He devotes several chapters to the consideration of the most important breeds of fowls, not merely as they formerly existed, but as they appear to-day after having been bred for fancy points, and in some instances engravings are given in order to show the changes brought about by this system of breeding. The impartial reader cannot but agree with Mr. Tegetmeier that exhibition birds are not those which are most adapted for agricultural and economical purposes.

The author, it should be remarked, is no novice in poultry keeping, but is well known in the poultry world, and is probably the oldest living writer on this subject. Nearly forty years ago he published a work on rearing and fattening mar-

* "Table and Market Poultry & Fancy Fowls." By W. B. Tegetmeier, F.Z.S., &c. London: Horace Cox, *The Field Office*. 1892.

ket and table poultry; for more than a third of a century he has officiated as a judge at poultry shows, and we are probably correct in saying that no one has devoted more time and thought to the production of high-class table fowls. The present work will not please everyone, but to those who are anxious to raise the standard of their table poultry, and at the same time increase the production of eggs, no better instructor can be offered. It goes without saying that the chapters on general management cannot be improved upon, although some of the author's remarks might not be appreciated by every reader.

OBITUARY.

MR. R. S. HOLFORD.

MR. R. S. HOLFORD, who died at Dorchester House, Hyde Park, on Tuesday, February 23, was born in 1808. Mr. Holford's family had for many generations been connected with the legal profession, and it is a curious fact that Sir Richard Holford, who lived at the end of the 17th century, his son and grandson, the late Mr. Holford's grandfather, all succeeded each other as Masters in Chancery. It is in connection with art that he will hold a place in the record of his generation. At an early age he formed the idea of making a collection of pictures of the several schools of Europe, to be housed in such a building as would become a fitting type of town architecture in England. He carried this idea into effect with admirable completeness, and in so doing became one of the soundest judges of art in this country. Dorchester House, which stands in an unrivalled position facing Hyde Park, is perhaps the finest example of Palladian architecture in this country. It was designed by the elder Vulliamy, who, in the details of construction, took his inspiration from the great Genoese palaces, of which Mr. Holford had previously caused accurate drawings to be prepared. The Dorchester House collection of pictures and works of art is remarkable, no less for its variety than for its high standard of excellence. The series of Rembrandt etchings, which were carefully selected by Mr. Holford himself from the Aylesford Collection, has, perhaps, no rival outside public museums. But it was not only in the direction of art that Mr. Holford found a scope for his energies. From his early days he took the greatest interest in everything connected with the garden. The gardens and the wonderful collection of trees and shrubs for which Westonbirt, his estate in Gloucestershire, is so famous, were formed by Mr. Holford under distinctly unfavourable natural conditions, and will be a lasting memorial, not only of his wide knowledge, but also of his almost unerring taste as a landscape gardener.

The Bullace.—Can any reader of *THE GARDEN* kindly tell me in what districts Bullaces are cultivated, if they are often raised from seed, and therefore on their own roots, and where I could get some healthy plants?—R. W. S.

Clematis flammula true.—Referring to the inquiry upon this subject in your paper of the 6th inst., I take the liberty of stating that the true Clematis flammula is to be had in my nurseries. It is a fine climber with fleshy roots (like those of *C. Vitalba*), yielding a profusion of small white blossoms of an exquisite fragrance in August and September. There is also a more vigorous variety cultivated here under the name of *C. flammula robusta*.—L. SPATH, *Baum-schule, bei Rixdorf, Berlin*.

Names of plants.—J. M. B.—1, *Pteris serrulata cristata*; 2, *Adiantum* (cannot determine from such a specimen); 3, *A. capillus-Veneris*; 4, *Pteris longifolia*; 5, *A. capillus-Veneris* var. *Pompeii*; 6, *Nephrolepis* (send when fertile).—G. Bean.—1, *Cypripedium calceolatum*; 2, *Dendrobium Ainsworthii*; 3, *Cypripedium Williamsii*.—J. T. Marchant.—Cannot name Mosses unless fertile.—Annie Lee.—1, *Didymochlæna lunulata*; 2, *Phymatodes incurvata*; 3, *Odontosoria aculeata*; 4, *Pellaea consobrina*.—J. Childs.—*Lycaste plana*, the typical form.

Name of fruit.—G. Firth.—Apple not recognised.

WOODS AND FORESTS.

TREE PLANTING ON A SMALL SCALE.

THE planter of trees on a small scale necessarily needs a greater variety of trees than one who plants extensively; and in the formation of plantations it may be as well to point out that, for the sake of immediate effect, there are various trees which may be employed that grow tolerably well for a few years, during their infancy and youth, upon soils that are not strictly adapted for their full development. These will produce an immediate effect and clothe an otherwise bare situation. Handsome residences are often seen standing upon bare sites, unaccompanied by the necessary finish and adornment that tree growth alone can confer. Although suitability of soil should always be first considered with respect to the trees that are intended to stand permanently, yet by having recourse to a few quick-growing ones, the desired change can be very much hastened. With this end in view, the Poplar tribe will be found very useful, even if planted with the object of their being cut down when the more highly prized, but slower-growing trees have attained sufficient size. Of these Poplars, the Black Italian (*Populus monilifera*), or Necklace-bearing Poplar, as it is sometimes called, is one of the most rapid in growth; the Grey Poplar, too (*P. canescens*), attains a considerable size in a comparatively brief space of time, as will also the Canadian Poplar (*P. canadensis*). This last will attain a height of 50 feet in twenty years, and will not only be high, but be furnished with a proportionate amount of branches. The White and Bedford Willows might also be associated with the Poplars. These Poplars are by no means favourites with many people, but their tall graceful shape serves as an excellent contrast to round-headed trees of a different habit of growth. The fastest growing trees are the Willow, Poplar, Alder, Horse Chestnut, and Lime, and these thrive best in moist land or near to water, but if the soil is deeply trenched they will maintain a fair growth for some years even on sandy uplands more adapted for coniferous trees. Upon good land, that is neither on an elevated position nor in a low-lying district surcharged with moisture, trees such as the Ash, Oak, Elm, Beech, Birch, Plane, Hornbeam, Locust, Walnut, Sycamore, Spanish Chestnut, &c., succeed perfectly. Where the soil is thin and poor, especially in cold and somewhat elevated districts, Conifers, such as the Stone Pine, the Scotch Pine, Silver Fir, Larch and Cedar, are the most appropriate trees; and to these may be added Spruce Fir, which succeeds best upon the lower slopes, where a greater share of moisture is to be obtained than in the higher situations.

In ornamental planting on a small scale much may be done to produce diversified effect by choosing those trees possessing a varied and distinct appearance at different times of the year. For example, Lilacs and Laburnums, Thorns (scarlet and common), and the Horse Chestnut have a beautiful effect in early spring; while the berries of others, such as the Mountain Ash, Cotoneasters, Thorns and a host of others, produce quite an ornamental effect in autumn. The decaying foliage, too, of others in the autumn changes to deep yellows and glowing reds, as in the case of the various American Oaks, Maples, Liquidambers and Tulip Trees, and produces some brilliant effects, particularly when the first frosts have tinted the foliage of most other deciduous trees.

In all ornamental planting, evergreen shrubs should form an important part, and in skilful grouping these should be made to associate harmoniously with the deciduous kinds. Among deciduous trees of small stature, besides those mentioned, the Almond, Hazel, Cherry, Spindle Tree, Willow, Service Tree, Apple, &c., should be included, while in spaces where larger-sized trees can be used, the common and Purple Beech, Horse Chestnut, Lime, and the varieties of the British Oak, as well as the American Oaks, should have a

place. Under the shade and drip of trees may be planted the Holly, Yew, and Privet.

A good deal of difference of opinion has been expressed at various times as to the best period of the year for transplanting evergreen shrubs of the kinds I have named, and this divergence, in my opinion, has arisen from different circumstances in those cases which have been cited, when the facts or results have been at variance. Without doubt, September is the best time to transplant Evergreens if they are to be removed only a short distance and the proper precautions are taken, as, at this time, the plant is not quite in a dormant condition. The roots should not be allowed to get dry, for if the plant is quickly removed to the place where it is destined to stand, it will immediately throw out small rootlets, which will very materially help its future progress. If, on the other hand, the plants have to be packed, and are sent by rail a long distance, which is very often the case with those who purchase of a nurseryman, celebrated, perhaps, for some special kinds of Evergreens, winter or early spring would be the best time; but even in that case they will thrive better if they have been removed in the previous September with a view to preparing them for their final change. Frequent transplanting previous to removal is of great importance to young trees, a principle that is well understood in tree nurseries.

W. H. A.

PRUNING FOREST TREES.

THIS is a subject closely connected with that of wounds on trees. I am not a believer in the usual pruning of forest trees, and think that if thinning is judiciously performed no pruning will be required. Besides, the margin of profit derived from crops of timber is so doubtful in some cases and so prospectively distant in others, that pruning looks suspiciously like waste of means. The wind is the most effectual pruner, and the wood that it leaves is hardly worth while removing by the knife or the saw. Pruning, we apprehend, is conducted with the view of producing straight and useful timber, and is, therefore, so inseparably and closely connected with planting and thinning as to prompt the question whether it might not be obviated altogether by planting the right kinds of trees together and thinning them properly afterwards; and this question, in turn, brings up the other question of mixed plantations. Although we all admire the products of natural forests in the shape of the magnificent logs that are shipped to this country, "scientific forestry" does not attempt to produce trees on the same principle, but proceeds on principles of its own, that are, if anything, at variance with Nature. It is rarely one sees a misshapen or bent Larch or Spruce or Conifer of any kind in plantations of these alone, because they all push up together equally as one tree; nor do I ever remember to have seen an Oak or a Beech or any deciduous tree that behaved differently under the same conditions, and hence the conclusion arrived at is that the best way to produce straight trees and save pruning is to grow together one species, or species that are nearly alike. My lessons in pruning were received in mixed plantations of evergreen and deciduous trees, and my opinion was, and is now, that the pruning was a necessity caused by the system of planting followed. No kind of tree refuses to produce a straight stem in the seed-bed, so long as all the trees have an equal chance and are not over-thinned, but grow up "neck and neck," pushing forward their leaders in the most regular fashion, and all growing perfectly straight and symmetrical. To the seed-bed, therefore, I would refer the forester for a lesson in thinning and pruning.

Y.

The Ash and English Elm do best in heavy deep soils on flattish lands. The former should be planted extensively wherever it is likely to succeed, as it is in greater request than any other kind of home-grown timber and realises a high price. On the tops of hills or on poor sandy slopes the Beech

should be introduced freely. Wych Elm and Sycamore ought not to be forgotten when planting exposed sites. Oak, Lime, and Sweet Chestnut are best adapted for deep, heavy, rich soils, but are not likely to be so profitable as Ash or Elm under similar conditions. In moist situations near rivers or other watercourses, the Abele and Black Italian Poplar and the Huntingdon and Bedford Willows succeed best, and grow rapidly into profitable timber. Alder is in demand in some localities for charcoal. Where there is a local demand for this wood it might be profitably grown on the banks of streams or in marshy land.

FELLING TIMBER BY CONTRACT.

IN reply to Mr. Knight, I can only say that in almost every county of England the price for felling timber, like most other general estate and forest work, varies so much, that to lay down any hard and fast lines as to the prices that could be considered fair would be a matter of the greatest difficulty, and in the end productive of no good. Generally in Southern England (Kent at any rate) the felling of timber may be contracted for as follows:—

Felling the trees at from 1s. 3d. to 2s. each.	
Binding faggots	5s. per 100.
Stacking firewood	5s. per cord.

Now, the above requires a great deal of explanation, which I will try to give as clearly as possible. For trees averaging from 18 inches to 2 feet diameter at the butt end I give as much as 1s. 6d. per tree, provided the ground around is not thickly stocked with underwood, and if so, a few pence more per tree may be given. Binding the faggots may be done at 4s. 6d. per 100, provided the trees are thickly placed on the ground, so that searching about for the spray has not to be engaged in. Stacking the firewood is done at an average price of 5s. per cord, a cord of wood when stacked being 12 feet long, 3 feet high, and 3 feet wide, and built closely together. I would, however, advise Mr. Knight not to fell his timber by contract, particularly if the trees are in ornamental woods near the dwelling-house. My reasons for this are that very frequently the desire to get the trees felled is such that all care for the remaining crop is totally laid aside. Doing the work with your own men and under your own supervision would be preferable—at least, if the trees are growing in the park.

A. D. W.

Squirrels damaging Corsican Firs.—It is well known how quickly one or two squirrels will strip large trees of their cones, but they usually do no apparent damage beyond destroying all chances of obtaining any seed if such is required. Recently, however, I saw a fine Corsican Fir that was stripped of its cones, and the ground beneath the tree was covered with hundreds of shoots, varying in length from 3 inches to 6 inches. Nearly all last year's growth had been destroyed. It appeared as though the shoots had been nibbled off to facilitate getting at the cones.—A. H.

"The Garden" Monthly Parts.—This journal is published in monthly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference purposes to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols., price, cloth, £29 8s.

"Gardeners' Illustrated" Monthly Parts.—This journal is published in monthly bound Monthly Parts, in which form it is most suitable for reference purposes to the issue of the quarterly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in monthly bound Monthly Parts, in which form it is most suitable for reference purposes to the issue of the quarterly volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats containing over 9000 have been carefully and extensively revised, and are added to the most complete ever published. Price 1s.; post free, 1s. 3d.

No. 1059. SATURDAY, March 5, 1892. Vol. XL.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

CHRYSANTHEMUMS.

STAGING CHRYSANTHEMUM BLOOMS.

MUCH has been written of late on the methods adopted and advised in showing Chrysanthemum blooms to the best advantage. I doubt, however, whether any good results will be the outcome of so much discussion. Writers have omitted to say aught about two ways of dealing with the arrangement of the blooms on the objectionable show-board plan, whereby space would be utilised in the one case and variety given in the other. If we are to still show the flowers on boards, and it is difficult to see how this is to be avoided, what objection would there be to having four rows of blooms instead of three, as at present? Of course the question of increased cost of new stands and boxes would have to be considered, and so would the width of table room, but this would undoubtedly be a saving of space to the managers and at the same time give more space to the blooms. The long straight lines of flowers on the exhibition table as at present arranged appear to give offence to those persons with an artistic eye, or professedly so. This can be obviated by having a few small plants between each class, or in the case of the large classes where one exhibit requires 8 feet of table room, a single row of small plants, such as small Palms or other fine-foliaged plants, would serve to break up the monotony now so common. To provide a sufficiency of such plants, prizes could be offered for small Palms not to exceed so many inches high; these could be utilised for the purpose named.

Prizes might also be offered for a limited number of Japanese blooms, these to be distinct varieties and to be shown in vases, also limited to a certain height, say, twelve blooms in three or four vases, foliage to be attached to the stem of the Chrysanthemums as grown. Quality of the blooms as well as the arrangement of the flowers should be taken into consideration in making the awards. Such an arrangement as this would also prove of service to make dividing lines between the boxes of blooms staged in the ordinary way. Prizes offered in this manner at forthcoming autumn shows would be the means of instituting comparisons in methods of staging the blooms as well as proving to the general public that managers of exhibitions are not entirely oblivious to the cravings of outsiders. I do not suggest that the incurved flowers should be treated in this manner, because from the very nature of the blooms they do not lend themselves to this form of arrangement, being much too lumpy in appearance when grown to a large size. Incurved varieties where needed for decoration only ought to be cultivated in a mass on long shoots. The round ball-like flowers as seen on the exhibition table are useless for vase work; neither are the reflexed varieties adapted to this form of arrangement, being much too stiff in appearance. E. MOLYNEUX.

The Chrysanthemum in New Zealand.—"Directions for the Culture of the Chrysanthemum" is the title of a small treatise just issued by the Auckland Chrysanthemum Society, New Zealand. It consists of only 24 pages, but the matter appears to be presented in a very concise form, and in that respect at least is commendable. With

the details of cultivation as set forth by our New Zealand friends, we have nothing to do, inasmuch as propagation and flowering in that country are at very different times of the year from those familiar to us for such phases of culture. By far the greater portion of the work is, as might be expected, devoted to the production of "exhibition blooms," under which heading there are thirteen sub-headings. Specimen plants in pots, ordinary culture in the open, and insects and diseases are the remaining topics dealt with. There are one or two illustrations to explain the text, and these are so clear as to leave no doubt in the reader's mind. The society, which has the Earl of Onslow for its patron and 280 members, appears to be doing useful work in the colony, for nearly 3000 plants have been distributed by the society among its members free of cost. We shall hope to see ere long something similar from Australia or Tasmania, where other Chrysanthemum Societies are in active operation.—CHRYSANTH.

CHRYSANTHEMUM NOTES.

VISITORS who take note of the large specimen blooms at exhibitions and cultivate the sorts in an ordinary way for cut flowers or for decoration will not fail to be disappointed, at least in the case of the majority of the varieties, which require not only what may be termed high culture, but the plants must also be manipulated in a way to produce the proper bud to obtain the gigantic flower. For instance, Boule d'Or, Golden Dragon, Mrs. F. Jameson, E. Molyneux, W. W. Coles, and so on—sorts which play a prominent part on prize stands—if allowed to flower in a natural way become not over handsome single Chrysanthemums, while the stiff habit of growth does not fit them for the purpose named. Others are ungainly in height; and a few, such as Jeanne Délaux, Criterion and Margaret Marrouch, are far too weakly for the less skilled. The class of incurved, again, would, I fear, be banished altogether were it not for exhibitions, as, with the exception, may be, of Mrs. Rundle, George Glenny and Mrs. Dixon, they are beaten out of the decorative field by the more comely Japanese kinds. The following sorts have all the attributes of useful varieties—bright and varied shapes and colours, medium in height, and of branching habit, requiring no special ways of culture—viz: Mlle. Lacroix, William Holmes, Edouard Audiguier, Source d'Or, Triomphe du Nord, Mrs. Horrill, Mme. de Sevin, Mr. Garner, Miss Anna Hartzhorn, Vivand Morel, Sunflower, Val d'Andorre, Mme. Baco, Mlle. Louise Leroy, William Robinson, Cullingfordi, Avalanche, Fabian de Mediana, James Weston, Timbale d'Argent, the last two being very pretty Anemone kinds. A few good singles are Jane, Exquisite, Miss Mary Anderson, Miss M. Wilde, Effie, Souvenir de Londres, Rudbeckia, not unlike the hardy plant *R. purpurea*.

As soon as the forwardest of the young plants begin to make fresh growth, after being potted singly they should be stood in cold frames, which may be protected at night by mats or straw. Then gradually bring them to a hardier life by giving abundance of air, and in mild weather take off the lights altogether during the day. Do not let any suffer through want of water, and a sprinkling overhead each morning will be of benefit. Stand each plant a fair distance from its neighbour, for it is wise to take every means to get a sturdy growth from the earliest stages. I am referring now to plants which are to be grown for specimen blooms. Before the plants become pot-bound give them another shift onwards, 6-inch pots being not too large for the strongest. I favour a minimum number of times of repotting, for however carefully it may be done, a slight check will follow. The loam—which should form the larger proportion of the compost—should be rather broken to pieces than sifted, so that its fibre may be intact, rotted horse manure and leaf-mould as well as abundance of gritty material being added. Road-scrappings are capital for the purpose and much cheaper than silver sand. No careful plant cultivator will use pots that are not thoroughly clean and well drained. Press the soil firmly in with the

fingers; and return the plants to the frames, which may be kept rather close for a few days. Generally, it is the better plan to allow each plant to proceed in growth with one stem and give a natural break from May onwards, but the ways of individual kinds are sometimes peculiar. For example, Mrs. Falconer Jameson, which is, upon the exhibitor's stand, a very handsome flower, will give one or at the most two perfect blooms on a single plant; and further, the flower-bud must be secured so early, that even the month of March is not too soon to take the tip from the plant to procure the bud in time, that is, the first flower-bud that shows itself after topping. Mrs. E. W. Clarke may be treated in this manner, also Mrs. Alpheus Hardy, both taking a long time to develop their flowers. I also take out the tips of my most forward plants of the Queen family among incurved sorts during the present month, and then allow one stem to proceed for this reason. Grown unchecked, these earliest struck ones break of themselves and follow on with the shoots that produce the crown buds, perhaps early in August. Now, in most seasons and localities this is too soon to obtain the best results with these indispensable kinds. The little check in March will make a difference of perhaps a fortnight in the later break, and we may by this means get the desired effect—the bloom-buds appear at the proper time. It is well, too, to treat a few plants of the earlier flowering Japanese sorts in the same way, because an exhibitor will soon find out there must be more than one string to the bow. Never top a Chrysanthemum plant and repot at the same time. Continue to pot off later-struck cuttings in a light gritty soil. It is a capital plan to mark the label of each plant when struck, shifted, and finally potted, at what date flower-buds appeared and were taken. This will supply ready data of great value, more especially in connection with new varieties that are on trial. One can often settle in one's mind some disputed point as the season goes on by referring to notes of previous years. H. S.

FERNS.

HANDSOME STOVE FERNS.

HAVING frequently been asked for a selection of Ferns for growing into moderate-sized specimens, I below give the names of twelve distinct sorts. That the selection may be a representative one as far as possible, I have restricted myself to one species from any genus, with the exception of *Goniophlebium* and *Phlebodium*, which are now both included with *Polypodium*. For garden purposes it is best to keep to such names as they are commonly known by. The following are the varieties I would recommend:—

ADIANTUM FARLEYENSE must always take first place. If other *Adiantums* were to be included, I should select *A. curvatum*, *A. macrophyllum* bipinnatum and *A. Collisi*. Cultural remarks on *A. farleyense* have been so frequently given, that it is unnecessary to repeat them here. I may, however, say that for growing into a good-sized specimen, plants which are dense and stunted should be avoided. A plant with one or two good crowns and good healthy roots will soon grow into a good specimen and produce much larger fronds.

NEPHROLEPIS DAVALLIOIDES FURCANS. *N. rufescens* tripinnatifida, a very handsome Fern when seen in good form, runs this very closely, but it is not so reliable as the one I have selected. Those who object to Ferns with multifid growths might prefer the true form of *N. davallioides*. The *Nephrolepis* I have selected is free-growing. Young plants grown on from a single crown develop very fine fronds, but after the plants get older they do not make such perfect fronds.

MICROLEPIA HIRTA CRISTATA.—There can be no question about this being one of the handsomest Ferns we have. The beautifully arching fronds

are just sufficiently tasselled to give them a graceful appearance. I find it is desirable to confine this Fern to comparatively small pots, as when treated too liberally, it gets coarse and does not have that delicate shade of pale green.

PTERIS TRICOLOR.—This is certainly the handsomest of the genus, but it is not often that it is seen in its best form. It may, however, be grown into a fair-sized specimen. Mr. Hudson (father of Mr. J. Hudson, of Gunnersbury) used to grow it for exhibition, and has included it in some of his best exhibits.

ONYCHIUM AURATUM, a most elegant and distinct Fern, requires some care. It should be potted in a rough, peaty compost, and as the plants advance, they must be potted down, so as to keep the crown of the plant firm.

PLATYCERIUM GRANDE is generally grown on blocks. Where it is required for exhibition it is best to use a pot, but a block of wood should be used as well; this should be long enough to make it firm in the pot and stand high enough to fix the plant on. If the pot is filled up with broken crocks, rough peat, and Sphagnum, some of the roots will penetrate this mixture, besides which it helps to keep up moisture for the roots above the surface of the pot.

DAVALLIA FILIENSIS PLUMOSA.—I was first inclined to select *D. Mooreana* or *D. tenuifolia* Veitchii. *D. ornata* is also a grand plant; in fact, this family is very rich in distinct and beautiful species.

ASPLENIUM CICUTARIUM.—There are many fine greenhouse species, but those requiring stove treatment are limited, yet among the whole genus it would be difficult to find a more beautiful Fern. *A. fœniculaceum* would take the next place among stove species; this is often grown with those which require cooler treatment and does not attract much attention, yet when grown in the stove it makes a very handsome plant.

GONIOPHLEBIUM SUBAURICULATUM must be grown in suspended pots or baskets, and when in good condition the long drooping fronds are very effective. It must be grown in the warmest part of the stove and succeeds best in a rough peaty compost.

GYMNOGRAMMA SCHIZOPHYLLA GLORIOSA is another Fern which requires suspending; the long, drooping, finely-cut, lace-like fronds are very elegant. This Fern requires great care in watering. It absorbs a great quantity, and once let it get too dry it will suffer beyond recovery. This genus includes many other very handsome Ferns. *G. Lauchiana*, the best gold Fern, and *G. peruviana argyrophylla*, the best silver Fern, both deserve a place.

STENOCHLENA SCANDENS is a fine Fern not often seen at its best, but capable of being grown into a fine specimen; the spreading rhizomes should be pegged round to keep them on the surface of the pot, or rather pan, which is preferable.

PHLEBODIUM SPOROCARPUM.—I have selected this as it gives such a distinct shade of colour; the pale glaucous fronds have a bluish metallic tint. It makes a beautiful plant, and is not so coarse as the better-known *P. aureum*, the glaucous tint being also more distinct.

The above represent a variety of shades of colour, and are widely distinct in growth; well-grown specimens grouped together would make a most effective display. In some instances my selection may be regarded as questionable. I have purposely left out the Tree Ferns and other very large growing Ferns, which can only be grown where space is unlimited.

F. H.

Platyloma falcata.—I find that this Japanese Fern is now being largely grown by market gardeners and florists not only round London, but in the neighbourhood of other large towns. For room decoration it has few equals among fine-leaved plants, as owing to its hardy nature it does not suffer from cold draughts or the impure atmosphere of a living room. It will thrive equally

well in quite a cool apartment as in a constantly heated room. Ornamental-leaved plants having this valuable characteristic cannot be too highly prized, and I have wondered that this Fern should have remained for so long unknown to the majority of window gardeners. I have remarked that it is much used for window decoration in some seaside towns, probably on account of its resisting the influence of a salt-laden atmosphere better than Ferns generally. I know of one florist in a town on the south coast who, growing little else but Ferns, has more than one large house filled with this *Platyloma*. The Maiden-hair is, of course, the finest of all Ferns for windows, but where these have to be frequently opened the fronds are apt to become discoloured, and for such situations I can recommend the subject of these remarks. In the open air, where the fronds can develop to their full size, it has a fine appearance, retaining its foliage in good condition all through the winter when frost is not very severe. In hard winters a covering of leaves on the crowns will ensure the safety of the plants. This winter a plant in a 6-inch pot remained in the open all through the late severe weather, and the fronds are now quite fresh and green, thus proving how hardy this exotic Fern is.—J. C. B.

THE NEW YORK BOTANIC GARDEN.

THIS is a scheme which is as yet in the air to a large extent owing to financial reasons, but, fortunately, there are growing indications of a near realisation of the great enterprise. It may surprise many GARDEN readers when I say that not in all this American Republic have we a great national botanic garden like the Kew Gardens of London or the Jardin des Plantes of Paris, and yet it is now proposed to make amends for this by surpassing these world-renowned gardens in beauty and extent, and avoiding some of the serious mistakes so commonly noted there. In this connection, however, I cannot fail to mention the Missouri Botanic Garden, in the city of St. Louis, founded, established, and endowed by Henry Shaw. This is undoubtedly the finest garden of the kind we have. But it contains only about 45 acres as yet, and, beautiful as it is, of which every citizen should be proud, it makes no claim to the national scope and extent which are now proposed for the great garden in the American metropolis.

The great botanic gardens of the world are few, and never will be numerous, but those we have are of incalculable value measured by the instruction, the pleasure, and delight they afford; and they have been worth a thousand times their cost in spite of all mismanagement and mistakes, which perhaps can never be entirely avoided. Such a garden should be within easy reach of the masses and at all times freely accessible to everybody who will conform to the most simple and necessary regulations needed for its proper maintenance and preservation. The choice of location and environment should be in consonance with the purposes of the enterprise. If the landscape is wild and beautiful, and the soil rich and fertile naturally, so much the better. In any event there must be an extensive area at command to provide for all possibilities of growth and development, and above all the administration of the garden should in some way be placed entirely beyond the reach of politics, if any such plan can be devised, and its direction should be in the hands of those specifically fitted for the work by Nature, study and training. These requirements are not easy of fulfilment, but they are important and absolutely necessary to success. The Shaw Garden in St. Louis is an ample illustration of what may be accomplished by determined effort from the right man exerted in the right way. Mr Shaw

had no great fortune at his disposal, according to modern standards of wealth, but he had great love of Nature and her plants, and he delighted to use his time and money in the promotion of the happiness of his fellow men and the succeeding generations, and already his signal benefaction is a conceded element in the civilisation of that city and the surrounding country.

Now, what do we propose to do in this line here in New York? Well, to begin with, Nature has provided us with a most beautiful place to plant just such a garden, and it is just in the right locality as though made for the purpose. Bronx Park, within the corporate limits of New York City, recently annexed, and about the same distance from its busy centres as are the Kew Gardens from London—this is the place where everybody agrees the botanic garden should be established. The site is easily accessible to a vast population residing in New York, Brooklyn, Jersey City, and scores of other suburban cities and villages. The park covers about 600 acres, and through it winds the beautiful Bronx River with a steady flow of pure untainted water, and with bright banks covered with old trees, wild vines, Moss-covered rocks, and a great wealth of wild wood beauty; in fact, the entire tract is a charming bit of Nature, with much of her primæval loveliness undisturbed. The soil is very rich and well adapted to vigorous vegetable growth, and it is susceptible of easy cultivation. About 250 of these acres are to be set apart for the garden at first, but the area can be increased as occasion requires.

By an act of the State Legislature passed last spring, the N.Y. Botanic Garden was incorporated, and the list of incorporators includes the names of many prominent people of wealth and public spirit, who are also endowed with a knowledge and love of trees and plants. The Park Commissioners of New York are thereby directed to set apart 250 acres of this park for the use of this association and to construct a suitable fire-proof building for a botanical museum and herbarium, with lecture rooms and laboratories for instruction, together with other suitable buildings for the care and culture of tender and other plants, indigenous or exotic. But the first essential step is a fund of £50,000. Until this is raised by the incorporators the work of the garden cannot begin. When this amount is secured, the city is required to issue bonds for £100,000 which will be used in the establishment of the garden. How much of this initial amount has already been subscribed by the incorporators I cannot learn, but a few days ago the trustees of Columbia College voted £5000 towards the amount, payable when the balance is raised. Another gift expected from the college is the Torrey herbarium, collected and arranged by Prof. Torrey, and valued at £30,000 or over. The grounds of the garden are only to be used for the purpose properly belonging to the use and enjoyment of the garden. No intoxicating liquors will be admitted within its limits on any pretext. It must be open free to the public daily, including Sundays, subject to such restrictions only as to hours as the proper care, culture, and preservation of the garden may require; and its educational and scientific privileges shall be open to all alike, male and female, upon such necessary regulations, terms, and conditions as the managers may prescribe.

Such in brief are the elements of the proposed enterprise and the present status of affairs. I wish I could report greater progress to our foreign friends for this the first year of the five given by the special statute for the establish-

ment of the garden. Time is so important in a great project of this nature, which requires decades of years for development, for with all our progress in human ingenuity, we are yet unable to materially hasten the processes of Nature which are governed by inflexible laws. But I believe this great botanic garden at Bronx Park is sure to come. I have faith in the projectors, who have only to move more aggressively and promptly to awaken and secure the unbounded public sentiment in their favour, which is now latent. The difficulty in finding a suitable director of such a garden has been suggested, and the selection is surely of the very highest importance. We must avoid the fundamental error which has proved so unfortunate in the great French garden. We do not want and must not have mere empty technicalities as the result of blazing pedantry, neither do we want a man devoid of high scientific attainments; but, back of all this, we want a man thoroughly imbued with the love of plants and gardening, who was born a gardener and has spent his life in the garden, learning the habits and needs of plants. We have a very few such men in this country, happily, even though some of them may have been born on "the other side." There need be no mistake in the choice.

Kingston, N.Y.

H. HENDRICKS.

ROSE GARDEN.

DWARF ROSES IN BEDS.

SOME few years ago I removed several old stools of such Roses as John Hopper, William Griffiths, Baronne Prévost, Jacques Lafitte, and Eugène Appert so as to make an alteration. Having a bed at liberty wherein the soil was different, being of quite a heavy character as compared to that from which they had been taken, I decided to plant them there. They had been so long in their former position, that it was impossible to lift them with any fibrous roots. They came up more like Briers from a hedgerow than anything else, but I thought they should have another chance, nevertheless. In their new position they did not make much progress the first year, but afterwards they grew away more like young plants than anything else. Ultimately I was enabled in most cases to cut away the older wood and work up a stock of young shoots from the base to take their place. For a few years I continued to prune moderately, but did not get the amount of bloom I thought I was entitled to, although the flowers that were produced were all that one could desire as to quality; more in number would, however, have been far more serviceable in my case. This induced me to adopt another method, viz., that of tying or pegging the strong shoots down in a horizontal manner instead of cutting any of this wood away. When treated in this manner the whole surface of the bed was covered with these growths. By adopting this method I found that these shoots, some of which were quite 5 feet in length, broke freely in all parts, the bed being as the growth proceeded one mass of foliage, ultimately followed by a heavy crop of flowers at least ten times as many as on any occasion when pruned. As the season progressed these old stools sent up other vigorous growths from the base; these I purpose to treat in the same manner as their immediate predecessors. To avoid overcrowding, however, all the shoots previously pegged down will be cut away. This seems to me to be a more sensible method of treating dwarf Roses in beds, for not only is the crop of flowers largely increased, but the vigour of the plants increases also. Wanting a few

more plants to complete the bed at the time of planting, I supplied the deficiency by knocking some old stools of pot Roses out of their pots. These plants had done many a good turn, but had in a manner become scrubby, more fit to all appearance for the rubbish heap than for planting out. When planted out, however, these soon came round and have proved as useful as young plants. The moral of this is do not despise old plants, whether in the open ground or pots, provided they are free from disease; likewise, do not cut away good wood for the sake of keeping to old methods and ideas, just to obtain a few flowers of large size, when a good crop would be not only more profitable, but more effective also.

Rosa.

MILDEW AMONG THE ROSES.

OF the many pests that the Rose is subject to, perhaps none is worse than this. Where one can devote a house entirely to Roses and has the aid of a little fire-heat, there can be no excuse for allowing the plants to become infested with mildew. All experienced growers are agreed that the two chief causes of this dreaded disease are over-dryness at the roots and cold draughts. It is also much accelerated by sudden changes in the atmosphere. This is the main reason why I add a little artificial heat as being one of the necessary aids towards keeping clear of mildew. No enemy of the Rose is more feared than mildew, and this is easily understood by all who have ever noticed how quickly it spreads. The plants may be looking the picture of health and give great satisfaction, and in less than twenty-four hours they are attacked with mildew and present a miserable appearance. Why is this? I have not the slightest hesitation in saying it is owing to either a cold draught, drought after being well supplied with water, or a sudden rise or lowering of the temperature. It is just the same under glass as in the open air. I have more than once noticed this blight appear and develop very rapidly after just such changes and conditions out of doors. If, for example, some favourite plants have been kept well watered during the early part of the summer and while they are producing their main crop of bloom, you will find that when you cease to attend to their being watered, especially if the weather and soil be drying, mildew will come on apace and soon spread to the other plants. Again, what rosarian does not know and dread the cold change in the atmosphere, which we are sometimes subject to during our hottest summers? Now all of these can be avoided by a little careful attention to ventilation, heating, and watering when the plants are grown under glass. In a house of mixed subjects the proper treatment of the Rose is not so easily secured, and in such cases a little sympathy is due to the gardener, but not where he has a house for Roses alone. Mildew has a very disastrous effect upon the constitution of the plants, and if not checked at once will soon ruin them for the season.

Having mentioned the causes and effects of mildew, I will now give a few remarks upon its cure. When the plants are in the open air it is rather difficult and expensive to eradicate mildew; perhaps the cheapest and easiest application in this case would be a dusting of flowers of sulphur. Under glass I know of no better or more effectual remedy than the following:—

Take a pound of soft soap and boil in a little water for some ten minutes. When you have removed the saucepan from the fire, and while the solution is still very hot, add a quarter of a pint of paraffin oil to it, stirring it well together. It will assimilate fairly well and make a creamy white solution. Now mix a quarter of a pound of sulphur into a paste and add this, stirring the whole again. This will make twenty gallons of solution quite strong enough to kill mildew, and at very little cost. If you have a lot of Rose plants, mix a larger amount, but keep the proportions of each ingredient about the same. Cut off the forward part of your blooms and then syringe freely

with the mixture, keeping it well stirred all the while you are using from it. Not only will this kill mildew, but it kills many other pests at the same time. The sulphur is left on the foliage in very fine dust-like particles, and so even and in such small quantities, that it does not have the unsightly appearance so often given. Soft soap, paraffin, and sulphur are all deadly to the mildew, but doubly so when used in conjunction with one another. This mixture has the advantage of being easily applied, of cleansing the foliage, of not being unsightly, and of being very cheap and efficacious. Quicklime and flowers of sulphur are also a very good remedy. These should be used in equal proportions, say half a pound of each in a quart of water, and boiled for ten minutes. When the solution has settled, pour off the liquor and dilute it with about a hundred times its bulk of hot water. Apply with a syringe in the ordinary way. Another good remedy is a quarter of an ounce of sulphide of potassium to every gallon of water, using it a trifle stronger for plants out of doors or when those inside are carrying more matured foliage. Where a good insecticide is used often and weak and a little attention paid to the other points in his note, mildew cannot gain a footing upon Roses.

RIDGEWOOD.

NOTES OF THE WEEK.

Saxifraga luteo-purpurea.—This pretty mossy Saxifrage is now in full bloom here in the rock garden, its pleasing yellow flowers forming a very pleasing contrast to those of *Saxifraga oppositifolia*.—T. B. FIELD, *The Gardens, Stanley Hall, Bridgnorth*.

The Turquoise Berry (*Ophiopogon japonicum*).—This is a most exquisite blue-berried grassy thing—first cousin of *Lily of the Valley* and quite hardy here, but it only fruits in the greenhouse. It was figured years ago by Redouté, but I never saw it in fruit until this year.—B., *Dublin*.

Chinese Primulas.—Messrs. Veitch and Sons send us flowers of these in great variety. One named *Chelsea Crimson*, single and semi-double flowers of which are sent, is the richest coloured kind we have seen, the blooms also being large and of good form. A variety named *Chelsea White* is also very pure.

Fritillaria Sewerzowi and **F. discolor**, which is a mere variety, are both in flower in a cold frame. They are by no means showy, though highly interesting. They are not hardy, however, so that few will be induced to try them, even to see what they look like. The flowers are yellowish green, in the variety marked brown, and comparatively small for *Fritillaries*.

Cyclamen coum and **C. ibericum** are now in full bloom, in spite of the dreary, sunless weather. They are truly harbingers of spring, and when doing well give much real pleasure on the open rockery at this time of year. They are both easily managed, growing well in loose gritty soil, to which may be added some lime rubbish, and if grown together may result in many interesting hybrids.

Primula floribunda.—A plant of this established itself on the corner of a slate shelf in a cool house at Heatherbank. The flowers are always finer from this than from pot plants. We have had to add earth from time to time as the plant increased. I bring you a spike to show its size. It seems likely that shallow soil and plenty of room for its roots are what the plant likes.—GEORGE F. WILSON.

Narcissus pallidus præcox.—We noticed to-day (March 1) at Kew the first *Narcissus pallidus præcox* in the open air. The flowers are just opening on the mound near the Cumberland Gate. Snowdrops, Scillas, Hepaticas, and Crocuses are also very nice on the flat. *N. minimus* and a small form of *N. minor* from Spain are in flower at the base of a wall, while *Bulbocodium vernum* and *Hyacinthus azureus* are just showing colour.

Saxifraga Burseriana used to be the first to bloom, but *S. luteo-purpurea* and a very early

form of *S. oppositifolia* opened a week before it this year. The two first should be in every garden; they give a bit of colour in early February when most parts of the garden look very dull. Between the dead of winter and March, when the Daffodils open, everything looks bleak and at a standstill, and it is then such plants are useful, and make us hope for better things.

Globe Artichokes.—Seldom, if ever, have I seen these suffer so terribly from the effects of the weather as they have this year—many being killed outright, and the remainder so severely cut that it is unlikely many will break away strongly. I have an idea that the excessive wet during the winter has contributed largely to the destruction, as the leaves were never dry, severe frosts immediately following drenching rains. Those well-protected around the crowns with leaves and litter have not come through the ordeal any better, if as well as those left alone.—J. R., *The Gardens, Tun-y-bwlch*.

Nonsense about gardening on the part of writers is, unhappily, not rare, but there was more of it than usual last week. Apropos of Messrs. Blomfield and Inigo Thomas' book, the following is a choice specimen from *The Builder* of February 27: *As regards what is without, it is no business of the garden to imitate or blend with that.* Imagine Shrubland or any other beautiful garden in the open country made on this principle of shutting out the landscape beyond, or Cecil Lawson's picture of "The Minister's Garden" with nothing but the foreground. It is a real loss to landscape gardening that many men write about it who have clearly never thought about it.

Flowers in the Scilly Isles.—The flower season of the Isles of Scilly is now in full swing; about twenty tons of flowers are being sent off every week. Narcissi in bloom: Scilly White, Soleil d'Or, Paper-white, Gloriosus, Queen of England, and China Queen. These are Polyanthus varieties. Trumpet varieties: Obvallaris, pallidus præcox, Ard-Righ, Countess of Annesley, spurius, princeps, Golden Spur, Edward Leeds, Panthers, Achilles, Sunbeam, and Goldfinder. Single incomparabilis, several varieties double incomparabilis, Telamonius plenus, and odoros Campernelle. Among other flowers are Marguerites, Wallflowers, Freesias and Anemone fulgens.—J. C. TONKIN, *Isles of Scilly*.

Snowdrops.—We are continually seeing statements in the gardening papers about the relative sizes of Snowdrops. First, *G. Fosteri* is the largest, then *G. Elwesi*, and perhaps *G. Alleni* or some of the varieties of *G. Imperati*. As a matter of fact, Snowdrops are extremely variable in size of flower, and everything depends on the particular form we may have happened to get hold of. My bulbs of *G. Fosteri* must have come from a poor stock, as they have smaller flowers than I have often seen on *G. latifolius*. I have just flowered a few bulbs of *Galanthus Elwesi* received from Smyrna, and if size counts for anything, I may consider them those of another species. The flowers are smaller than those of the common *G. nivalis* and certainly not so effective.

Astilbe rivularis.—Your good illustration of this rather neglected old *Spiræa* will, I hope, lead to its obtaining a suitable place near a pond or in other deep and rich soil in partial shade. A mass here at the back of a north-western wall has been of a lovely, warm, fox-skin-like brown all the winter, and its great amber-coloured panicles, a yard or more in length, supported on stalks 6 feet to 7 feet high, would in bold masses form a lovely feature in the sunny landscape on a winter's day. It is good also in its leafage in the autumn, and is just the thing to plant in a peaty bed along with the giant Knotweed or with breadths of the Royal Fern, both excellent and of fine colour during winter, affording also splendid cover for game or wild fowl.—F. W. B.

Narcissi from Scarborough.—We enclose for your inspection a few Daffodil blooms, and shall be glad of your opinion of them. The bulbs from which they were grown were all collected in one

locality in the North Riding of Yorkshire, where they were growing wild. The bulbs were all collected in the year 1890 and have been in cultivation only one year. They were lifted last autumn and put into boxes and forced. The enclosed are samples of a batch of about 1000 which we have now in bloom.—WALSHAM & SON, *The Nurseries, Scarborough*.

* * All Pseudo-Narcissi, differing in shade and form, from their being seedlings. We have seen wild seedlings from another part of England quite white, but still retaining the flimsy substance of the Pseudo-Narcissus.—ED.

Saxifraga Malyi is a name given to two distinct plants, instead of, as usual, two names being given to one plant. The original *S. Malyi* is a very small form of *S. aizoon*, and has been in gardens for many years. The plant as named above, and which has been frequently shown at the Royal Horticultural Society's meetings, is, I believe, the true *S. luteo-purpurea*. The plant is said to have been raised in M. Maly's garden on the Continent, but surely this is no reason why a totally different plant should again be named after him. If the plant is really the result of cross-fertilisation, it only proves one thing, viz., that *S. luteo-purpurea* is a hybrid and that its parents are *S. media* and *S. aretioides*. At any rate, it is one of the most useful spring plants we have, its primrose-yellow flowers being very abundant and decidedly attractive.—K.

Epidendrum stenopetalum.—Nearly sixty years ago this species flowered in the Botanic Garden at Glasgow, and although now-a-days out-rivalled by too many Orchids to ever become widely grown, it is, nevertheless, one of the prettiest of Epidendrums, and it is interesting to see it again in flower at Kew. It belongs to that section of Epidendrum with tall Dendrobium-like stems. The flowers are produced at the top in a cluster of short racemes. Each flower is $1\frac{1}{2}$ inches across, with pointed sepals and petals of a pretty rosy-purple. The lip is broad and flat and of the same colour as the sepals, excepting a patch of white towards the base, which adds considerably to the brightness of the flower. The column is no inconspicuous part of the flower, being large and of a deep glowing rosy-purple. This Epidendrum is a native of the West Indies.

Anemone blanda, which proves as variable as most plants, has been asleep longer than usual this year. We have many times gathered flowers shortly after Christmas, but this year it was the middle of February before a single flower opened, and only now are they making any show. The intense purple-blue forms are beautiful and decided, but the pale washed colours and dirty whites should never have been introduced, as unfortunately they grow with more freedom than the good ones; at any rate such is our experience of the former.

— This is the earliest of all the Anemones. I have had it in flower in the open border all through February. If it was better known I am sure it would be largely grown by all lovers of the Anemone. It is one of the prettiest spring-flowering plants we have. Grown in pots in a cool greenhouse or in a cold frame, it is invaluable.—T. B. FIELD, *Stanley Hall Gardens, Bridgnorth, Salop*.

Notes from Baden-Baden.—The winter has not been very severe here, but lately we had nearly half a yard of snow. *Iris histrioides* has been in flower for three weeks, and is in full beauty just now. It stands the inclemency of the weather well, and is earlier than *I. reticulata* by at least three weeks. The colour of the large flowers varies from pale to the deepest ultramarine, and the markings are very pretty. Its excellent qualities will make it a first-rate spring-flowering bulb. There are a pure white variety with orange markings, and the variety *purpurea*, which is very distinct and beautiful. *I. Bakeriana* also shows a white variety. *Galanthus Fosteri* has much improved under cultivation and is among the earliest of Snowdrops. A new one with broad leaves from the island of Thasos seems to be a good plant, but

must be judged when fully developed. *Crocus chrysanthus* and its variety *blandus* were showing some time ago. *Helleborus niger pumilifolius* and *H. n. Hildebrandi* take first rank among the niger section, their flowers being large, of a good white, and a refined shape. *Tropæolum Leichtlini* has stood cold and snow very well, and is growing strongly; it belongs to the polyphyllum section, but the flowers are of an orange-yellow.—MAX LEICHTLIN, *Baden-Baden*.

* * *Iris histrioides* is also in bloom in the open at Kew.—ED.

Daffodils.—These are blooming early this year. A small clump of the common wild Daffodil in the garden here has nearly thirty flowers very far advanced in bud. I expect some of them will be out in two or three days. Last year they did not bloom until the 14th of this month, and the year before not a flower of them opened until March 21. I must say that I do not now agree with the statement put forward in THE GARDEN about a year ago, that the earliness of the blooming of Daffodils depends upon their bulbs being well ripened during the previous autumn, as last autumn with us here was miserably wet and cold, and, one would say, most unfavourable to the proper ripening of the bulbs. I have often wondered why this little clump is so very irregular and seemingly capricious in its date of blooming, and having accepted the explanation given in THE GARDEN, am now sorry to find myself as much at sea as I was before on the subject.—W. M., *Co. Wexford*.

Cœlogyne odoratissima.—Although one of the smallest, this is, nevertheless, one of the most charming of Cœlogyne. It is a native both of the mountains of Ceylon and of the Neilgherry Hills, in Madras. It grows on the branches of trees as well as on mossy rocks, usually sloping away from the sun. A single patch will frequently cover several feet, and it is said in its native country to flower more or less throughout the rainy season—from May to October. Under cultivation it appears to flower earlier; at any rate it is in bloom now at Kew. It has pale green pseudo-bulbs scarcely an inch high, bearing two lanceolate leaves about 3 inches long. The racemes carry from one to three flowers, which are wholly pure white, except on the centre of the lip, which is yellow. They have a rather strong perfume, which has been compared to that of honey. Growing, as this species does, on the summits of some of the highest of the Neilgherry Hills, it does not require great heat at any time under cultivation. When in active growth the intermediate house will be warm enough, and at other times the cool house will be suitable. It should be grown in small shallow pans in a compost of fibrous peat and Sphagnum.

Doronicums.—In the herbaceous border the Doronicums are among the first showy flowers to come into bloom in early spring, and by giving them a little protection they will flower much earlier. I now have pot plants in full flower, and very showy they are. The varieties I grow are *D. caucasicum* and *D. plantagineum excelsum*; the latter is also known as *D. Harpur Crewe*. It is the largest flowering variety and grows rather tall. *Caucasicum* is the most desirable where compact plants are required. The Doronicums will not require much forcing; in fact, to give them much heat would spoil them. For early flowering the plants should be potted early in the autumn and stood out in the open until the old foliage is well ripened off, or they may remain fully exposed until required for starting. It is not desirable to attempt to start them until January. When taken indoors they should have a light airy position where they can get all available sunshine and only sufficient fire-heat to keep out frost; under these conditions they will come on rapidly. Green-fly is apt to be troublesome and must be kept in check, otherwise it will disfigure the blooms. Few plants may be had in bloom early with so little trouble as the Doronicums. The flowers also last for a considerable time both on the plants and in a cut state.—H.

FLOWER GARDEN.

BEGONIAS IN THE FLOWER GARDEN.

WHEN Begonias were first used in the flower garden not so many years ago, no one probably ever contemplated that the experiments then made would prove such a success. Such, however, has been the case, far exceeding the most sanguine expectations, until now, in some well-known gardens, Begonias are annually planted by the thousand. Their value as bedding plants has probably never been better exemplified than during the past season—one that will be remembered for some years to come for its heavy and continuous rainfall through the summer. In such a season the proverbial scarlet and pink Geraniums were simply nowhere as compared with the Begonias of the tuberous-rooted section. The fitness of so many of the Begonias, both tuberous and shrubby, to the purposes of flower-garden ornamentation has undoubtedly done much towards rendering them popular. They are of great and essential ser-

quite in their element during rainy weather; rather than spoiling them it appears to have the opposite effect, the open flowers even resisting the wet weather in a remarkable degree. A few rains or a storm put the Geraniums quite out of order, and when this state of the weather continues for a time too much leaf growth is made, the same condition also entailing more labour in picking off faded flower-trusses and foliage. Considering, therefore, the many superior qualities of the Begonias, they must altogether be considered decided acquisitions for floral decoration out of doors. Another highly important point in the eyes of those whose tastes are not towards the stiff and formal may be urged, viz., the natural growth and disposition of the flowers in the case of the Begonia are all in their favour, with no semblance of stiffness or formality. Grouped together in beds, as shown in the accompanying illustration, a very fine effect is produced, far more pleasing than that which is obtained by the adoption of stiff lines and the combination of plants that are of quite a distinct character from each other. To suit various tastes as to colours, there should not be

transferred to shallow boxes and not again be disturbed until planted out, unless it is found that they are becoming overcrowded. The beds should be well prepared by previous working; a heavy, retentive soil is not in their favour. In my own case I prefer to use freely well-decomposed leaf soil; this appears to suit them well, affording a quick rooting medium. Old Mushroom manure well worked into the soil is also valuable when the leaf soil cannot be had. The soil should be worked down more finely for the seedling plants than for those of one or more years' growth for obvious reasons. During the first year all that are of inferior quality should be discarded when lifted, whilst the very finest should, on the other hand, be specially marked for future guidance another year. For the second and after seasons' display my practice has been to start in a gentle heat early in March in boxes, then transfer to a cold frame or pit early in May, planting them out therein in shallow soil. As to position, I have met with the best success at this juncture in a frame facing the north, where the plants made a very free growth, being of



A bed of tuberous Begonias.

vice in the greenhouse and conservatory, but their value is even more apparent when planted out. It was quite time that some thoughts were turned to other sources than Geraniums as a means of supply for this latter purpose. In the Begonia has been truly found a most valuable acquisition. Begonias have without the slightest doubt supplanted many thousands of the Geranium. This no true lovers of beauty in the flower garden will for one moment regret. The fact is proverbial that no sooner do the Geraniums make a good show than the time has arrived for taking cuttings for another season's stock, thus the effect is prematurely spoiled, the beds never afterwards again looking so good as before the thinning out in taking cuttings. Herein lies one great point in favour of the Begonias, and that an all-important one, but there is still another point, or properly speaking two; these are the amount of storage room occupied by the Geraniums as compared with the Begonias, and later on in the spring the additional labour incurred in potting and watering.

Taking one season with another, the display made by the tuberous Begonias is far greater than in the case of the Geraniums. The former are

any difficulty, for beds of one or more distinct colours may be easily obtained. In respect to colours there is a great diversity, from the darkest scarlets and crimsons to the various shades of rose and pink with beautiful tints of yellow and orange; also white and blush-coloured kinds. For my own part, I prefer to see Begonias mixed in two or three shades rather than have a mass of one colour, which latter makes a good show, it is true, but does not impart so much real effect as in the former instance.

The cultivation of the Begonias, both tuberous and shrubby, for bedding out cannot in any sense be considered a difficult matter. If pots are scarce, none need be used for the tuberous section from the time of pricking off the seedlings from the pans. From that time onwards boxes may very well be employed instead; in fact I prefer them, for the reason that less watering is required where there is a greater amount of soil, even though each plant may not have a greater proportion in this respect than when in a pot. Seedlings raised now will make nice plants for turning out early in June. In my own case they are just pricked off into pans; from these they will when large enough be

good size for planting out the first week in June. The beds require to be surfaced with either a dwarf growing kind of plant or with cocoa fibre. Of the former I have used successfully the dwarf hardy Sedums, as *S. acre* and *S. glaucum*, also *Mesembryanthemum cordifolium variegatum*. These all tend to keep the soil cool and moist, therefore more congenial for the Begonias. When, however, they are planted thickly together, I should prefer the fibre, which will soon be covered from sight by the foliage. When Begonias, more particularly the tuberous ones, are planted in positions where they are likely to suffer from drought, they will require a good supply of water. They should always be kept moist at the root (what holds good in the case of the *Calceolarias* when bedded out does also with the Begonia); they cannot endure drought. Damping the beds overhead as the sun leaves them in the after part of the day when the weather is dry and warm will greatly refresh them. When lifted, the tuberous varieties require some careful attention so as to prevent the decaying stems from imparting any ill effects to the tubers. This is easily done if care is not taken. I prefer to remove these stems as soon as they can be

twisted out without any trouble. Some growers and large ones to expose the tubers in a light, dry and airy house until these stems are quite dried up; this no doubt is a very good plan, but it requires room to do it. Later on the bulbs when quite at rest should be kept in a cool place, neither too dry nor too moist, but where frost cannot reach them, being stored in either cocoa fibre or silver sand in shallow boxes until again required for starting. I decidedly prefer those with single flowers to the very best of the doubles for planting out; the flowers of the latter are much too heavy.

The shrubby kinds that are used for bedding should be propagated earlier in the spring and grown on in pots, being turned out therefrom into the beds about the same time as the others. These will thrive better in a rather warmer position than that given to the other section, whilst they are not so susceptible to drought. Of this type *B. ascotensis* is one of the best, as well as one of the hardiest, being also a free bloomer, but of rather tall growth. Plants of this *Begonia* look well when planted rather thinly with a carpeting of something light between them. I have not thus far tried *B. semperflorens* or its varieties, but I am disposed to think they would be quite as suitable to the flower garden as the foregoing. Another good kind is *Princess Beatrice*, a semi-tuberous variety which should be propagated by division rather than cuttings, which will strike, it is true, but make leggy plants. This variety does well in an open position, flowering most profusely, being also of compact habit. This and *B. ascotensis* would make a very good mixture.

GROWER.

FLOWER GARDEN NOTES.

WALL PLANTS.—In the occasional notes on *Chimonanthus*, I do not remember to have seen any reference to more than the one variety, and should infer, therefore, that only fragrans is at all common. Here we have fragrans on a west, and grandiflorus on a south-east wall. The latter has considerably the larger flower, with a yellow shade in the petals; it is also the stronger grower of the two. Some relics of a bygone time have disappeared this winter from the flower garden walls in the shape of mighty limbs of *Wistaria sinensis* 50 feet long and quite 3 inches in girth close up to the stem. Some ten years ago I found these old branches much decayed and took the precaution to gradually furnish the wall with young growths. The tree, which now enters on a new lease of life with its new branches, is probably one of the oldest in England. The evidences of the planting of a past generation are also apparent on other parts of the old walls, in the shape of the Judas Tree, *Benthamia japonica*, the evergreen *Magnolias* and the like. This *Benthamia* must not be confounded with *fragifera*, often favourably noticed in the pages of THE GARDEN. There is nothing in *japonica* to recommend it to the notice of the planter, the flower being most insignificant, and the tree itself remarkable only for the extreme hardness of its wood. There are, in fact, few woods, either native or exotic, to vie with it in this particular; the ripened base of annual shoots, to say nothing of the branches, will quickly turn the edge of any knife as effectually as cutting at a bit of stone. Interesting only on account of age and rarity, this and other plants that were used for walls in the past generation are not to be compared for effective display with the subjects that commend themselves for a similar purpose to modern tastes, and which are represented by such things as the *Cydonias*, the best of the *Honeysuckles* and *Spireas*, the *Ceanothus* and the good wall *Roses*. On a favourable aspect the first-named take rank among the earliest of garden flowers, and I notice on the white and flesh-coloured varieties the buds are on the point of bursting. Like all members of the family, they revel in a loamy soil, and one or two planted here

under such conditions make tremendous annual growth, and would apparently quickly cover a very long stretch of wall. Writing of wall plants calls to mind a curious experience with *Homère Rose*. There is an old plant on a south-east wall, in ordinary garden soil, from which we annually secure a splendid lot of blooms, better, in fact, than any obtained under glass, and when a west wall was planted with climbers in variety, I put in *Homère* among them. The result is not satisfactory, as I have not as yet obtained a perfect flower, the plant having produced nothing but monstrosities. *Maréchal Niel* is not a success out of doors here. I have tried it in two or three different situations, but the result is invariably the same. Four of the best we have on walls, the most serviceable and reliable, are the old *Gloire de Dijon*, *Lamarque*, *Safrano* and *Mme. Plantier*. There is certainly no better all-round *Rose* for the purpose than *Gloire de Dijon*. It does wonderfully well in this neighbourhood, and many a cottage front and side are in early summer simply covered with splendid flowers. I should like to throw in a good word for *Malmaison*; its season enhances its value, and in a recess on a west wall we get flowers late and good.

DAFFODILS.—The periodical announcement from the best houses as to the large stock of cheap Daffodils for general outdoor planting shows the growing taste for these already popular flowers. The amount of wet in 1891 up till quite late in the season was probably conducive to the early start made by many varieties out of doors, and I thought we should have a very early season, but such weather as we have had during February (on one occasion 20° of frost) will stop all growth for a time. Daffodils have entered very largely into the Easter church decorations of late years, and I should not like to hazard a guess as to the number of flowers of the incomparabilis section that were used last season in the chancel of a church that came under my notice. A cross of huge dimensions was composed of tastefully arranged bunches on a groundwork of *Cryptomeria elegans* foliage; small troughs had been provided for the rails and various places on the choir stalls, which, filled in the first place with *Isolepis gracilis*, were afterwards studded over with Daffodil flowers and foliage; which also arose as from a natural carpet from beds of Moss in the chancel windows. Nearly the whole of the flowers employed were the sulphur-shaded varieties more or less pronounced of the *Star Narcissi*, and the effect, as a whole, was a "harmony in soft yellow" not to be surpassed. Any mention of the Daffodil brings to mind the unfortunate experience with basal rot lately chronicled. Has any grower noticed signs of it in any hybrids? From all I can gather, it is confined entirely to collected varieties.

Claremont.

E. BURRELL.

Primulas at Abinger Hall.—Of these there is a good collection, especially growing round the edge of a pond, where *rosea*, *denticulata*, *floribunda* and others seem to thrive remarkably well. On the rockwork, which is in process of construction, there are many forms that seem to luxuriate in the sandy soil of this Surrey habitat. A very charming form, practically of our vulgaris, is a plum-mauve-coloured variety brought from Mount Olympus. In one of the houses *Primula erosa* is flowering freely. It very much resembles *P. scotica*, but is less menly. Wild and garden *Primroses*, especially of the *Polyanthus* form, thrive remarkably well.—D.

Centaurea candidissima.—Like "J. C. T.," I find this plant very useful in the flower garden, and it is generally much admired. Last year, both as an edging around bold masses of *Salvia patens* and interspersed with *Lobelia Firefly*, a simple but pleasing association was the result. As regards striking cuttings, however, my practice has been very different from that detailed by "J. C. T." in THE GARDEN, February 13 (p. 140): Not only are cuttings "impatient of a close, moist atmosphere," but also of water. If a large batch were inserted and treated in the usual way for cuttings, the

probability is that the majority would rot, for the woolly tomentum covering leaf and stalk retains so much moisture. I usually take off the cuttings early in September, selecting those of medium strength and detaching them from the plant by bending them downwards. They are inserted singly in small pots and plunged in fibre in a frame, being then well watered through a pot with a rose attached. They receive no shading of any kind, nor more water until so dry as to make it absolutely necessary, and then it is given carefully, so as to avoid wetting the crowns. A good strike is the invariable result, and when once the cuttings are struck they give little more trouble, for glass shelter is all they need. No amount of frost appears to injure them so long as they are dry. Last year I left some plants out on purpose to test their hardiness, and they survived 25° of frost with snow around them. When the snow melted, they rotted from excess of moisture.

—A. H.

HARDY HYBRID KNIPHOFIAS.

I AM much obliged to Mr. Smith, "A. H.," and Mr. Tallack for their kindness in communicating their observations about the hardiness of Flame Flowers. Answering the questions addressed by "A. H.," I may observe that the plants in Haarlem, after the leaves had been cut off, were covered with rotten leaves about 8 inches thick, upon which a tier of rushes was placed, about 2 inches thick, to prevent the leaves blowing away. The greatest amount of frost they had to endure was 30° Fahr. These particulars, however, cannot be useful to cultivators in places like Newry and Suffolk. Everyone knows that all observations on hardiness are of relative value only, and the different communications on p. 138 prove that general rules in such matters cannot be given, as the forms of K. Leichtlini at Newry passed through the severe winter of 1890 safely, whilst they seem to have suffered in Suffolk. Therefore, it will be more useful to compare the hardiness of the newer hybrids with that of the old representatives of the genus. In my first note I observed that we had planted most of the hybrid *Kniphofias* in the same situation as the old aloides, and an enumeration was given of those hybrids which, under this treatment, in no way were damaged by frosts. From this it follows that the indicated hybrids are as hardy as aloides, and this statement may interest those who wish to try them. In places where aloides stands the winter even unprotected, the hybrids will probably do the same. In addition to the above an abridgment of the main characters of the newer hybrids may be useful, as they are apparently unknown. *Phoenix* was spoken of as a valuable relative to the Abyssinian *comosa*, which, according to Mr. Smith, happily is not likely to become extinct, as I supposed. However, for Haarlem gardens *Phoenix* is more useful than its parent, which was killed, whilst the hybrid in no way was harmed, though planted in the same bed. Most of the other hybrids are more related to the South African than to the Abyssinian species, but they are quite distinct. Their colours vary from a fiery scarlet to a most delicate pale yellow.

Pfitzeri has flower-heads of a dark carmine shade, changing to yellow and salmony rose. John Denary has amaranth-carmine-coloured flowers, shaded with orange and lilac. In the form *H. Cannell* the colour changes from cinnabar to orange-yellow. Max Leichtlin is a dwarf and free-flowering variety with large heads of a vermilion shade. Victor Lemoine has flowers of a dark coral-red colour, changing to fiery cinnabar. The hybrid *Franz Buchner* was awarded a first-class certificate at Amsterdam last year. It has large heads of brilliant orange-yellow flowers. Otto Mann is a very robust grower with orange

flower-heads, afterwards changing to reddish orange. The above were sent out by M. Pfützer, of Stuttgart, whilst the following are seedlings raised by M. Max Leichtlin, of Baden-Baden.

Salmonia is an early flowering form, with stems of about 6 feet and large heads of pretty salmon-coloured flowers. *Matador* has large, well-formed flower-heads of a lovely red shade with yellow rims. *Meteor* is a noble form, with distinct flowers of a bright yellow shade. *Sirius* resembles *Salmonia* in some respects, and has apricot-orange-coloured flower-heads. *Clotho* is an early blooming variety, the colour of the flowers being a uniform scarlet-crimson, shaded by a glaucous bloom. *Lachesis*, in my opinion, is an extremely fine hybrid, the stems attaining a height of about 7 feet. The large flower-heads are of a most beautiful dazzling golden yellow. It is doubtless the best of those enumerated above.

There are still several other valuable hybrids deserving attention, but as I have no experience as to their hardiness, I cannot give particulars about them here.

ERNST H. KRELAGE.

POLYGONATUMS.

(SOLOMON'S SEAL.)

Of this highly interesting genus there are at present something like twenty-three species known to botanists. These are distributed chiefly in the north temperate regions of the Himalayas, America, Japan, China, and Europe, and with very few, if any, exceptions will be found quite hardy enough to withstand the rigours even of an English winter. There are nine distinct species known to us in cultivation, and perhaps as many varieties, and although there is a great similarity amongst them in habit, &c., all have distinct and well-defined characteristics which mark their value as garden plants. From early summer until late autumn some one of the species will be found in flower, and this in a few of the species is followed by fruit of a highly decorative nature. Most of the species are marked by elegantly arching flower-stems, which with the wealth of bright green foliage and drooping bunches of greenish white flowers are indispensable in outdoor gardening. They thrive well in almost any position in rich sandy soil, and will be all the better for an occasional liberal dressing of leaf soil. It is in shady nooks in the rockery, under the shade of deciduous trees, in the wild garden, &c., however, where they do best and are seen to the best advantage. In the latter garden they should be abundantly grown, and the ease with which they are propagated would soon enable the grower to form whole groves, which would be a highly delightful, though by no means a novel, feature in English woods. They are propagated with facility by the seeds or berries, which, sown as soon as gathered in autumn, germinate in early spring. The creeping root-stocks may also be divided to any extent, and in good soil soon form nice tufts. A few of the species are also in much request for forcing for early spring use in the greenhouse and conservatory; these are generally imported instead of being grown at home, as they might well be, and which I have little doubt would be to the advantage of all concerned. It simply requires singling out good crowns and growing them in rich loamy soil, lifting and potting when required.

Besides the following which are in cultivation, desirable species not introduced are *P. falcatum*, *Maximowiczii*, *brevistylum*, *polyanthemum*, *nervulosum*, *macropodum*, *Hookeri*, *geminiflorum*, *Griffithii*, *Cathcartii*, *Sewerzowii*, and *sibiricum*:-

P. BIFLORUM.—A very pretty and extremely useful species from the wooded hillsides of Canada, New Brunswick, and Florida. It is of a slender, graceful growth, the arching stems 1 foot to 3 feet in height, with oval, narrow, alternate leaves, usually very narrow at the base, and from 2 inches to 4 inches long, hairy on the under side. The small flower-stems or pedicels are jointed near the base of the flowers, which are greenish white, two or three together in the axils of the leaves. *P. pubescens*, *P. hirtum*, and *P. canaliculatum* are synonyms. *P. angustifolium* is a form with narrow lance-shaped leaves, and *P. parviflorum* is a form with small glabrous leaves.

P. JAPONICUM.—A comparatively rare and distinct species, native of Japan, and perfectly hardy in this country. It is a decided acquisition, both on account of its distinct habit of growth and also its flowering in early April. It grows about 2 feet in height, the leaves oblong, pointed, alternate, and of a very firm leathery texture. The flowers are larger than in the above, white, tinged purplish. It has been in cultivation for some years now, and stands our hardest winters without damage.

P. LATIFOLIUM, the old *Convallaria latifolia* or broad-leaved Solomon's Seal, seems to be about intermediate between *P. multiflorum* and *P. officinale*. It is a native of Italy, Austria, Tauria, and Pennsylvania, and is said to have been found in Syke's Wood, near Ingleton, Yorkshire. A fine robust species, the stems being from 2½ feet to 4 feet high, arching, the leaves alternate, oblong, and always bright green. Flowers large, two to five in a bunch from the axils of the leaves, of a greenish white, expanding in July.

P. LATIFOLIUM VAR. *COMMUTATUM* is *P. giganteum* and *P. Thunbergii* of some gardens, and differs from the above in being glabrous throughout, with a flower-stem 2 feet to 7 feet in height, broad, oval leaves, and larger white flowers, three to ten in a bunch. There is a double form of both this and the above, but they are rarely seen now. Native of New England to Winnipeg, Missouri and Virginia.

P. MULTIFLORUM.—This is the common Solomon's Seal, David's Harp, or Lady's Seal, and is the most widely grown of all the species in cultivation. It grows from 2 feet to 3 feet high, the leaves oblong, alternate, with narrow base, bright glaucous green, and distinctly veined. The flowers are large, nearly pure white, one to five in a bunch in the axils of all the leaves. It is a very robust and free-growing species, its arching stems and abundance of drooping white flowers being very attractive. There are several garden varieties, notably a double-flowered one, and one in which the leaves are distinctly and prettily variegated. *P. Broteri* is a variety with much larger flowers; *P. bracteatum*, a form in which the bracts at the base of the flowers are well developed, and *P. intermedium* is intermediate, and may be a hybrid between *P. multiflorum* and *P. officinale*. Natives of the Northern Hemisphere, Japan, Siberia, &c., flowering throughout the summer.

P. OFFICINALE.—Widely distributed in woods in England; similar to *P. multiflorum*, but smaller; the stems distinctly angular on the upper parts; the leaves thicker and more clasping at the base, and mostly differing in having invariably one, rarely two or more flowers in the axils of the leaves; the flowers white, larger, and with shorter and broader teeth. Also found in Siberia and the Himalayas. It is *Convallaria Polygonatum* of Linnæus and *C. uniflora* of Miller's Dictionary.

P. OPPOSITIFOLIUM.—A charming species confined to temperate regions of the Himalayas (Nepaul, Assam, Sikkim) and perfectly hardy, although usually given as a greenhouse species. It will doubtless do best in a sheltered spot, but even in the open it has given me no trouble whatever. It is a very desirable plant for shady spots on the rockery, the habit airy and graceful, and the flowers produced late in summer. It grows 2 feet to 3 feet in height, leaves oblong, bright glossy green. The flowers, white, marked with reddish lines and dots, are borne in bunches of

from six to ten in the axils on both sides. The fruit is red when ripe.

P. PUNCTATUM.—Another beautiful species from the temperate Himalayas, where it is found at altitudes of 7000 feet to 11,000 feet, and consequently perfectly hardy in our gardens. The leaves in this species are alternate, in which respect it differs widely from the above plant. It rarely exceeds 2 feet in height, the stem angular, and the hard leathery leaves narrowly oblong. Flowers white, with lilac dots, two to three in a bunch. There appears also to be a form with opposite leaves, which must be very nearly allied to *P. oppositifolium*. Flowers in late summer.

P. ROSEUM.—A handsome little plant allied to *P. verticillatum*. It was first sent to the Royal Gardens, Kew, by Bunge, and is doubtless the plant described in "Flora Rossica." It appears to vary considerably in the length and breadth of its leaves in their being more or less whorled, and also in the size of its flowers. It grows 2 feet to 3 feet in height, the leaves narrow, linear, opposite, or in whorls of three or more. The flowers in pairs in the axils of the leaves, clear rose coloured, are very effective amongst the narrow green foliage. Native of Central Siberia, Altai, at the river Kurtsch, Songaria, &c.

P. VERTICILLATUM.—An elegant species distributed over the temperate Himalayas, and pretty general in the northern hemisphere. It was found in Perthshire, Scotland, in 1792, and appears to have been cultivated by John Tradescant, Jun., as early as 1656. It grows 2 feet to 3 feet high under cultivation, the leaves four to eight in a whorl, narrow. The flowers, two to three in a bunch in the axils of the leaves, are greenish white, smaller than those of *P. multiflorum*. The fruits are red when ripe. It flowers in June. D. K.

VERBENAS.

It is such an unusual thing now to see a good stock of Verbenas in any garden, that I was surprised indeed to find on the back shelf and near the glass in one of the greenhouses at Abinger Hall the other day a score at least of 6-inch pots all full of a fine-rooted stock of cuttings of various kinds put in last autumn. From such a stock it would not be at all difficult to obtain over 1000 plants during the next few weeks. But greater still was my surprise on learning that amongst these varieties were found some of the identical ones that used to be so popular and so widely grown for bedding more than forty years ago. There are not a few of the readers of THE GARDEN who still have in kindly remembrance *Defiance* Scarlet, *Purple King*, *General Simpson*, *Ariosto*, &c., and these were found in the Abinger Hall collection. We employ the *Verbena* but indifferently now for the production of masses of colour, although few plants, perhaps, ever gave greater satisfaction in that way. During the past few years there has been something of a revival in favour of Verbenas, but chiefly from seed, which is cheap, and produces flowers fairly true to colour of varieties. Being sown in the spring renders winter storing of plants unnecessary. From seedlings there is no assured certainty as to what style or form of plant will come, and therefore seedlings are not always a success, but plants which have been produced from cuttings put in early in the autumn from stout young tops can always be trusted to reproduce their kind absolutely. That, at least, is the gain which results from propagation by cuttings. Where Verbenas are grown largely for flower-production it is well to have just a few plants of each variety put out in some place where they can be cut over about the middle of August, and then in September they will throw plenty of stout young tops to take off as cuttings. These inserted at the rate of about eighteen in a 6-inch pot in sandy soil, well watered and stood in a close frame or where they can have a little bottom-heat, will soon make roots and a stock of established plants is readily obtained. A top shelf near the glass is the best of all places in which to

store Verbenas during the winter. They simply need to be kept from frost and not too dry at the roots. New growth is not desirable until towards the month of March, when fresh young tops will make a further stock of cuttings, as these struck in the spring fairly early make the best of bedding or pot plants. If the only use of Verbena blooms was to set them up in bunches for exhibition, as occasionally seen, the sacrifice of habit to size of truss would be justified. In a cut state Verbena flowers are not of great endurance, but they stand for a long time as growing, because the pips open gradually. The richest piece of colour I saw in the gardens at Hampton Court was made by a small patch of a bright crimson-scarlet Verbena last summer. A. D.

CARNATIONS FROM SEED.

WHILST it is possible to obtain very good imported Carnation seed at comparatively low prices, it is folly for anyone fond of these beautiful flowers to refrain from having a good stock of plants in their gardens. If seed be sown early in the autumn and the plants wintered in a frame, they will go out in April and form very stout clumps, producing literally dozens of stems and scores of flowers the second year. But in such cases the plants habitually expend their forces so much in the production of bloom, that too often very little of layering grass results. If grown simply to bloom as seedlings and then to be thrown away, the plan is a good one, for the flower-produce is often wonderful. When, however, it is desired to perpetuate stock of the best by means of layers, it is wisest then to sow seed in the spring, and now is an excellent time to sow. Few hardy plants come so freely from seed sown out in the open ground, but it is best in that case not to sow until the end of April. In the case of very small quantities or packets, especially of such as are purchased in colours, it is better to sow in shallow pans and stand them near the glass in a frame until the seedlings are well in leaf. Then the pans may be placed in a sheltered place outdoors where the seedlings will harden, and during May be planted out where eventually they are to bloom. A batch of seedlings gives naturally many that are indifferent in quality, but, except the singles, all are good enough to furnish flowers for cutting. If but one-third of the plants from such a batch give fair quality, the result is not to be despised, as each one may give several layers, and these well rooted will create a fine stock of plants in the following year. A dozen of such plants purchased from a florist would probably cost as much as the seed did which at the first gave upwards of 100 plants. Every year some seedlings should be raised, because there is almost assured certainty of securing a constant stock of plants in that way, whilst those increased from layers are always subject to some sort of infirmity. The grower of Carnations for exhibition would not regard the imported strains with any favour, but those who want flowers, many of them deliciously perfumed, would find more of bloom from a score of strong seedlings than from 100 larger rooted plants. The florist wants size and quality in his flowers; the other wants abundance of bloom, and that is best found in the seedling plants. I have obtained from French seed some exceedingly beautiful things. That charming rosy-salmon variety Fair Maid, which has done so well at Chiswick, came from a sowing of French seed, and it is wonderfully profuse in blooming. When one such good thing can be got from a batch of seedlings, plenty of others can be had. Could we often have dry summers, home-produced seed of our best hardy strains might be plentiful enough. As a rule, however, we get an outdoor Carnation seed season about once in five or six years, for much rainfall at the time of blooming, howsoever good for the plants, is most harmful to the flowers, and destroys the fertile organs in a wholesale way, so that seed is seldom obtained. A.

Hardiness of Tritomas.—It seems to me that the most valuable piece of information brought out

by the discussion on the above-named subject is that furnished by Mr. T. Smith in his communication which appeared in THE GARDEN, February 13 (p. 138). Mr. Smith there states that it is his practice to plant deeply, so that the crowns are 7 inches or 8 inches below the surface, and I think it is feasible that this practice if generally adopted would mean the salvation of many plants. A few inches of soil are wonderfully protective, and it is easy to believe that at that depth the crowns of these Torch Lilies might survive a frost that would convert them to pulp if they were on a level with the surface of the soil. Loss of foliage is a small matter if we can keep the crowns safe from injury, for when the growing season comes round again progress is always rapid. It is surprising how quickly some kinds make great strong tufts.—A. H.

Iris reticulata.—Surely no one with a garden could fail to grow the charming *Iris reticulata* as a spring flower. It is undoubtedly hardy, and as it is just opening its flowers now, it proves invaluable in many ways. When planted in clumps or tufts of a score or more bulbs in each it proves very effective, enhanced by the strong fragrance of Violets constantly given off. If I were asked to choose a bulbous *Iris* to grow, I think my choice would be *I. reticulata*. It is one of the easiest to manage if properly handled, and it may be left out without covering of any kind even in the hardest winters. It should be planted deeply—at least 9 inches from the surface, and the bulbs lifted in summer, the small ones being picked out and the whole replanted almost immediately. Much harm, I believe, results from keeping the bulbs too long out of the ground.—K.

Hunnemannia fumariæfolia.—I have not grown this long, but I think its perennial and hardy characters are uncertain in heavy land in these northern counties, but may be well maintained in more favoured parts. It is a very beautiful plant, intermediate in appearance between the *Eschscholtzia* and the finer-cut and glaucous-leaved *Poppyworts*, and belongs to the same natural order. It is just one of those elegant or fragile plants that you may not fittingly place in a border with strong or rampant growers. It is a suitable thing to grow in an independent bed or group, the blue-green foliage being effective and suited for picking, or it may be grown in a bold patch on the sunny slope of a rockery, especially where it can contrast with dark or Moss-covered stones. You help it by providing for it light rich soil and a sunny sloping position. It is a Mexican plant, and though it grows as high as 2 feet, it will not look out of place on a rockery, owing to its light and slender character. A coloured plate of this was given in THE GARDEN, June 11, 1887 (p. 536).—J. W.

THE CARNATION DISEASE.

In the face of the evidence we have, it is useless to deny that the old Clove Carnations are so subject to disease, that they must be given up for grouping or garden effect in all but the few places where disease is unknown, unless a cure can be found or a different mode of treatment given. The crimson Clove is such a universal favourite that it must, if possible, be saved for producing flowers for cutting, and I am induced to pen this note by having seen very lately in a garden, where it is grown by thousands, a fine healthy lot in pots in a cool house and treated in precisely the same way as the Malmaisons, of which a large number is also grown. These plants were struck very early last year from a similar lot of pot plants, and I attribute their health partly to their having been well rooted and established in their pots even before the ordinary stock of layers was put down, though this was done in good time. In the same garden thousands of layers and two-year-old plants are either dead or dying with the disease, and that the soil can have but little to do with it is conclusively proved by the grand way in which the stock planted on the same soil and site in the early autumn of 1890 came through the severe winter following without a loss, making fine grass and giving great quantities of fine flowers. The whole stock, how-

ever, raised in that year was, I believe, obtained by layers and cuttings under glass from pot plants which had flowered earlier than the outdoor plants and were put down as soon as fit, so that they got some weeks' start of those layered at the usual time. That wintering layers under glass put down late in August is no preventive of disease I am quite convinced, for I have more than once treated them so, and though they appeared quite healthy when potted, they have been as bad as those planted outdoors by the time spring came. This year my small stock of Cloves was worked up half from plants obtained from a nursery about two years ago and showing disease when they came, and the other half from a healthy lot obtained from a private source. Both lots did fairly well after being layered and were planted at the same time side by side, but each lot kept to itself. All of the former have almost disappeared and the others are looking very sickly and will be worth nothing—a great contrast to the healthy plants near of such kinds as *Comtesse de Paris*, *Carolus Durand*, &c. I find the blush and white Cloves just as bad as the crimson kind, also the old Painted Lady. They can, however, be spared, as some of the newer and healthier kinds are very sweetly scented, even if they have not the exact scent of the Cloves, and more are bound to come to the front with so many raisers in the field. Anyone wishing for a really healthy Carnation very near in colour to the crimson Clove should grow Duke of Edinburgh, a kind that never takes the disease with me, and it comes in well for the front of groups, the grass being plentiful and of good colour. The flowers are small, good in form and produced rather late. Unlike "S. P." (p. 162), I have never seen seedlings badly attacked by disease before the first flowering season, and among 200 such I cannot see a trace of it, though this immunity is no guide for the future, as both plants and layers frequently go off entirely in their first winter after flowering, blighting the hopes raised by their first fair flowers.

CORNUBIAN.

ORCHARD AND FRUIT GARDEN.

THE CULTIVATION OF APPLES.

WE are pretty well all agreed that if British-grown Apples had received, some twenty or fifty years ago, half the attention now bestowed on their cultivation, our orchards of the present day would present far different and more satisfactory results, whilst our own markets would be better supplied with home-grown produce and the foreigner less likely to monopolise our markets to the extent he is now doing. Whether the rising generation, with all their parents' present experiences and the knowledge disseminated broadcast throughout the country, will rise to the occasion and reverse this order of things is a moot point. My own opinion is in the affirmative. It will be granted that circumstances and facilities are against us on many sides, but yet I think the ultimate production of English-grown Apples will be so great, that such a narrow margin of profit will be left to the foreigner as to make his highly-coloured, but generally mawkish and dry-flavoured importations unprofitable and less in demand. Personally, I do not despise these huge importations; on the contrary, I cordially welcome them as friends in disguise, as without them sound, wholesome Apples would be at famine prices. I look upon the foreign importations as very formidable rivals, which we have to tackle with all the energy, enthusiasm, and skill that we can command.

Some of my pessimist friends tell me we never shall be able to compete successfully with the foreign-grown fruit. I cannot agree with this view, and I ask what are the foreigner's advantages that are not at the present day open

to us, climate excepted? Doubtless our land laws, insecurity of tenure, and the fatal policy of allowing orchards to run out without making fresh plantations have been much to blame in the past. Worse still, all knowledge of a tree's requirements seems to have died out with the trees, and it is astounding to witness the general ignorance respecting the requirements of trees amongst the rural population. Surely it has been demonstrated over and over again that there is no country under the sun which can produce Apples of better quality than certain English counties, notably, Kent, Hereford, Worcester and Devon, and it is a tough nut for me to crack to find how Apples grown thousands of miles away can be and are sent here in huge quantities at what we are bound to consider paying prices from countries where labour is dear, with rail and steamer expenses, commission, &c. The fact is we have been, like "Rip van Winkle," asleep for fifty years as regards fruit growing; whilst our most intelligent, industrious, and enterprising men have emigrated to foreign lands and turned their abilities to good account in the virgin soil of those sunny climes—facts which we have suddenly discovered. Hence all this commotion in the fruit-growing world, with cries for protection, &c.

Doubtless their trees are now in the pink of perfection. This, as well as skill, high cultivation, and thorough business principles, care also in the grading of the very best fruit only, the convenient barrel for removal, and the reliability of the bulk being always in accord with the sample, are no small factors in their enormous success. As a fact, we have not nearly enough of home grown Apples of good quality to supply the demand, or even to compete with the foreign ones, as our own supplies are generally cleared out before the foreign ones arrive, which goes far towards answering the question lately asked in *THE GARDEN*, Where are our home-grown Apples now? When the bulk of the thousands of fruit trees that have lately been planted come into bearing, and granted that only half of them succeed, prices even more favourable to consumers may reasonably be expected. In *THE GARDEN* of October 10, "Onlooker" pertinently asks, What are we to do with our fruit? To this I would say, if he has first-class fruit to offer, he will have no difficulty in disposing of it at remunerative prices, but if of second or third-rate quality, there is certainly no demand. It is remarkable how much we have to unlearn in our marketing methods, as well as old notions of cultivating, pruning, &c.

The majority of ordinary farmers with whom I have to deal in the annual distribution of orchard trees are stubbornly conservative as regards their fruit-growing ideas. It is most difficult to persuade them to alter their methods of fruit-tree cultivation, they not unfrequently clenching their argument by saying, "Such was my father's custom, and so it shall be mine." They consider that making a hole 6 feet in diameter for a tree is unnecessary and great waste. Of course there are a few enlightened men who think and act differently, and such will get their reward in time, as well as prove themselves object-lessons to others. To dispel the above mistaken notions was primarily the reason why we took up and extended our fruit plantations, as well as to prove sorts best adapted for the district.

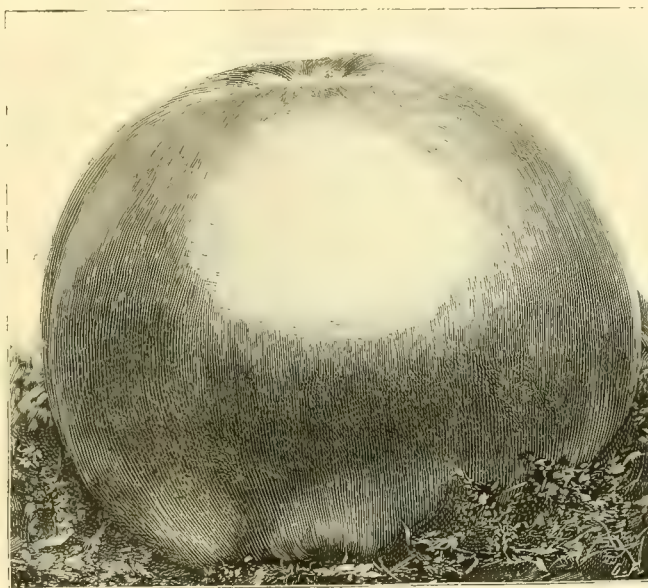
The method of marketing in this district is to dispose of the entire produce of an orchard at an agreed price to Apple dealers, the purchaser finding men for gathering, who generally roughly shake the crop from the tree and

bundle it altogether into pot hampers containing about 84 lb. nett. Of course fruit thus gathered must be partly bruised, and has to be sold quickly at low rates, no attempt being made at grading or selecting. I see no reason why barrels or boxes should not be taken to the trees, the best fruit only being gathered by one or more men, handed down and again selected by other careful men, and packed direct into the barrels or boxes, each time discarding all specked or inferior fruit. I have repeatedly done this and brought them into store-rooms, always finding them keep thoroughly sound and firm for a longer period than when spread out on shelves, as well as economising space; this refers mainly to cooking kinds, as I fancy dessert kinds kept in bulk in barrels lose flavour. The heads of the barrels are not finally put on until sweating is over.

Madresfield Court.

APPLE LANE'S PRINCE ALBERT.

SINCE the fruit-growing industry has received such an impetus, Apples have received a full share of attention, and none more so than the



Apple Lane's Prince Albert.

variety under notice. I will go even further, and assert that during the past four years it has been one of three varieties most extensively planted, and if the supply had been equal to the demand, still more of it would have been planted, many of the nurserymen being unable to execute numerous orders they received. Not only has the Prince Albert been largely planted in orchards, but private gardeners, amateurs and even the more enterprising cottagers have been induced to add one or more trees to their collections. The variety was raised in the Berkhamsted Nurseries, or at any rate was shown from thence by Messrs. H. Lane and Son as long ago as 1857, and it is not a little surprising, therefore, that its good qualities should not have been more generally appreciated earlier than during the past ten years. It is one of the most precocious Apples in cultivation, and, what is equally satisfactory, bears well in this young state without becoming stunted thereby, always supposing it receives fair play. There would appear to be no necessity to graft it on a dwarfing stock, to cause either bushes, pyra-

mids or cordons to bear freely and quickly; in fact, it is to be greatly preferred on the natural or Crab stock, or otherwise the chances are the trees will do little else but fruit, or attempt to do so. Fairly well-formed pyramids may be grown, but for small gardens a freely-grown half-standard or good-sized bush is preferable, I think. All that is necessary to obtain either of the latter forms is to plant the ordinary pyramid as supplied from the nurseries in good fresh loamy compost, and to either lightly or boldly cut out the centre of the tree, utilising the shoots thus obtained for grafting on to trees of less value. If the trees so treated are prevented from flowering or fruiting the first season, and, if necessary, in order to promote vigour, for the second year also after planting, sturdy healthy growth should result, and the foundation of a most serviceable tree be laid. Not till top-growth is well advanced should the lower branches be cut away from any trees intended to be treated as half-standards, as, left on, they serve to swell the stem considerably, but they may be stopped occasionally, so as to divert the flow of sap to the upper branches. Bush trees especially require to be supported

with stakes for a few years, it being no uncommon occurrence to see comparatively strong trees with their branches weighed quite down to the ground with fruit. All alike pay well for liberal surface culture, there being little risk of overdoing this. Therefore mulch freely with manure before dry weather sets in, liquid manure being applied now to all trees that have been established several years. As will be seen by the illustration accompanying these notes, the fruit is large and handsome in form, though not particularly attractive in appearance. While growing and when gathered the fruits are very bright green in colour, this changing later on to a pale yellow, but on the exposed side there is a little crimson colour. It is a cooking

Apple of the best quality and in season up to April. When the numerous orchard trees distributed all over the country have reached a serviceable size, it is more than probable that fine fruit of this variety will be seen in the markets up till April, and perhaps later, and will prove a formidable opponent to the American consignments of cooking Apples. At any rate, I hope I shall be much deceived if such is not the case.

Pruning and training Peach trees.—Now that the time for pruning and training Peach and Nectarine trees on walls out of doors has arrived, a slight, though in its consequent results an important departure from the beaten track in the manner of performing these essential operations might be made. I refer to giving the individual branches more space on the wall or trellis than has hitherto been accorded them. Heretofore, as now, the trees generally have been somewhat crowded, that is, the shoots have been insufficiently thinned at pruning time, and consequently trained too closely together on both wall and trellis both indoors and out, a space of from 2 inches to 3

inches between the young wood of the previous year's growth being, in my opinion, too little. Is it necessary for the permanent welfare of the trees that the young wood should cover a given space of wall or trellis at from 2 inches to 3 inches apart? Is this necessary in order to secure a good crop where fruit of the finest size and best quality are aimed at? My answer to each of the above questions is a decided negative, as I fail, though perhaps late in the day, to see that the practice of training the young shoots so closely together serves any other purpose than needless exhaustion of the trees, seeing that the fruit is ultimately thinned to a distance of say 9 inches from one another on the trees, and in some cases 12 inches. These facts go to show that we have annually encouraged the trees to make and mature wood, a large percentage of which we afterwards cut out at the winter pruning, still leaving and subsequently training the young wood too closely together, apparently forgetting in doing so that the fruit is to be finally thinned out to little short of one to the foot super. Therefore, the question arises, why should not we discontinue this old practice, and instead prune out the young shoots sufficiently hard to admit of their being trained at from 4 inches to 6 inches apart on wall and trellis? I do not think a space of 6 inches any too much, as such a distribution of young wood, together with a young growth of the current year laid in between each pair of trained shoots, will, in my opinion, afford ample means for the due flow and circulation of the sap in the individual trees. Trees thus treated would annually produce finer and better ripened wood than they had hitherto done, being followed in due time by an ample crop of large, well-developed, and strongly formed flowers. I do not think that vigorous, healthy trees trained as advised would be likely to make too strong wood, and any disposition to do so could be rectified by leaving a dozen or two more fruits than indicated to form the crop. Ere this note appears in print I shall have commenced the pruning and training of our outdoor Peach and Nectarine trees on the lines set forth above.—H. W. WARD, *Longford Castle*.

EARLY STRAWBERRIES IN POTS.

THE forcing of Strawberries this season will have been more difficult on account of the changeable weather, especially in the London district. Although we have suffered less from fog, we have had little sunshine so necessary to the well-doing of the plants when in bloom. I should like to know how others have fared as regards getting a good set in the London district, as it seems almost impossible to get an even set before the middle or third week in February; indeed, after various trials and losses, I gave up the attempt till some of the newer Strawberries came in with such glowing accounts of their well-doing and precocity, that I was again induced to make an effort to get ripe Strawberries in quantity early in February. I was, however, doomed to disappointment. So far I have not found a better Strawberry for free setting, absence of mildew, and size of fruit when ripe for this district than Keens' Seedling. *La Grosse Sucrée*, a good Strawberry in many places, does not throw its flower-spikes well out of the plants, the result being that many of the blooms are imperfect and therefore useless. *Vicomtesse Héricart de Thury* is affected in the same way; it is very difficult to get the bloom-spikes sufficiently long to get a set. Another objection is the small size of the fruit. I have tried all the new Strawberries of late years, and have been obliged to fall back upon Keens'. In country districts, with more daylight and sunlight, growers may find the newer kinds more suitable, as in many places *Vicomtesse* is readily forced, but it seems out of the question to do it well with an absence of sun and light, no matter in what condition the roots are. If potted very early and grown specially, the flowers will not set freely till they get a fair amount of light. I know that many of the large growers in the district do not attempt this early forcing, as they find that Strawberries pay

well in April and May, and thus get them in at that date with less trouble and few losses. The private grower, however, who is supposed to get fruit in February is very much handicapped when expected to do so, as often there is not twelve hours' sunshine in a week, often none at all. I have adopted various means to assist the plants, such as bottom heat, plenty of air and growing specially for early forcing in smaller pots, but all to no purpose. In forcing Strawberries, there is, so far as I can judge, little gain in the new varieties over old unless it be in those districts more favourable to the growth of the plant in the winter months. For starting the plants, there is nothing better than the old system of heating by leaves and litter provided the bed is kept at an even temperature, as extremes either way are injurious. The hot-water system for bottom-heat is often too drying. No difficulty will be experienced from this date in getting a good set with only ordinary means at disposal, as now the plants are on the move and a little extra warmth soon starts them into growth. When introducing those kinds that mildew badly, it is best to dust the foliage with flowers of sulphur, as this checks it at the start. President is one of the worst in this respect, but an excellent variety to succeed Keens' or any of the earlier kinds.

S. H. B.

PRUNING GOOSEBERRY BUSHES.

THAT Gooseberries are a paying crop no one, I think, will deny, but perhaps it may come as a surprise to some to hear that those trees which are not pruned pay the best by a long way. Indeed, non-pruning is alone adopted in this neighbourhood where many acres are under cultivation. The non-pruning of Gooseberry bushes of any sort came upon me a few weeks since as a great surprise, and from the appearance of the trees and proofs given by the owners I have no cause to dispute the fact that better returns are obtained from unpruned trees than from those which are systematically pruned annually. The soil in which the said Gooseberry trees are growing varies very much, there being sand of not only the ordinary yellow kind, but white and black also; then there are gravel, shingle, and strong loam all in the one field, which consists of 100 acres, giving many aspects, so undulated is the ground. The bulk of the Gooseberries is picked and sent to market in a green state, the object being to have them as early as possible, when 3s. 6d. is obtained per gallon. The idea is that the more branches there are the more fruit is borne. As an experiment one grower pruned his trees one year, the result being that he lost from 7s. to 8s. per tree by the pruning alone. Twenty-five shillings per tree is not considered very extraordinary for some seasons, so well do they succeed under the system. The price quickly comes down after the first week to sometimes as low as 6d. per gallon or 4s. per bushel. Even at that price Gooseberries pay; a tree measuring 4 feet by 5 feet will give ten gallons of fruit. Varieties which are of upright growth are preferred to those of a drooping character. The sorts most favoured in this part are Duke of Sutherland, Crown Bob, Whinham's Industry, Washington, Wonderful, Lord Derby, and Lion, amongst red sorts. Among yellows, Golden Drop, Trumpeter, High Sheriff and Candidate are the most favoured. Green London, Queen Victoria, Telegraph, and Plunder are the best green kinds. Careless, Duchess of Sutherland, King of Trumps, Snowdrop and Elizabeth are the most fancied as green varieties. Instead of removing all the eyes from the cuttings in the usual way to prevent the growth of suckers from the base of the trees, these are encouraged to grow to make a large tree in the shortest period. The only manure used is soot; this is spread on the surface at the rate of forty bushels to the acre early in February after the soil between the trees has been dug over. The soot is lightly pricked in after it has lain a week or so on the surface. The appearance of the trees gives the idea that the treatment accorded is of the right kind; the branches have a particularly healthy, vigorous appearance at the

present time, auguring well for the next season's crop. The best crops are of course grown in the open where the trees receive the full benefit of the sun.
E. MOLYNEUX.

EVILS OF CLOSELY TRAINING VINES.

To secure Grapes of high quality, all good fruit growers will agree that an ample spread of healthy foliage is very important. It is the reverse of economy to think that by having the rods at about 2 feet or so apart a greater quantity of good Grapes may be cut than by having them at 3 feet, and I am strongly of opinion that an extra 6 inches or even 12 inches above this is not any too far apart for the majority of black Grapes, and for Muscats even more. In estimating as to how heavy a crop the rods should carry, some people may recommend 1 lb. to a foot-run, and others 2 lbs., but this gives but a vague idea, as all depends upon the strength of the Vines. Training the rods too closely together tends to wear out the Vines a deal sooner than when a fair distance is allowed between them. A Vine planted at, say, 3 feet 6 inches apart, or rather I should say the rods trained at this distance, although carrying the same number of bunches, will certainly bring them to a much greater perfection than the 2-feet apart rods. The commercial value will also be proportionately higher, taking house for house, and in the end will be more profitable by far. It is certainly mistaken economy to plant or train the rods too closely together, although there are some people ready to argue that what are termed exhibition Grapes and Grapes for home consumption must be grown differently, and that the balance is in favour of the latter. I have no faith in such statements, for the most successful exhibitors are those men who allow their Vines to carry a fair crop, and use the most judicious means to enable the Grapes to come to a high state of perfection. It is well known that extra foliage increases the root action, so really the Vines which are trained on the 2-feet-apart system are heavily handicapped compared with those trained at a greater distance; hence the disparity so often observable. Another advantage of thin training is that with the rods at a fair distance apart the laterals may be trained at such an angle as to allow the rays of the sun to strike the border, that is, if it should happen to be an inside one, or even partially inside and out. There are many Vine borders quite strangers to the action of sunlight, and rarely do they ever get a glimpse when once the Vines are fairly in growth through the crowded state of the foliage. For the Vines to keep in good condition it is certainly an evil to obstruct the sun's rays from the border, for this needful element is almost as much needed for the roots as even for the most exposed parts, although, of course, in a lesser degree. At this season of the year when top-growth is about commencing, it will not be at all too late to rectify the evil of close training, for in those vineries where there are several Vines or rods two or three could be cut clean out without fear of any loss of crop, for the extra space afforded to the remainder will amply compensate by the better finish. I have frequently noticed that where there are a large number of bunches left, there are many quite unworthy to be sent to table.

In many instances the rods are so close together, that even one leaf beyond the bunch, let alone two, has barely room for expansion. This being the case, how can the Vines be expected to produce good finished Grapes? The fact is that Vines are of so tractable a nature, that they do not break down under the strain so readily as many other subjects. In time, however, the collapse surely comes. Not only are the rods generally too close together, but the evil is also increased by not having sufficient space above them. The majority of the Vines under my charge have quite a space of 2 feet between the trellis and the glass, and if this was even an extra 6 inches or a foot it would be better for the Vines. We have become so imbued with the belief that the foliage of Vines should be close to the glass, that the trellis, as a rule, is

fixed much too near, the foliage in many instances being in close contact. This is certainly an evil, for the foliage being subject to such fluctuations of temperature, it is impossible for the foliage to perform its due functions. What with the extremes of heat and cold—and the transitions of such is often very sudden—how can it be expected to be otherwise? Sooner than have the foliage touch the glass, I would much rather sling the rods to the trellis, if so be that circumstances would not admit of this being lowered bodily. If anyone doubts my word, let him feel the foliage whilst the sun is shining upon it and again at night-time and mark the difference. There will be two decided extremes, and which should be guarded against. By having the tops of the leaves at a fair distance from the glass they will be in a more equable temperature, and ventilation may be more easily regulated—no mean advantage during the early spring, when forcing is being carried on—between a very bright sun on the one hand and a cold nor-easter on the other. A small amount of ventilation will enable the air to circulate above the foliage where this is a fair distance from the glass, whilst if in close contact there would be a marked difference. I have often been struck with the difference of the temperature as noted with two thermometers, one being in the body of the house and the other near the roof. This latter might indicate close to freezing, whilst the one in the body (if the structure should happen to be a lofty one) would denote a safe degree. In a structure which is being kept warm the same difference would exist if in a minor degree. The radiation of heat on a clear and cold night is very great, thus showing the mistake of having the foliage of Vines too near the glass.

Y. A. H.

A GOOD EXAMPLE.

EXETER may be said to be the centre of a large fruit-growing district, and it is much to the credit of some of the inhabitants of that city that they were among the first to recognise the necessity for encouraging the fast flagging fruit-producing industry. Early in the last decade Apple fairs were held in Exeter, and in response to the fairly liberal prizes offered a grand lot of Apples and Pears was brought together. These highly instructive exhibitions, two of which it was my privilege to attend, were, unfortunately, not sufficiently well supported, and, much to the regret of the disinterested promoters, were allowed to lapse for want of funds to carry on the good work. If they had been persevered with, they might, in addition to being made very instructive to farmers and planters generally, also have become the means of bringing sellers and buyers of orchard-grown fruit into close contact, to the advantage of all parties concerned. Cheese fairs and cattle markets are attended by buyers from all parts of the country, and why not Apple fairs as well, large quantities of fruit being bought and supplied as per samples?

From Exeter now comes another good example, and which ought to be taken up and improved upon by our would-be benefactors, the Fruiterers' Company included. At the Chrysanthemum and fruit show to be held at Exeter on November 11 next, a prize of two guineas will be offered by Mr. A. Weir for 1 bushel (40 lbs. nett) of a cooking Apple and half a bushel (20 lbs. nett) of a dessert Apple packed ready for market, Blenheim Orange and Ribston Pippin excluded. Merits of grading, packing, and packages to be taken into consideration by the judges. In a foot-note it is stated: "This is a class for open competition, no entrance fee." It is further suggested that exhibitors should state the particulars of the trees, soil and culture from which the exhibits were produced. Blenheim Orange and Ribston Pippin were, I presume, excluded for the simple reason they are

so far superior to anything that could be pitted against them by farmers or large fruit growers, that no other varieties would stand a chance of winning the prize against them, and much of the interest in the competition be lost accordingly. Is this not a most commendable step on the part of Mr. Weir and the Exeter Horticultural Society, and one well calculated to teach the inexperienced fruit growers in that neighbourhood what should be done with their Apples so as to compete successfully in British markets against all comers? Further, I would ask why, if the Fruiterers' Company have money at their disposal presumably to be expended in the good work of educating the rising generation of growers of hardy fruit, they should fritter this away in providing a grand display of fruit generally on the Thames Embankment or some other spot convenient to the promoters of the exhibition and most inconvenient to the bulk of fruit growers in this country? From a gardener's point of view, I am delighted with the prospect of such a display being held, and see no reason why it should not rival, if not eclipse, the grand show held at Edinburgh last autumn, but I fail to see where the philanthropy comes in. The fruit show held at the Guildhall in the autumn of 1890 was undoubtedly a great success as far as the exhibits were concerned, but in other respects it was evidently a complete failure. Distributing free tickets *ad lib.* ensured the attendance of thousands of visitors, but I saw numbers of working gardeners and fruit growers outside who, not having tickets, were rigorously excluded, and even if they had been admitted, there would have been no such thing as a careful survey of the wealth of fruit brought together. It was (during much of the time I was present) simply a matter of moving on with the crush. Is the proposed fruit show to be held next autumn to degenerate into a similar farce, or will a serious attempt be made to make it partake more of an educational character? In any case, I cannot help thinking the money might be better expended somewhat in the direction initiated at Exeter. For instance, Chrysanthemum shows are held at nearly all the important centres in fruit-growing districts, including Bath, Bristol, Birmingham, Devizes, Gloucester, Cirencester, Tiverton, Taunton, and various other towns in the western districts, still more shows being held in the home counties, and a good sprinkling in other, as far as fruit growing is concerned, less favoured localities. I should say £250 would go a long way towards providing prizes at fifty centres, though double that amount might be expended with advantage, the competition being confined to the respective localities and to *bona fide* growers for sale. All that need be done beyond stating conditions and providing the funds could safely be left to the various committees connected with the different societies.

W. IGGULDEN.

Colour in Apples.—At page 121, "A. D." makes the observation that I cast doubts as to the benefit or value of colour in fruits for market. I cannot see how "A. D." could have come to that conclusion, and I have read and re-read my original article at page 43, and cannot see any reference whatever in the sense "A. D." tries to make out. What I did say was, "that colour in Apples is of minor importance, comparatively speaking, as other good qualities being present, this does not appear to add to their value." I am as fully alive to the importance of having well-coloured fruit as anyone, but the very high colour noticed in some Apples does not mean first quality.—Y. A. H.

Gooseberry caterpillars.—About the end of May gardening papers will no doubt, as usual, be full of wails as to the ravages of this troublesome insect. Some seven years ago, or thereabouts, my

fruit bushes were badly infested with them, but having read that a remedy consisted in growing ordinary broad Windsor Beans amongst the bushes, I tried the plan, with the result that although in one or two seasons some half a dozen caterpillars have been found, yet they have been so few and far between, that there can be no doubt as to its efficacy. Let those of your readers who are similarly troubled sow their Beans at once.—EDWARD JEKYLL.

STOVE AND GREENHOUSE.

SARRACENIAS AS FLOWERING PLANTS.

THESE plants seem to have lost favour during the past few years, although in several nurseries round London good collections are still grown. I grew the first consignment of the Californian Pitcher Plant which appeared in Europe in 1857, and I now see the Guiana plant, *Heliamphora nutans*, the only species at present known, has been introduced. It has radical erect leaves, which are tubular, widening upwards, with a small lid, which, however, does not answer any purpose, for the mouth of the hollow leaf is cut down a long way, the inside being lined with curious hairs which are bent downwards, apparently for the purpose of retaining any insect which once gets into the tube. The flowers of this plant are not attractive, but they are curious, inasmuch as they have not the peltate plate which covers the stigma, and which at one time was considered characteristic of the Sarraceniacæ. I hope the plant will become established in our gardens, but it will require very different treatment in the way of heat.

The Sarracenias, we are told, are frequently exposed in the summer-time to a temperature of 100° or 112° of heat, and in their native home they affect slightly shaded spots. In the winter the thermometer falls many degrees below zero, but I suppose with this low temperature the plants are covered with snow. These are the conditions under which *S. purpurea* exists in a state of nature, but the more southern species are not subjected to such rigorous winters. Mr. Baines used to exhibit these plants in the finest condition that I ever saw them, and he used to grow them in a stove temperature all the year round. This is the best month for repotting, and if it is wished to divide the plants to increase the stock it should be done now, but if this is not required, the large crowns will produce a number of flowers. This is a point which very few growers have attended to, the blooms being mostly picked out to strengthen the pitchers, by which means the beautiful crimson, yellow, white, and red flowers are lost. Some of the hybrids, of which *S. Popei* is a remarkable example, have parti-coloured flowers. Its flowers are very beautiful, the petals being deep crimson on the outside, having a border of yellow, the centre being flushed with rosy-pink. This was obtained by crossing *S. flava* with *S. rubra*, but I do not know if it retains any of the odour of Violets for which the latter plant is so remarkable. The following kinds I consider good:—

S. ATROSANGUINEA has handsome pitchers and creamy-white flowers.

S. CRISPATA has handsome pitchers of quite a different aspect to those of the previously named plant, and large flowers with pure white petals.

S. DRUMMONDI has erect pitchers, prettily tessellated with creamy white and crimson, the lids also marked with the same vivid crimson. The flowers are large, of a very deep rich red. The va-

riety alba differs only in not having the red markings in the tessellations.

S. FLAVA. Of this there are a good many so-called forms. One of the most distinct kinds is *S. flava maxima*, which has large, wholly green pitchers, with a broad lip. The flower, too, is large, rich bright yellow.

S. PSITTACINA is a decumbent species, the pitchers being green, netted with crimson veins; the head or hood into which the top of the pitcher is formed is bright red, blotched with creamy white. It is a marvellous plant. Its flowers I have not seen.

S. PURPUREA produces decumbent pitchers, which have a large lid, and when grown in good sunlight and heat are marvellously coloured, being deep green, heavily marked with deep crimson. The flowers also are large, deep reddish purple. It is the oldest and the best known of the Side-saddle plants.

S. RUBRA is a species with narrow tubular pitchers, the upper part netted with deep red, which late in the season becomes wholly of a deep red. The flowers, smaller than those of some of the others, are of a deep reddish crimson, deliciously scented.

S. VARIOLARIS.—Pitchers of this species are each from 6 inches to 1 foot in height, and with a recurved top, which makes them appear hooded. They are light green, mottled with creamy white; the flowers lemon-coloured. This and *S. psittacina* are the two rarest in cultivation, and they appear to be the most difficult to manage.

Besides the above there are now numerous hybrids, producing, as I have before said, parti-coloured flowers. Mr. Williams, of Holloway, sends me pitchers of the following varieties: *Atkinsoniana*, *Courti*, *Chelsoni*, *decora*, *formosa*, *Flambeau*, *hybrida*, *illustrata*, *Mooreana*, *Maddisoniana*, *Mitchelliana*, *maculata*, *Popei*, *Patersoni*, *Stevensi*, *Swanniana*, *Tolliana*, *Williamsi*, and *Wilsoniana*. These and other hybrids not here named all have remarkably handsome leaves and flowers. *Sarracenias* should be potted in good fibrous peat (from which most of the fine soil has been beaten) and chopped Sphagnum Moss, to which should be added some coarse silver sand. The pots should be well drained and the plants potted firmly. They should be watered daily during the summer, but not so often in winter. They like to be near the glass and require shading only at midday. One of the chief points in the growth of *Sarracenias* is to renew the soil annually. They like a moist air, but I dislike using the syringe, as then the pitchers become soft and flabby.

WILLIAM HUGH GOWER.

Pelargonium F. P. Raspail.—This bright-coloured double-flowered *Pelargonium* for some years has been grown to a greater extent for market than any other of its class, and on page 175 a writer says: "If I were confined to three varieties, it would be Raspail, Queen of Whites, and West Brighton Gem." That refers to their winter-flowering qualities, for which purpose *F. P. Raspail* is by many largely grown. Still, it was in this country some time before its merits were fully recognised, having been sent out by M. Lemoine as long ago as 1878, at which time many of our double-flowered *Pelargoniums* still showed traces of the earliest varieties with double blossoms, such as *Gloire de Nancy*, that grew very strongly and as a rule produced comparatively few blooms. One of the earliest of these dwarfier and more free-flowering forms that in time drove the older and gross-growing varieties from the field was the deep pink *Mme. Thibaut*, sent out by M. Lemoine in 1875, followed a year later by the semi-double sport from Vesuvius known as *Wonderful*, which, being of English origin, was better known and advanced in popularity at a much quicker rate than *F. P. Raspail* did a year later. Among other

sent out about the same time which became standard varieties, and are still grown by many, mention may be made of two white-flowered kinds—*candidissima plena* and *Mme. Amelie Baltet* in 1877, the rich-coloured President Leon Simon in the same year, and the bright pink *Emile de Girardin* a year later. — H. P.

NEW AND NOTEWORTHY STOVE AND GREENHOUSE PLANTS OF 1891.

THESE do not swell the lists, as in the case of Orchids; nevertheless, there have been some good and most distinctive exhibits from time to time. Not in every case possibly of those plants suited to specimen culture, but in such as are well calculated to prove useful in various ways from a decorative point of view have improvements been apparent. Belonging to this latter class is *Begonia Winter Gem*, a tuberous-rooted winter-flowering variety that bids fair to be of much value, its rich crimson-coloured flowers being valuable at this season; it was shown at the first and the last meetings of the Royal Horticultural Society, being also figured in *THE GARDEN* on May 30 last. *Chorozeema Lowi* belongs to a class of plants all too little grown, as not only are they useful as specimens, but also as climbers in the cool house. This variety has distinctive features, with very brightly coloured flowers freely produced upon small plants. Of *Anthuriums* belonging to the large flowering type, particular note should be made of *A. Laingi*, *A. leodiense*, *A. burfordiense*, and *A. Edwardi* roseum, four remarkably fine varieties shown from the Burford Lodge collection of Aroids. *Camellia Beauty of Waltham* is a good addition to the pale pink varieties, having imbricated flowers. Two very beautiful varieties of *Bertolonias* were shown in the spring from Brussels, the markings of the foliage being very delicate; these should, however, be grown under bell-glasses to succeed well with them. A few good and distinct advances have been made again in the *Amaryllis*; the best of these are *Olivia*, *Vandyke* and *J. R. Pitcher*, the two first being finely formed flowers, the latter of a deep red colour. *Dracena australis variegata* (Douceff) is a very distinctly marked plant; it has been shown on several occasions, and will no doubt become a very useful subject for the conservatory. *Cocos Pynaerti* is in a small state more light and elegant even than *C. Weddelliana*; should it continue in this state it will be an acquisition. To the long list of handsome-leaved *Caladiums*, that named *B. S. Williams* should be added; it is a fine variety; so also is *C. Louis van Houtte*, a kind with dark metallic leaves. Tuberous *Begonias*, both the single and the double varieties, continue to advance in size; there is, however, some improvement in the shape of the latter in the newer sorts. The hybrid forms of the recently raised *Streptocarpus* family have been shown; these bid fair to be very useful; the variety of colours is also being added to and becoming more distinct. Tree Carnations have received another addition of much promise in *Selby*, with pale yellow flowers, and in *Iver White*, a clove-scented kind of vigorous and dwarf growth. The race of dwarf flowering *Cannas* has received an impetus in several promising sorts, two of the best being *Jules Chretien* and *Antoine Chantini*.

Crotons have been further added to by the introduction to notice of *C. Golden King*, with richly-coloured foliage of a pendulous character. In *Gloxinias* there has also been an advance, two of the best being *G. Monarch* (a distinct addition in colour—a deep crimson—with vigorous growth) and *G. Electra* (a purple-coloured variety, with light spotted throat and dwarf habit). In *Allamandas* we have an acquisition in *A. Williamsi*; this variety bids fair to be an excellent kind for blooming in a dwarf state, being both free-flowering and of stocky growth, with foliage of moderate size only. The handsome Java hybrids of the *Rhododendrons* have been further enhanced in beauty by *R. Ceres*, a lovely variety, with bright golden-yellow flowers produced in large trusses; this is one of the finest kinds yet seen. *Ixora macro-*

thyrsa (Duffi) received a first-class certificate rather late in the day; the wonder is that it has not done so before. It is a grand variety under good cultivation. *Asparagus retrofractus* is a beautifully light and elegant species of African origin, with longer foliage, produced more in clusters than in the better-known kinds; its habit of growth is erect. *Richardia aethiopica compacta* was (as shown) of much promise; if it retains its dwarf sturdy habit it will prove a valuable plant. Another good Palm was shown in *Rhopaloblaste hexandra*, with growth not unlike *Euterpe edulis*, but even more elegant than that well-known plant; should it become plentiful, as I hope it will, its long and awkward name should be altered. *Vriesia cardinalis*, a hybrid form, is a showy plant of close and sturdy habit. The dwarf varieties of this and allied genera should receive more recognition than they now get. Of *Chrysanthemums* it is not necessary to add to remarks already made further than to compliment one exhibitor upon his method of description, the height being added, also the origin in several instances. Some few Indian Azaleas of quite a distinct character were shown in the spring; the flowers were large, of good substance, and the plants of compact yet vigorous habit. Three of the best of these were *Princess Clementine*, *Pharalde Mathilde* and *M. Labrousse*. Amongst florists' flowers there are improvements in the various strains of *Cineraria*, more particularly in the dwarfier and more compact habit; this should also be said of the herbaceous *Calceolaria*. True, in both instances cultivation is everything, yet there are evident signs of a fixed character in this direction. *Primulas* (Chinese) have fully maintained their previous good qualities, and a few good and distinct forms have been shown; this was most noteworthy in the case of *Kentish Purple* and *Kentish Fire*. Amongst Ferns, one of the best is *Pteris serrulata densa*, a very dwarf and dense growing form which somewhat resembles *Parsley* when seen at a distance.

PLANTSMAN.

GARDEN FLORA.

PLATE 847.

HONEYWORTS.

(WITH A COLOURED PLATE OF CERINTHE RETORTA.*)

BOTANISTS describe something like ten species of *Cerinthe*, and *Bentham* and *Hooker* in the "Genera Plantarum" suggest that they might be reduced to about four. This may answer in the herbarium, but the plants described below show plenty of character when cultivated in the garden, and certainly deserve distinctive varietal names. It appears that ancient writers supposed that this genus produced abundance of material which bees converted into wax; hence the name which, translated into English, would be *Waxflower* or *Waxwort* instead of the generally accepted name *Honeywort*. *Cerinthes* are pretty generally distributed over Europe, North Africa, and Asia; they are all, whether annual, biennial, or perennial, hardy, and amongst our showiest and most useful border plants. They require a light, rich soil, and flower freely in a sunny position either in groups or in the mixed border. The seeds of the annual species should be sown thinly to form groups or large patches, and the seedlings be pricked out to 9 inches or a foot apart. They are all easily managed. The following are the species and varieties at present known:—

C. RETORTA.—Beautiful as is the coloured plate accompanying these notes, it by no means does justice to the striking characteristics of *C. retorta* as we see it growing in the open air in a warm

* Drawn for *THE GARDEN* by H. G. Moon from flowers sent by Mrs. Robb, September 15, 1891. Lithographed and printed by Guillaume Severeys.



JEANETTE F. F. F.

summer. The large floral leaves are of a rich purple tint, and from amongst them peep the yellow-purple-tipped flowers in striking contrast to the bracts. It is certainly the showiest species in the genus, and although by no means rare, it is not so often seen in gardens as one could wish. It is a native of Caria, in the Peloponnesus, and was first found by Sibthorp, who figured and described it in "*Flora Græca*," tab. 171. It was again found in wooded places in Dalmatia by Visiani in 1827, and called by him *C. purpurea*, an excellent and descriptive synonym. It ripens seed freely, and may be sown and grown in the open air like any other hardy annual. In groups it is exceedingly effective. It grows from 1 foot to 2 feet high, much-branched towards the top; the lower leaves obovate, stalked, the upper stem clasping, with two rounded auricles, gradually passing into the high colour seen in the accompanying plate. The flowers protrude well beyond the bracts, lemon-yellow, the apex deep rich purple. It flowers in July and August.

C. ASPERA.—A rare European species, figured in the *Botanical Magazine*, tab. 6130, under its synonym of *C. gymandra*. It belongs to the *Eucerinthe* set, and is nearly allied to *C. retorta* and *C. major*. From the latter it differs in the leaves, in the terminal part of the flowers being yellow, not purple, and in the narrow calyx divisions not being cordate at the base. It used to be common in the neighbourhood of Naples, and is still plentiful in the Maritime Alps, Western Algeria, and Morocco, where it is found frequently in sandy places. In addition to the beautiful flowers, the leaves, which are discoloured at the tips, are strikingly characteristic of this curious genus. The leaves are of a fine glaucous blue, except at the points, which are bright yellow lined with deep purple. The colour of the leaves indeed repeats that of the flowers, and renders the whole plant attractive. If it has a fault it is in being an annual. It grows from 6 inches to 18 inches in height, much-branched. The leaves are each from 1 inch to 4 inches long, the upper surface covered with brownish warts. The floral leaves or bracts almost hide the pretty tubular flowers, which are each an inch or more long, the lower part inflated, of a deep red-purple, the upper portion, including the teeth, which are reflexed, of a bright yellow. The purple anthers protrude beyond the yellow tubular flowers, and give the whole plant a singular appearance. Flowers in summer.

C. GLABRA, synonymous with *C. alpina*, is a very pretty and interesting species from alpine and sub-alpine districts of the Tyrol, Pyrenees and Transylvania. It grows from 6 inches to 18 inches in height, branched towards the top of the stems, and often very bushy. The leaves are oval, auricled at the base and quite glabrous. The flowers are large, yellow at bottom, violet-purple at top. It flowers June to August, and is said to be perennial, though it has never proved more than an annual with us.

C. LONGIFLORA is nearly allied to *C. glabra*, from which it may be distinguished by its much longer flowers and large bracts. The calyx also is much elongated, giving a striking appearance to the plant when in fruit in autumn. Isle of Tivolara; flowering July. The variety *Smithiæ* is a rare form of the above, found by Kerner in 1873, and supposed by some authorities to be a hybrid between *C. glabra* and *C. minor*; at any rate, it is intermediate between these species.

C. MACULATA.—A very remarkable species from Central Italy and Sicily, and characterised by its very large, entire, glabrous leaves. It is a true perennial species, growing from 1 foot to 2 feet in height, and forming bushy plants, very showy when in full flower. The flowers are bright yellow, marked with five dark purple blotches. The variety *auriculata* has large auricles to the leaves, and does not differ much from *C. minor*. Both flower in June.

C. MAJOR.—A fine old species, having been figured by Gerard and cultivated in his garden as early as 1597. It seems to be the most variable of all the species, and has given rise to a good deal of

controversy and confusion. It appears to be the *C. glabra* of Philip Miller, and with its several forms was well known to him. It is what may be termed a winter annual, as it grows readily from self-sown seed, the seedlings only in very unusual winters suffering to any extent. The leaves of *C. major* are very variable in size, shape and colour, sometimes very spotted or blotched. The flowers are funnel-shaped, purple at top and yellow at bottom. It flowers during July, August and September, and is a native of Southern Europe. It is figured in the *Botanical Magazine*, t. 333.

C. MINOR.—One of the commonest and least beautiful species of the genus. It is a hardy herbaceous perennial of short duration; in fact it might be better described as a biennial. It is extremely variable in character, and may include several of the so-called species of *Cerinthus*. It appears to have been introduced into England early in 1570 by a Mr. Hugh Morgan, and is roughly figured in Lobel's "*Adversaria*" (p. 172). As a garden plant it is not worth growing beside *C. major*, *maculata* or *retorta*. The flowers are small, yellow and purple. It flowers in July, and is pretty generally distributed over Europe. The variety *cleiostoma*, found by Boissier in Attica in April, 1842, is a much showier, but rarer plant. D. K.

TREES AND SHRUBS.

PRUNING AND TRAINING CLIMBERS.

WHERE hardy climbing plants and shrubs are grown, they must have attention annually if they are to bear a presentable appearance. A free, but judicious pruning and training are essential each year, and if intelligently performed, they can be kept within reasonable bounds and their growth and bloom will be of a satisfactory description. We need not go to the opposite extreme and prune and train so closely as to make them prim and neat. Examples of this are frequently seen in suburban gardens where the jobbing man does everything, and, knowing little or nothing, he treats all things alike. Pruning is an essential detail, but it must be performed by those having a knowledge of the subject, as their needs vary, also the time at which it should be performed and the manner.

ROSES are great favourites for walls and require very simple treatment, provided we have the right kinds. The vigorous kinds, such as *Gloire de Dijon* and the whole family familiarly called *Dijon Teas*, with *Maréchal Niel*, *Climbing Devonians*, *Banksian Roses*, &c., are the varieties best suited for walls. If roses of this kind are in health and vigour they usually make abundance of growth and flower freely, but they fail to do so if neglected at the root. Those on walls need fresh rich food quite as much as those in the open border, and if they cannot be freely mulched, the surface of the soil should be just broken several times during the season and dressed with some of the concentrated prepared manures which can be watered in immediately, and their presence cannot then be detected or at any rate prove disagreeable. The value of such dressings is soon perceived in the improvement in health and vigour of the plants. With *Banksian Roses*, the treatment as regards pruning must be of an opposite character, for if we cut out all the spray and carefully train in the long strong shoots, no flowers will be had. Some advise that they be not pruned at all. It is often unnecessary as regards old-established plants which make little growth beyond slender spray-like shoots, which produce the flowers. A little pruning may be performed with advantage, but after the flowering has finished. With younger plants this practice has to be modified. Until they have covered their allotted space, the long shoots must be laid in and then during spring pruning, if vigorous shoots are present, but not wanted, they should be cut clean out. Those of the thickness of a stout straw often produce a cluster of flowers from every eye, and they may therefore be left, tying them in if desired, but where it is possible, a better effect is produced

by leaving them to hang down, and then they can be conveniently cut when in flower or pruned hard back when the flowers are faded, this encouraging the growth of similar shoots for flowering the following year.

CLEMATISES.—These are very numerous, and unless we are familiar with them, we may prune at the wrong period and mar the possibilities of bloom for a whole season. Almost all the kinds are so rampant that considerable restriction is absolutely necessary. Broadly speaking, we may divide them into two sections, early and late flowering, the early flowering kinds producing their flowers upon the long shoots of the previous year's growths; whereas late flowering kinds bloom as they grow, many of them commencing in summer when they are but a few feet high, and continuing growing and blooming till late in autumn. These are the most valuable, but there are one or two early kinds that are indispensable, such as *C. montana*, especially the variety *grandiflora*. When the general pruning is being performed it is wise to go over this, and if its extension is desired, lay in long shoots, but if it has covered its site, the shoots that have grown outwards should be disentangled. The weakest may be cut out, but a good quantity should be preserved and shortened if necessary, but allowed to hang naturally. These will become long sprays of blossoms charming alike for cutting and arranging with other flowers, or they may remain to be admired upon the plant. They may be pruned hard back when the flowering season is over. *C. patens* and *florida* with such varieties as *Miss Bateman*, *Lady Londesborough*, *Maiden's Blush*, *Albert Victor*, and others belong to the spring-flowering types, and they need thinning and training, preserving all the best ripened shoots of the previous year.

The late flowering kinds succeed best under the simplest treatment. Some species such as *C. coccinea* naturally die down to the ground, and when they spring up again, we only need to train them thinly as they grow and keep them growing. Others, such as *C. Jackmanni* and *lanuginosa* and the score or more fine varieties of each now in cultivation, do not die back, but are best cut back to as near the ground as possible, otherwise all the young and flowering shoots start in a mass at a point farthest from the base of the plant which remains naked, leafless and flowerless. The cut back treatment favours the growth of strong shoots, and these attain great length and furnish whatever they are required to cover from base to summit. The so-called *C. Jackmanni alba* can only be flowered well by cutting down annually, and after adopting this plan, I might, in justice to this much-abused kind, remark that it is very pretty in late summer and all through the autumn. The mauve suffusion sometimes developing into a distinct bar down the centre of the petals is so pronounced, that the flower cannot be called white, and the shape of the flower is different altogether from that of *C. Jackmanni*, being larger and having more petals. *C. viticella* and its varieties should be cut down, and *C. flammula* when treated so makes tremendous wreaths of bloom for half the length of its vigorous shoots. It cannot be too widely known that many of these Clematises can be cut down annually, as they come in so valuable for training upon structures or in situations where a permanent covering is impossible, or, as in some cases, is prohibited.

WISTARIAS AND VINES may be taken together, as they demand similar treatment. In the case of the *Wistaria* the long racemes of bloom are produced upon these spurs, and this may in a measure account for the satisfactory flowering of every specimen that is ever seen, because the orthodox treatment by the uninitiated would be to cut back straggling shoots, which in this case is quite correct.

HONEYSUCKLES AND JASMINUMS are favourite wall creepers, rapidly covering large spaces. Some of the early-flowering Honeysuckles, such as the early Dutch, should not be closely pruned till after flowering, as the flowers come from lateral shoots upon the strong growths of the previous year, but

the red trumpet Honeysuckle (*Lonicera sempervirens* minor), *L. flexuosa* and others should be pruned back to the old wood when once the wall is furnished. In the case of the red trumpet kind, a vigorous pruning favours strong growth, and this in turn means an abundance of blossom. Rightly treated, this is one of the loveliest Honeysuckles, and if it lacks fragrance it surpasses all other kinds in brightness of colour and continuity of bloom throughout the summer and early autumn. Among Jasmines the favourites are the old white and the winter-flowering kind. The first-named kind when newly planted is very vigorous and flowers scantily, but if suffered to expend its vigour in clothing its allotted space it settles down to blooming later on, and all that it needs is an annual cutting back to the old wood. The winter-flowering species needs little pruning, as an excess will deprive it of half its beauty. Such cutting in as it needs is best performed immediately flowering has ceased.

CHIMONANTHUS FRAGRANS AND **FORSYTHIA SUSPENS**A, though not exactly climbers, are shrubs most frequently planted against and trained upon walls, such being essential in the first case, but not absolutely so in the latter. The *Chimonanthus* is now in flower, but when it has finished, the shoots that have produced the flowers should be cut back to spurs to encourage similar growth in future. Any very strong shoots may be cut clean out, but such should have been removed last summer or autumn, as they produce no flowers. The *Forsythia* flowers in spring, and the knife should be kept from it till flowering is past. The stronger shoots may be cut hard back after the flowers have faded, but slender ones may be left a second and even a third season, as they hang gracefully, and if a yard in length will often produce flowers throughout that length.

CEANOTHUS.—Although there are a number of fine varieties of this shrub, few have been planted, but one is most deserving of a wall, and that is *Gloire de Versailles*. It should be pruned hard back to the old wood and then strong young shoots will be put forth, these branching and producing lovely plumes of delicate blue flowers.

PYRUS JAPONICA, in its many varieties, is a favourite wall shrub, and makes a pretty covering, but I always think it a pity to restrict it to a wall, as little is gained thereby in point of early blooming, and a great deal is lost, because when restricted to a wall or fence it can never develop its full beauty as exemplified by a handsome bush. It must be admitted, however, that it flowers freely under this restricted form of culture. All the pruning needed is to shorten back long straggling branches, and keep the plant well furnished with branched brshy spurs, upon which the flowers are abundantly produced.

A. H.

VARIETIES OF LAURUSTINUS.

THOUGH the genus *Viburnum* is a pretty extensive one, the only hardy evergreen species is the *Laurustinus* (*Viburnum Tinus*), of which besides the typical kind there are a few well-marked forms in our gardens. One of the most distinct varieties is that known as *lucidum*, which forms a bush of more spreading habit than the common kind, while the branches are stouter and fewer in number. In the leaves too there is a good deal of difference, those of *lucidum* being larger, very much rounder, and thicker in texture, while the flowers are whiter than those of the common *Laurustinus*, and in fact under glass they are quite pure in tint. This is the variety usually employed for flowering in the greenhouse or conservatory during the winter months, and for cutting it is very useful, as the blooms last a good while, and the very dark green leaves serve as an admirable setting to them. This variety derives its name from the leaves being more shining than in the case of the others. As a shrub for the open ground it is not so valuable as the common *Laurustinus*, for the blossoms are more liable to injury by frosts, while the shrub itself is less hardy. Another well-marked variety is *hirtum*, readily distinguished by the hairiness not only of the leaves, but also of the younger shoots. A com-

pact growing form with rather more pointed leaves is *pyramidale*, while in the case of *purpureum* the foliage is tinged with red, but nothing to the same extent as some purple-leaved trees and shrubs. There is a variegated form not only of the common kind, but also of the variety *lucidum*, but this last especially seldom retains its variegation in a constant manner, while the other being more tender than the type frequently suffers during the winter.

Though the *Laurustinus* blooms naturally throughout the winter and spring months, the blossoms are frequently injured by frosts, and on that account the floral display is in some winters much less than would be the case if the plants were a little protected. Where large structures from which at times frost can only be just excluded are required to be kept as gay as possible during the winter months, the *Laurustinus* is just the thing for such a purpose, as it is naturally a free rooting subject, so that good-sized bushes studded with flower-buds can be lifted in the autumn and potted without sustaining any check, and consequently the flowers will open as well as if they have not been disturbed. When needed for flowering in a small state under glass the plants must be grown on with that intention, that is to say, after they are struck, and when planted out in a nursery bed or some such a spot, the young plants should be placed at a sufficient distance apart to prevent them running up thin, while they must be occasionally stopped in order to encourage a bushy habit of growth. Though these small plants will flower, it is, however, as good-sized bushes that the *Laurustinus* is most useful for blooming indoors during winter.—T.

— Though grown by the tens of thousands for blooming under glass during the early winter months, yet for wholly outdoor embellishment of our gardens and pleasure grounds the *Laurustinus* hardly gets the attention it deserves. Even in situations where frosts of considerable severity are experienced, sheltered positions on warm soils (even if the latter have to be artificially made up) could be selected for it. In such it would take more frost to kill it than often occurs, and handsomely would it pay for the little extra care bestowed—bushes clustered over with their chaste flower-heads in early spring, if not throughout the winter, being beautiful objects, and also useful for augmenting the supply of cut blooms for both house and church decoration. It has often been gratifying to me to go to a large bush or clump of *Laurustinus* in full bloom and cut a basketful when white or light-coloured flowers are scarce both under glass and out of doors. In more favoured districts the *Laurustinus* may be planted anywhere and everywhere as regards position with a certainty of a prolonged and plentiful bloom all through the winter and well on to late spring. The *Laurustinus* is eminently suitable in such spots for forming ornamental hedges, always attractive, and requiring but little labour to keep in order, whilst for single specimens or large clumps it is equally well adapted. The foregoing remarks apply mainly to the ordinary *Laurustinus* (*Viburnum Tinus*), but an excellent variety also for general planting as well as for forcing is *V. lucidum*. It is larger in all its parts, has bold, glossy, dark green foliage, and immense white flower-heads; later in coming into flower, and owing to the greater heat prevailing during its flowering season, it does not bloom over such a prolonged period. It forms an admirable succession to the common variety, and is, taken altogether, a most desirable kind. As is well known, these plants do not require a very elaborate or special preparation or admixture of soils to grow in, but they thrive best, bloom more freely, and are not so susceptible to the effects of frost on rather light, warm soil fairly enriched. Their propagation is also of the simplest. In warm positions where very severe frosts do not prevail, cuttings made of the ripened shoots in September and October and inserted firmly and rather deeply in sandy soil in the open will answer well, while in colder districts the protection of a cold frame or similar shelter is all they require.—J. R.

— This has the merit of being an evergreen as well as a flowering shrub, but its value is by many discounted upon a supposition of tenderness, its liability to injury during extra severe weather being only on a par with that of many other shrubs that are much more highly esteemed than this. Though less showy in blossom than the summer-flowering members of the family to which it belongs, it is one of the most continuous blooming shrubs that can be grown in gardens. The first flowers appear in October, and they keep coming until nearly or quite the end of April. During such a severe prolonged frost as that of 1890-91, the bloom was entirely destroyed; but in a more average winter—such as the present—a short, sharp frost merely causes a little break, and with the advent of milder weather, the bushes are again soon white with their flat corymbs of flowers. The *Laurustinus* is pre-eminently a shrub for light soils, and in such it rarely suffers the slightest injury. Those who have much planting to do in gardens with a shallow soil resting upon chalk have good cause to value this shrub, for even the common *Laurel* fails here, and that perhaps is something to be thankful for, as there are few gardens without *Laurels*. Upon many a slope or bank that has been planted with *Laurels*, the *Laurustinus* would have done equally as well and not have needed the attention to keep it down. Where ornamental hedges or dividing lines are required, it answers the purpose admirably, as its style of growth meets the requirements. It grows bushy and spreads proportionately, but does not become a thicket or ramble irregularly, therefore needs little cutting or restriction, which might make it formal.—A. H.

Griselinia littoralis.—I have not seen this shrub in bloom, so am unable to say if its beauty is at all enhanced when it is. I question if it is. As a plant for beauty of foliage it is unique, being distinct in the peculiar colour and shape of its abundant leafage. Unfortunately, it is only suitable for outdoor planting near the seashore and the milder parts of the country. In such it is undoubtedly quite hardy, for it passed through the last extraordinary severe winter—1890-91—totally unimpaired. No place in suitable districts should be without this valuable shrub.—J. R.

Cotoneaster Simonsi.—I was looking about three years ago for a suitable plant to associate with common *Laurels* to form a hedge between two villa gardens, when it occurred to me that *Cotoneaster Simonsi* might prove attractive during the winter months when the plant is generally well studded with its bright orange-red berries. I am very pleased with the result, for during the last two winters the plants have been well furnished with berries, which give a bright and cheerful appearance to the garden. As a matter of fact these plants furnish the only bit of colour, and as the branches mingle with those of the *Evergreens* with which they are associated, the contrast is greater than would be the case if they occupied the position alone. It is unfortunate that all the subjects that make up the dividing line have to be cut back occasionally to keep them within bounds, or the effect of the numerous berries would be still greater. The *Cotoneaster* is, however, giving so much satisfaction that it is in a great measure allowed to fill up the greater part of the space. A single plant or two will not be very effective, but if the number is increased to eight or ten in a moderate space, the result will be that in a few years they will make quite a pleasing feature.—J. C. C.

Variegated Euonymus radicans.—This little variegated *Euonymus* is just at home when trained to a wall, which it will clothe densely with its neat variegated foliage, bright and cheerful at all seasons. In good soil it will mount upward at a much quicker rate than would be expected from its behaviour as a dwarf shrub, for if a few of the principal shoots are secured in position they will not only grow away freely, but attach themselves to the wall after the manner of Ivy, while secondary branches are pushed out in considerable numbers, thus forming in time a dense mass. When a plant is allowed to grow undisturbed in

this manner, a few of the strongest shoots will occasionally thicken towards the top and produce larger leaves than one generally associates with *Euonymus radicans*. Besides its use as a covering for walls, this shrub also makes a first-rate edging, and one that can be split up almost like Box. Of course it is not so suitable for hard geometrical figures as our own native shrub, for the *Euonymus* has a looser habit of growth. It will also thrive under the shade of trees better than many low-growing shrubs. For window boxes, balconies, and such places this *Euonymus* is also very useful, while it is a good shrub for furnishing beds during the winter. I once saw it employed as a broad edging to a flower border, and when first planted, some bulbs of *Scilla sibirica* were dibbled in among the *Euonymus*, and every spring the deep blue blossoms pushing up through the variegated foliage of the shrub formed a very pretty picture. As wall plants, too, the different forms of *Euonymus japonicus* are seen to advantage, and in this way they are largely grown along the south coast, especially in the neighbourhood of Brighton. The variegated kinds there assume a depth of colouring rarely seen elsewhere, and this peculiarity is by no means confined to the *Euonymus*, as the golden *Arbutus*, *Retinosporas*, and others of this class are also very richly tinted.—T.

AMPELOVITIS ROMANETI.

ALTHOUGH the fruit and the general characteristics of this species entitle it to be classed amongst Vines of the "vinifera" group, its appearance and habit of growth are rather suggestive of the "Cissus" group of wild Vines, between which and the former group it appears to constitute the connecting link. It is a very vigorous-growing Vine, with large, dark green leaves (sometimes 8 inches to 12 inches, or more, in diameter) and bears small bunches of very black, highly-bloomed Grapes. The bunches have somewhat of the appearance of those of the fragrant wild Vine of North America (*Vitis riparia*), and the Grapes, which are about half an inch in diameter, are pulpy and sugary, with a very peculiar flavour which is rather pleasant to the taste. Both the pulp and the juice (which is abundant) are of a light pink colour. The fruit ripens early in October and hangs for a long time on the Vine in good condition.

This species, which will probably be taken in hand by Grape growers for wine-making, has the same peculiarity which we have already noticed in another species of the same genus (*Ampelovitis Davidi*), namely, that of flowering very early in spring (about a month before the common Vines), the Grapes also remaining green for a long time after they have attained a large size. When they are fully ripe, they continue to hang on the Vine for a very long time without deteriorating in any respect—a great advantage in vineyard-grown Grapes. The details of its culture in vineyards are yet to be learned, as experience alone can show whether it can be most profitably employed as a direct fruit-bearer or as a stock for grafting other kinds; also whether it is proof against *Phylloxera*, mildew, and other maladies from which our Vines have suffered so much. On one point, however, we can speak with certainty, viz., that as an ornamental plant, highly adapted for covering and embellishing pergolas, arbours, bowers, and summer-houses, there are few subjects so suitable as *Ampelovitis Romaneti*, so that this new introduction seems destined to take an important place alike in the horticultural, agricultural, and manufacturing branches of industry.—*Revue Horticole*.

Abies Tsuga.—By those who regard the different Hemlock Firs as sufficiently distinct from the other forms of *Abies* in our gardens as to justify their inclusion in a separate genus, the above is known as *Tsuga Sieboldi*; but in the "Manual of the Coniferae" the term *Tsuga* is applied only to a section of the genus *Abies*. Though there are not many distinct species belonging to this group, they are of wide geographical distribution, for the above-mentioned is a native of the mountainous

parts of Japan, while *A. Brunoniana* inhabits the Himalayan region, and the rest are North American, the best known being *A. canadensis*, often called the Hemlock Fir, and *A. Albertiana* or *Mertensiana*, for both the names are in turns applied to the one species. *A. Tsuga* is of a broadly pyramidal style of growth, with, in many cases, secondary stems springing from near the base of the specimens. The branches, which are numerous, droop towards the points, and are altogether disposed in a very graceful manner, while the Yew-like leaves are deep green above and somewhat glaucous beneath. It is seen at its best when planted as a lawn tree, or at all events where sufficient space is allowed for the gracefully disposed branches to form a regular specimen. This Fir is perfectly hardy, and, as a rule, not so particular in its requirements as some of the members of the genus. There is of it quite a dwarf variety, which, to the lover of miniature Coniferae, has much to commend it. The other Old World species is the Himalayan *A. Brunoniana*, which forms a beautiful specimen where it is not injured by spring frosts, but in most parts of this country it suffers so much in this respect as to often wear a stunted and unhappy appearance. It is of a bluntly conical style of growth. The leaves are longer than those of any other Hemlock Firs, and are especially remarkable from their intense silvery undersides. *Abies Tsuga*, which was introduced as long ago as 1853, was awarded a first-class certificate by the Royal Horticultural Society, August 12, 1890.—T.

Diplopappus chrysophyllus.—This elegant plant, backed by a grey Lichen-covered rock and gracefully overhanging a lower part of the same, is unique as a piece of delicate soft golden colour in winter, its growth somewhat resembling that of a huge golden Heather. I am aware as spring advances into summer that the colour of its shoots and minute foliage is intensified, and that also it blooms profusely. Owing partly, I suppose, to the general dulness of the winter season and also partly to a rooted prejudice I have to intensely bright garish yellow dots in the—especially summer—landscape as not harmonising with sylvan beauty and simplicity, I never can see such beauty in this plant as during the winter months while wearing its dullest garb. It is hardy, and will grow freely in any soil that is not too heavy, and it is worthy of a corner in more places than is now the case.—T. Y. B.

Eucalyptus globulus.—I have had a dead *Eucalyptus globulus* tree cut down to-day which was raised just eleven years ago, and planted out the May following. Its diameter at the butt end—taken inside of the thick bark—was 13½ inches, and at 10 feet 9 inches. It was upwards of 50 feet high, tapering gradually its entire length. Last year it did not add any to its girth, for it was so crippled by the severity of the weather during the winter of 1890-91, that only tufts of shoots sprouted from the trunk, which proved too soft and tender to withstand the rigour of the past fortnight. Several more fine specimens I fear will meet with the same fate. It will be interesting to know if any of the above variety have been cut in the United Kingdom exceeding these dimensions.—J. R., *North Wales*.

The common Dogwood.—I have frequently admired the great beauty in winter of the common Dogwood at the foot of the embankment of a lake, amongst which is an occasional *Rhododendron ponticum*, a rank shoot here and there overtopping and forming a fine contrast to the bright shoots of the Dogwood. Rising out and above these are a few Birch and cut-leaved Alders, the silvery stems of the former and fine twigs of both—so distinct in form and growth from the groundwork—attracting attention. Flanking these on one side, on slightly elevated ground, are some Conifers, &c., *Pinus excelsa* being conspicuous amongst them on account of the lively green of both shoots and leaves, while immediately behind is a quaint lodge. At the other end rises abruptly a massive rocky prominence, heather-clad, on which grows a large clump of fine Scotch Firs—so noble in their old age. The slope of the embankment is planted

chiefly with *Rhododendron ponticum*. Add to this the overflow from the lake tumbling, splashing, and foaming over a rocky precipice, and you have, I think, a picture anyone might admire. It never impressed me more than it has done to-day, the wan February sunshine burnishing, as it were, the bright red shoots of the Dogwood, which seemed reflected even in the *Rhododendron* leaves. I may add that in the summer this Dogwood spot is nearly overrun with *Polygonum Sieboldi*—a splendid plant for such situations—thus giving it a different, though charming, effect at that season.—J. R.

ILEX CRENATA.

FROSTS or fogs have no effect upon this tiny Japanese Holly, which in its various forms is one of the neatest little evergreen shrubs we possess. Its merits are especially noticeable at this season, more particularly after a severe winter, as the browned and seared condition of many of our evergreen shrubs renders this by contrast especially bright and cheerful. The typical *Ilex crenata* is a dense, twiggy, evergreen bush, whose branchlets are disposed in a horizontal manner or nearly so. They are thickly clothed with dark green leaves, narrowish ovate in shape, and about 1 inch in length. Of this there are two well-marked forms—*variegata*, in which the foliage is irregularly marked with bright golden yellow, in some instances to such an extent that the entire leaf is almost of that hue. The second variety, *Fortunei*, or major, is a little taller and less spreading than the type, while the leaves are much rounder. This Holly and its forms may be employed in various ways, among others as a rockwork shrub or for grouping with some of the larger kinds, while its thorough hardiness stands it in good stead where used for furnishing boxes for balconies or such like positions. For small gardens it possesses the merit of not outgrowing the space allotted to it, but this slow rate of progress is probably the reason that we do not see it very often in gardens or nurseries, for though readily propagated, it takes some time to attain a saleable size. While a great many of the Hollies do not strike root easily from cuttings, this little species can be readily propagated in this manner. It really matters little at what season of the year these cuttings are taken, but a very good time is towards the end of the summer or early in the autumn, while the sun has yet sufficient power to encourage the formation of roots. If the cuttings are formed of the current season's shoots, they will strike root in less time than if the more mature wood is taken. A good plan is to take some pots 5 inches in diameter, half fill them with broken crocks, then make up the remaining space with sandy soil pressed moderately firm. When the pots are filled with cuttings, which, by the way, must not be overcrowded, a thorough watering should be given them, when they may be removed to a frame and kept close till rooted. By the spring they will be ready for potting off, as from their small size they succeed better treated in this way than when planted out direct from the cutting pots. T.

SHORT NOTES.—TREES AND SHRUBS.

Eugenia Luma (*J. Wetherill*).—This has been sent me from Devon, but the leaves only, so that I cannot say for certain if it is correctly named. When it blooms, which it does in the summer months, it produces a profusion of pure white flowers, larger than those of the common Myrtle. It is one of Lobb's plants from the island of Chiloe, and is worthy of more extended cultivation as a flowering shrub.—W. H. G.

Hamamelis arborea.—Despite 17° of frost, the flowers of this Witch Hazel were but little injured, and the unopened buds quickly expanded within a few days, so that in some cases the plants were soon as bright as ever. This remark applies more particularly to the backward ones, as those that commenced blooming early in the year would, as a matter of course, have very few buds yet to open by the middle of February. The free-blooming qualities of this shrub and its great beauty

when in flower, combined with other desirable features, should cause it to be more generally planted. While an open loam seems to just meet its requirements, this Witch Hazel is not by any means a rapid grower. T.

Olearia Haasti.—Although not showy, this, nevertheless, a dwarf shrub of great value for summer flowering, for although the individual blooms are very small, yet they are produced in such abundance in pretty umbel-like flower-heads, as to completely hide the small Box-like leaves, forming a neat mass of delicate light colour, and this at a season when flowering shrubs are few. It also continues in bloom over a long period. It is suitable for planting either singly or in clumps, the latter, of course, being most telling, especially at a distance. It is not a rank grower and is perfectly hardy.—J. R.

Andromeda axillaris.—This little spreading plant vies with the Partridge-berry (*Gaultheria procumbens*) in its beauty in regard to the variety of colouring of its leaves during the winter season—a pretty picture in green and red of various shades, not in regular lines or precise bands, but quaintly splashed over the whole surface in exquisite simplicity. I was pleased to note in THE GARDEN recently the excellent use made of the *Gaultheria* at Kew. The plant under notice will also prove equally useful for similar purposes, and would form a pleasing variety in the winter arrangements.—J. R.

ORCHIDS.

ORCHIDS IN FLOWER AT CHELSEA.

AT MESSRS. VEITCH AND SONS'.

On a recent visit to this establishment I noted in the Cattleya house many fine specimen *Lælia purpurata* and others, and hundreds of *Cattleya Mendeli*, *Mossii*, &c. What interested me most, however, was the wealth of colour produced by the numerous *Cattleya Trianae* flowers. On the day of my visit there were upwards of 500 flowers open and in bud. With these there were also some *C. Percivaliana* of good form and colour, and in hanging baskets many *Dendrobium Findlayanum*, one of the most handsome of the genus. In another house were many large and well-flowered *Cœlogyne cristata*, including the pure white variety *hololeuca* and the delicately tinged form *Lemoniana*. These were relieved by numerous flowers of *Lycaste Skinneri* in different varieties and *Ansellia africana* again coming into favour, its fine flowers with the white of the *Cœlogyne*s being very effective. *Dendrobium Wardianum*, too, was blooming beautifully. Amongst the varieties in flower here were fine forms of *Lycaste Skinneri* alba in several examples, *Lycaste lasioglossa*, which was imported from Guatemala by the Messrs. Veitch, and flowered for the first time about twenty years ago. It is a very pretty and distinct flower with somewhat cinnamon-coloured sepals, the petals being rich golden yellow, the lip of the same colour and thickly set with long hairs, and from which it obtains the name. Amongst the *Calanthes* which still maintain their beauty were numerous examples of *C. Stevensi*, *Acineta Humboldti*, *Pleione humilis*, *Cymbidium eburneum*, and *Cypripedium Sedeni candidulum* were in full flower. This last, I was told, withstood the ravages of the fog better than any other. In another house were fine specimens of *Dendrochilum glumaceum*, *Dendrobium splendissimum* and its variety *grandiflorum*, *D. crassinode*, *D. Schroederianum*, *D. Dominianum*, and *D. leucopterum*, a very pretty species, introduced by the Messrs. Veitch. *Phalænopsis Schilleriana* was flowering in abundance, together with the pure white variety, saving the little colour in the lip, of

Aphrodite. The fine old *Oncidium ampliatus* and its variety *major* were just opening their flowers. These, although introduced half a century, still maintain their high reputation. They require a warm house to grow them. Those who attempt to grow them cool, I think, make a mistake. I always succeeded best with them when I kept them in the East Indian house. *Angræcum citratum* is just coming into flower in abundance, and the beautiful, but diminutive *A. hyaloides* is now fast going past its best. *A. fastuosum* is just appearing, and the specimens of *A. sesquipedale*, although most of the flowers have succumbed to the fog, will yet be very fine, but nothing to what they would have been had they not suffered by the fell destroyer. *Saccolabium giganteum* and the ever beautiful and welcome *S. bellinum* were also in fine form. Turning to the *Cypripedium*s, which are always in strong force at Chelsea, I can only notice a few of the best, amongst which is *C. leucorrhodum*, a superb hybrid. *C. cardinale* is very bright and showy. *C. Lathamianum* is also a very bright flower, and it appears to be a free bloomer. *C. macropterum* is also in flower here; this is a Veitchian hybrid not very often seen, and I think not much known; it is a cross between *C. Lowi* and *C. superbiens*. *C. Leeianum* is always beautiful; so also are *C. Harrisonianum* superbum and *C. Godseffianum*. Amongst other species may be noted some excellent forms of *C. Boxalli*, *C. vernixium*, *C. Ashburtoniæ*, *C. calurum*, *C. Thetis*, *C. Druryi*, *C. politum*, *C. villosum*, *C. Williamsi*, and *C. Germinyanum*. The *Odontoglossum* house was gay with fine spikes of *O. Edwardi*, which does not appear to gain so much favour as it really deserves. *O. hastilabium* will soon also make a fine show, as several plants are sending up enormous spikes; this plant is usually considered to want a little more warmth than the majority of the species. *O. crispum* in variety, the sweet-scented *O. pulchellum*, *O. Andersoni* in many varieties, *O. Inseayi leopardinum*, the beautiful *O. cirrhosum* in many forms, and some late *O. Rossi majus* were well set off by trusses of the bright-flowered *Ada aurantiaca*.

AT MR. BULL'S.

Here, too, is a fine display of many forms of *Lycaste Skinneri*, including several of the pure white forms. *Oncidium splendidum* was conspicuous for its large bright yellow flowers and its numerous spikes; *Lælia anceps Stella* and several forms of *L. albida* were also very fine. *L. flava* with its rich and distinct flowers and *L. harpophylla* in quantity were very showy and effective. Amongst *Odontoglossum*s there were many kinds in great beauty, such as *O. Pescatorei*, *O. Edwardi*, *O. maculatum*, *O. hieroglyphicum* and *O. crispum* in many fine varieties. Between 300 and 400 spikes of bloom are now showing. A very fine display is also made with a lot of the beautiful sweet-scented *Pilumnus nobilis* with its pure white flowers stained in the lip with orange. Associated with these were *Miltonia cuneata*, the remains of the *Masdevallia towarensis* and the bright flowers of *Sophranitis grandiflora*. In another house *Dendrobiums* were well represented. Amongst these may be mentioned *D. Ainsworthi* roseum, also many fine varieties of *D. Findlayanum*, the pretty *D. endocharis*, *D. Leechianum*, the superb *D. McArthurii* from Ceylon, and the very fine form of *D. nobile nobilius*, which has not been surpassed by any other form. Here are also *Calanthe nivalis* and a form called *C. Regnierii amethystina*, remarkable for its bright lip. *Phajus Wallichii*, the pure white *Saccolabium Harrisoni*, and the charming

S. bellinum were also in flower. *Cœlogyne speciosa major* has a large flower and a nice broad margin of pure white. *Ania latifolia* is another rarity, but of no commercial interest, having small flowers with twisted sepals and petals, reminding one a good deal of some of the small-flowered Australian *Dendrobies*. *Phalænopsis Stuartiana* is also blooming freely together with *P. Schilleriana*; *Cœlogyne cristata* in different forms was also in bloom. *Cymbidium Lowianum* was also throwing up its flowers. It is curious that in this establishment this species is blooming so finely, and in the Messrs. Veitch's, which is within 100 yards of it, Mr. Canham told me nearly every spike had been cut off by the fog. Among the *Cattleya Trianae* I noticed a very fine form named *flammea*, with broad sepals and petals of a rosy-lilac, the lip large, the whole of the front lobe being deep rich crimson, and the throat rich orange; another fine form was called *splendens*, and so on through various shades and grades until we get to delicate, virginalis, and the true pure alba, which is of the purest white throughout. Very fine varieties of *Cypripedium Argus*, *C. Io*, and *C. Lathamianum* were also in bloom. In another house *Oncidium macranthum*, *Oncidium serratum*, and a fine *O. tigrinum*, which Mr. Bull calls *tenebrosus*, with a very bright golden yellow lip, the sepals and petals having transverse stripes of a dark blackish-brown, were also flowering.

WM. HUGH GOWER.

SHORT NOTES ORCHIDS.

***Cypripedium villosum aureum* (Thos. Charles).**—A very good variety of this plant. The whole flower is suffused with golden-yellow, the dorsal sepal margined with white. I have seen varieties called *aureum* which had no real claim to the name. W. G.

***Saccolabium cœleste*.**—“J. T.” says his plants of this have lost a lot of leaves, and they all have a yellowish hue. This plant, I find from experience, does not thrive if submitted to the low temperature usually prescribed by me for the East Indian house. I find it likes at least 5° more heat; it also likes to be well exposed to the light. —W. H. G.

***Odontoglossum aspersum* J. Brown,** gardener to Mr. R. B. White, Addenroch, sends me a spike of this plant bearing five flowers. It is the brightest and best variety of this plant I have ever seen. The sepals are wholly rich elastum with lighter cross bars, and the petals are deep primrose with one or two spots of chestnut at the base, whilst the lip is pure white. I have never before seen such a charming flower. —W. H. G.

***Phalænopsis rosea aurantiaca* (J. Jessop).**—The three forms sent of *Phalænopsis rosea* are very beautiful, but have little to distinguish them from the typical *rosea*. No. 2 is like a form I once saw in Mr. Robert Warner's collection at Broomfield Lodge, Chelmsford, named *aurantiaca*. The flower is large, measuring some 2 inches across; sepals and petals waxy-white, suffused with rose; the front lobe of the lip dark rose, the side lobes and remaining part of the lip being of a beautiful rich orange. The plant is well deserving attention, as the rich orange colour lends such a brilliancy to the flower. —W. G.

***Vanda lamellata Boxalli* (M. W. D.).**—This is the name of your flower. It is a very nice variety, the sepals and petals being creamy-yellow, the lateral ones broader, also pale yellow on the upper half, but below of a reddish brown colour; lip rosy purple at the tip, below white, spotted with rosy-purple. It is a great pity that amateurs and gardeners so neglect this genus, and also many others of the distichous-leaved Orchids. I should have thought that the introduction of the two species from Upper Burmah by the Messrs. Low and Co. would have quite dispelled the foolish notion of these being hot Orchids. *V. Kimballiana* is one of the most delightful Orchids we have, whilst its companion, *V. Amesiana*, I

saw flowering in a very low temperature last autumn. The variety of *lamellata* named above I last winter saw flowering in a temperature of about 60°; here the plant had been standing for months.—W. H. G.

KITCHEN GARDEN.

CAULIFLOWERS.

Nor a little of the ultimate success attending the culture of Cauliflowers depends upon the selection of varieties. Some succeed much better than others in a dry, hot season, and it is these that should be largely sown every season, with a view to being prepared for any emergency. Undoubtedly, Snowball, better known as the Extra Early Forcing of several seed firms, is the best early form; it is quite a little gem, in fact, being not only good for culture in pits, frames, rough or otherwise, hand-lights, as well as at the foot of warm walls and warm borders, but I have seen it in fine condition from the open ground and fields, and

plan, satisfactory as it proves, need not be resorted to, quite as good results attending sowing Eclipse under glass in February or not later than the first week or so in March. Eclipse might be briefly described as an early form of Autumn Giant or Large Italian, as it resembles it rather closely in every respect, with this marked difference, that it hearts in fully ten days earlier. It is therefore valuable for affording a good natural succession without much extra trouble being expended on its culture. For the later supplies nothing better than the best stock of Autumn Giant can be recommended. It would really appear that we are indebted to Continental raisers for our favourite varieties of Cauliflowers; at any rate, this is my belief. I have grown the whole of them at different times under very different names than they are known by in this country, the seed being obtained direct from Messrs. Vilmorin, of Paris. If this surmise be incorrect, let those who have raised either of those I have named prove that I am wrong.

A considerable amount of labour and trouble must be expended upon the production of early

placed in heat, the seed germinates quickly, and before the seedlings become badly drawn they are transferred to shelves, though still in gentle heat. When well into rough leaf they are potted off, some singly and some in pairs, into 3-inch or slightly larger pots, taking care to dibble in the plants well clear of the sides of the pots, as they are thus less likely to be injured when turned out. Kept on shelves or (not far from the glass) in a fairly warm pit or frame, they soon become well established, and before they are badly root-bound all are slightly hardened off prior to being finally planted out. Some have the benefit of hand-light protection, these giving the earliest and really most appreciated hearts, while the rest, as a rule, are planted in sheltered positions. The exception is in favour of growing a few dozen in pits, this being necessary only when the latest Broccoli has been destroyed by frosts.

In any case, or whether the earliest batches are raised in the autumn or spring, it is advisable not to be late in raising a good stock of plants of the best summer varieties, including Eclipse and a few score of Autumn Giant. Slight hotbeds and shallow frames are of the greatest service in raising large quantities of plants, but boxes or pans may be used instead, the seed in any case being sown early in March and the plants duly pricked out on a sheltered border and in soil from which they can readily be transplanted. Then if more seed of Autumn Giant is sown in the open during the first fortnight in April, all the plants necessary for keeping up the supply of hearts till the earliest Broccoli is ready to cut will have been raised. Those with but few conveniences may yet be able to raise all the plants required with the aid of pans or boxes placed on greenhouse shelves or in frames, and more seed should be sown of one or two successional varieties on a sheltered border late in March or early in April.

Cauliflowers will not thrive in manure-sick ground. What they seem to require is rather fresh and well-sweetened ground, into which fairly strong manure has been freely dug during the winter. Naturally, they will stand drought better if put out on trenched ground, but the surface of this must not be poor, or premature hearting, usually termed "buttoning," will take place. Where the soil is naturally hot and poor and manure none too plentiful, this may well be concentrated in trenches, the latter being only about three-parts filled in, so as to leave a basin or trough about the plants to facilitate watering. This precaution is particularly needed where the gardens slope considerably. In no case should the plants be left to overgrow each other in the seed beds or where pricked out, nor ought they to be long kept in shallow boxes in which some of the earliest may be pricked out or in a root-bound state in small pots. From seed beds the plants may be drawn and replanted with a dibble, but after they have been once pricked out they must be transplanted with trowels, preserving a good ball and moist soil about the roots. The small Early Forcing may be put out 18 inches apart in rows 2 feet asunder, and the Magnum Bonum 2 feet apart each way, this also being enough space for all but Eclipse and Autumn Giant. For ordinary purposes these latter can be had quite good enough by planting them 30 inches apart each way, another 6 inches being allowed between the rows if exhibition hearts are desired. Cauliflowers ought never to suffer for want of water at the roots, and in a dry season it pays better, labour and water being scarce, to concentrate all that can be spared on a few dozen plants. Directly the hearts give signs of



Cauliflower Giant Naples (syn., Veitch's Autumn Giant).

also shown well in July. Either Early London or Dwarf Erfurt Mammoth forms a good natural succession, even supposing these are raised in the autumn and Snowball in heat early in the year, but I do not recommend either of the two former for sowing in the open. They cannot be depended on in hot weather, being in this respect greatly inferior to the old Walcheren, always provided the true stock of the latter is supplied. Magnum Bonum I have formed a high opinion of, this doing well in close succession to Snowball, and also during the early part of the summer, no matter how hot and dry the season may be. It is of dwarf, compact growth, and produces a fairly large close heart. Pearl is another useful successional variety, and may be substituted for Magnum Bonum by those who cannot procure the latter. Not unfrequently Cauliflowers are very scarce early in August, and exhibitors were the first to get over this difficulty by raising a batch of the Autumn Giant in the autumn, wintering the plants under glass and duly transferring to a well-manured, open spot. In this manner extra fine hearts are obtained, some being selected for exhibition and the rest consumed on the place. Now this

Cauliflowers especially, though not necessarily quite so much as before the introduction of extra good late Broccoli and the small early Cauliflowers already alluded to, an early-raised batch of the latter obviating the necessity for wintering a quantity of plants of second early varieties in frames. With many, however, the practice still prevails of sowing seed on sheltered borders from the middle to the end of August, according to the climate of the respective localities, the bulk of the plants being duly pricked out in either cold frames or handlights, or else potted up and kept perfectly cool, or only protected during the winter. A simpler plan of preparing a good number of plants consists in sowing the seed in shallow frames on raised beds about the middle of September, the plants being duly thinned out if at all crowded, kept free of weeds and lightly protected during the winter. Of late years I have discarded autumn sowing in favour of raising batches of plants early in the year. Seed of Early Forcing, and either Dwarf Erfurt, Mammoth or Magnum Bonum—the last not being obtainable from my seedsmen—is sown about the middle of January and thinly in pans. Being

forming, liquid manure should be used very freely, strong plants to produce extra fine hearts requiring as much as 3 gallons at one time, the dose being repeated every three or four days during hot weather. To have perfectly clean, well-blanching hearts with good solid "curds," a close look-out must be kept for caterpillars, the blanching being effected by tying the outer leaves together, so as to exclude light from the hearts. A good dish of large Cauliflowers has great weight in a collection of vegetables, especially during a hot season, but it is the small, close, and clean hearts that are the best for the dining-table, these being cooked and served whole.

GROWER AND EXHIBITOR.

FRENCH BEANS IN FRAMES.

OF late years considerable attention has been given to this vegetable, and to some extent improvement has taken place as regards size and freedom of bearing. For early forcing the larger varieties, such as Canadian Wonder, Long Sword and others, are not so suitable, as they take a longer time to come to maturity and require more space than can often be given them. For later work or for the last supply indoors they are most serviceable. Attempts have been made to get dwarf Beans with the tall runner pods and the tall Beans *vice versa*, but, so far as I have grown them, there is no gain, as the dwarf Beans, owing to their habit, are unable to support heavy pods, are also later in bearing, whilst the runners are to some extent deteriorated by their bearing smaller pods with less flavour. A dwarf runner, from 3 feet to 4 feet high, with pods of the old Scarlet type, would certainly find favour in small gardens and must be much earlier. These no doubt will be forthcoming. I saw an excellent addition to our dwarf Beans named Smythe's Hybrid. It was grown last season in the Royal Horticultural Society's Gardens, Chiswick, and I think it will be valuable for late spring forcing, for summer work, and for sowing for last cropping in the open, and protecting at night for late autumn supplies. It is a cross between Ne Plus Ultra and Canadian Wonder, bearing medium-sized pods, the flavour excellent. It is of compact growth, having the habit, earliness, and free-bearing qualities of the first-named, with the size of Canadian Wonder and partaking of the earliness of the first-named. For early forcing Ne Plus Ultra is one of the best dwarf Beans introduced of late years and the most prolific. For general forcing it is unequalled and excellent for outdoor work. For house or frame work the Canadian Wonder—when grown to produce supplies through May and later—is excellent in every way. I have grown French Beans in frames and secured three crops by giving them a rich top-dressing, pinching back after bearing and getting new growth, keeping warmer, with plenty of moisture till the bloom appears. To get a second crop, it is important to keep the haulm clean and free of red spider; the Beans must be planted out and plenty of room between the rows allowed. The Beans should be stopped when a nice growth has been secured, as it is not necessary to allow them to go their full length; besides, when not topped they are much longer in coming into bloom. A second or even a third crop may be readily secured if the plants be well fed and attention paid to moisture and stopping. Some may object to the second cropping, preferring a heavy set and to get new beds coming in, but often in May every inch of room is so occupied with other crops, that space cannot be spared.

If grown for market, Beans are often difficult to get in quantity, and command a good price at that season of the year. Canadian Wonder is the best Bean for market work, as size is everything. For quick forcing or to get the produce in a given time, Ne Plus Ultra is one of the best, and for frame work specially suitable on account of its dwarf compact habit. There are others, such as Syon House, Sir J. Paxton, the Dun section, &c.,

equally good. To get a good supply of this useful vegetable it is necessary to make provision early in March, and those who have the necessary convenience of hot-water pipes may plant or sow the seed in their permanent quarters in a good firm compost. If manure is used as the heating material a good depth of soil is necessary, as if the roots get down to the manure the top-growth is too rank at the loss of time and crop. I prefer to use good-sized pots or even boxes plunged when manure is the heating material, but in some instances the house or frame is often occupied with other crops at this season, so that to save time the Beans may be sown in $\frac{1}{2}$ -inch pots and placed close together, finally planting out when the place is ready. Thick sowing should be avoided and moisture sparingly given till the top growth is well advanced. In frames without heat, seed should be sown about the middle of March in $\frac{1}{2}$ -inch pots, and placed in a temperature of 55° to 60° till it has germinated, air being freely given on mild days. A frame should be filled with good loam, mixed with some mortar rubble and wood ashes if the loam is heavy. The soil should be from 18 inches to 2 feet from the frame. The glass should be covered at night with mats, topping as advised earlier, and giving liquid manure when the first flower has set. I have found Beans grown in this way without bottom-heat to possess as good flavour as those in the open, as when the weather is suitable more air and moisture can be given. The supply is not over so quickly as where grown with bottom-heat, and insect pests are less troublesome. This system is admirably adapted for the last supply before those in the open come in.

G. WYTHES.

Onions keeping badly.—Recently when calling on a neighbour, I asked him how his Onions were keeping. He remarked he never saw them keep so badly before, although he had stored them one layer thick on open shelves in a dry, airy, frost-proof loft. Those under notice were large bulbs from several improved stocks. Of some kinds there was scarcely a sound bulb, and this early in February. These had been grown under high cultivation and very thinly on the ground to get them to a large size. In my own case I rely on old-standing sorts. Sow them somewhat early on good cultivated land and allow them to grow thickly in the rows. I keep them on shelves, as above described. I find these medium-sized bulbs keep by far the best. A friend sent me a couple of bushels of a large so-called improved kind to try, but they are not in the running in the matter of keeping. For supplying a family, medium-sized bulbs are by far the most useful. In these days when size is taken so much notice of on the exhibition table, it may be worth asking growers of these large bulbs and improved strains how they find them keep.—DORSET.

French Horn Carrots.—I have to provide young Carrots over as long a season of the year as I can, my employer being fond of them as a separate dish. They must be very young and if possible round. Accordingly I sow some in a frame very early in the year on a bed of leaves and manure. Here I always use very fine soil passed through a fine sieve. In this pit I sow the French forcing Carrot. From this pit I get them quite round and very early. Two years ago I obtained a second supply of seed, sowing this in the open border and in the open garden several times during the summer. In every instance the roots did not come so round as from the pit. I complained to the firm that the stock was not true. They assured me it was from the same bag of seed, and suggested my using fine soil. Accordingly, last year I used fine soil in the garden, and I must say the shape was in proportion to the fineness of the soil. I should like to have the experience of others in this way.

DORSET.

Sprouting seed Potatoes.—When calling to see a gardener in this locality the other day, I found he was preparing to plant tubers of Ashleaf Kidney just received from a seedsman. The sample was very good, but it evidently had been kept in bulk in a store, frequently turned and the

shoots rubbed off or kept dormant by the frequent turnings to which they had been subjected. I ventured to advise that, instead of planting these tubers in what was a somewhat cold soil and so early as the 23rd of February, much would be gained were the tubers gently sprouted by being placed in a shallow box and stood in a greenhouse where there was ample light, whilst the planting might then well be deferred for a month. Had the tubers been then planted and regard had to the cold condition of the soil, it is most probable that the eyes would have been dormant for a month at least, and that fully seven weeks would elapse before the growths appeared above ground. All this time, too, the soil would become set hard. By sprouting the tubers first, the advantage would be that if any failed to break they could be rejected and blanks avoided; then, whilst the stoutest shoots only need be retained, all weaker ones could be pulled off. The best produce invariably results when tubers are sudsided to but one or two of the stoutest shoots. The little additional trouble involved in this method is always well repaid. Then in the case referred to (and the same holds good in all similar cases) there is a positive saving of time when the Potatoes are sprouted as advised, for not only is the growth after being planted so much quicker, but because of that the soil has so much less time to become set hard or sodden. The method is of greater value in the case of early Potatoes than of late ones. Ordinarily, early Potatoes are planted too early and late ones too late.—A. D.

Veitch's Extra Early Cauliflower.—This Cauliflower is of recent introduction and most valuable for early work. Those who have lost their autumn stock of plants through frost may soon recover lost time by sowing a box of this variety in a warm house and growing on. Last season owing to the severe winter I lost a great many of the autumn plants, and I used the variety to make up the loss, and had no reason to regret doing so, as I had nice heads in fifteen weeks from the time of sowing the seed. I prefer to sow in a frame on a warm bed of leaves and litter, as when sown in boxes, unless kept near the glass and aired freely, the tender seedlings soon damp. When sown in a frame, the seedlings, when in the rough leaf, can be pricked out 3 inches apart into another bed or half of the frame, and when large enough planted out with a trowel on a warm border, taking care to preserve the roots and to get a nice ball when lifting. I used to grow a lot of plants and protect them through the autumn, but it is not necessary, as this variety soon comes to maturity, and though not large it is just the size for table, with beautifully close and white heads. Being of dwarf habit with a short stem and small leaves, it may be planted from 15 inches to 18 inches apart.—G. WYTHES.

Extra Early Milan Turnip.—At no time of year are Turnips more appreciated than early in the summer or late spring. I tried various early kinds last season, one of them being the Extra Early Milan. It was quite ten days earlier than the White Stone or Snowball, and did not bolt nearly so badly. It remains good for a long time, being very solid and with white flesh, with a small tap root and very compact growth. For forcing or growing in frames it is the best Turnip I have tried. To get an early supply in the open ground seed should be sown on a warm border during the second week in March, weather permitting, taking care to protect the seed against birds. It is also a valuable Turnip for sowing on a south border and covering with frames if glass can be spared for this purpose. More care is necessary in giving air than is the case with many vegetables, as a sturdy growth from the start must be maintained.—S. H.

Early dwarf Bean Mohawk.—Those who can afford room in March to sow a few pots of early dwarf French Beans will do well to do so. I use $\frac{1}{2}$ -inch pots, sowing early in March and placing in a frame, giving no moisture till the Beans are well above the soil, and in fine weather admitting plenty of air. I have tried most of the varieties for this purpose and like Mohawk best. It is with me the earliest Bean when planted out and protected, and

comes into bearing some time before any of the other varieties. It is also a good cropper and of dwarf habit. I do not like it for later or summer work, as it grows rapidly and soon becomes tough and stringy. I grow as advised and plant out under hand-glasses. In this way I get nice Beans in May on a warm south border in a light compost. Those who have not handlights may be somewhat later in planting and obliged to resort to various means for protection. I have used inverted flower-pots to advantage. Whatever is used must be sufficient to ward off spring frosts.—S. J.

THE WEEK'S WORK.

HARDY FRUITS.

PEACHES AND NECTARINES.—The flower-buds on these are plumping up fast, and a few mild days may have the effect of causing them to become dangerously forward. It is advisable to keep the young shoots from the walls as long as possible, so as to retard growth, but all must be nailed or tied in position in time for protective coverings to be put on, a moderately severe frost crippling the majority of partially open or expanded blossoms not protected in any way. A great amount of pruning ought not now to be necessary, especially if much of the exhausted old wood was cut out last autumn. This, not having been done, should no longer be delayed. First, foreshorten any straggling branches, and many of those that have either reached the top of the wall or are encroaching on the space required by other trees, to well-placed inner growths, some few of the longest and most naked being cleanly sawn or cut out much nearer the centre or stem of the trees. Unless this is done, the full force of the sap is expended on the outer branches, whereas a strong growth of young shoots is needed in the centre of the trees. Next cut out many of the fruiting shoots of last season, their places being taken by young growths laid in last summer for that very purpose. Nothing is gained by reserving and laying in too many fruiting shoots, as when crowded they only smother each other. Nor ought they to be much pruned unless for the purpose of securing strong back growths, and which can, however, be usually had without this extreme measure being resorted to, judicious and timely disbudding accomplishing all that is necessary. Young growths are exposed to so many unfavourable conditions, that it is not safe to depend upon a very few of them, and only the stronger fruiting shoots should be shortened, and this to about two-thirds of their original length, cutting in every case to a triple or wood bud.

YOUNG TREES.—These may yet be transplanted without fear of failure, even if the flower-buds have opened, and root-pruning may also be resorted to in order to check a gross habit of growth in the case of other well-established young trees. It is not often that young trees present a more promising appearance than they do this season, all being well furnished with plump fruit-buds. The smaller trees should be pruned moderately hard to secure a good foundation, and this can usually be accomplished by shortening the stronger shoots to about two-thirds of their length and the more weakly ones to half their length, cutting to a wood-bud in every instance. Gross shoots ought never to be tolerated or allowed to form on young trees, and if they cannot be cut clean out now, lay them in to near their full length, only the unripe end being cut off, taking care to depress them considerably in training. When, however, these extra strong growths are near the centre of the tree, train uprightly, and lay in several young shoots on either side during the summer. In this manner a serviceable tree can be quickly formed; newly-planted trained trees should be pruned as advised in the case of the smaller established trees, but maidens should be cut back to within 6 inches of the point of union with the stock. This will cause them to break strongly, and four or even six well-placed shoots will be obtained this season.

CLEANING AND FASTENING.—It is not yet too late to syringe the trees and walls with a fairly strong insecticide, but the buds are too advanced to admit of much dressing being done. In any case a thorough syringing with hot water and petroleum or paraffin is the simplest and most effective insecticide that can be used. To every gallon of water heated to about 120° add 2 ozs. or a wineglassful of petroleum, and keep the latter from collecting on the surface in the usual manner, that is to say, by either returning every second syringe-ful back into the can, or by keeping two syringes going, one discharging the mixture over the trees and the other back into the receptacle. This petroleum mixture will destroy all eggs and insects well moistened by it, and is highly beneficial to the trees. It may safely be applied any time before the flowers are opened, buds partially open not being injured by it. All the crevices in the walls should be thoroughly wetted. In training, first evenly distribute and secure the main branches, and then fill in with the smaller ones and fruiting shoots, the latter being arranged not less than 3 inches apart. Avoid unduly confining the wood with ties or shreds, and the nails used should be kept well clear of the bark, everything being done to guard against bruising or chafing the latter, and thereby prevent gumming and, it may be, the premature loss of whole limbs.

PROTECTING.—Bullfinches are apt to turn their attention to Peach and Nectarine trees, and are capable of clearing them of fruit-buds in a few hours. Where this ever happens they ought to be early netted over, and if the netting is doubled or trebled and hung slackly over the trees, being kept well clear of them with the aid of long poles fixed under the coping of the wall and let into the ground 2 feet from the wall, this covering will answer the double purpose of protecting from both birds and frosts. Good frigi domo, coarse cotton, or canvas blinds are certainly more effective than fish nets, but in the majority of seasons the latter will afford sufficient protection to the fairly hardy and freely-produced flowers. W. IGGULDEN.

THE KITCHEN GARDEN.

SPRING-SOWN ONIONS.—At the time these notes are being written it does not appear that the soil will be in a fit state for sowing for some time yet. It is of little or no benefit to sow before the first week of the month has passed, and then, weather permitting, the sooner the seed is in the ground the better. The plot for the Onions generally receives special attention. Previous to sowing, a dressing of burned refuse or wood-ashes worked into the surface will be of great benefit; so also will a dressing of soot, for which Onions have a special liking. If the Onion grub is likely to be troublesome, a little salt in conjunction with the soot will also prove of the greatest benefit. A firm root-run being a necessity, the surface must be equally trodden over previous to drawing the drills. These should be formed shallow and drawn 12 inches apart. The seeds should be sown thinly, afterwards filling in the drills and making the surface firm. A wooden rake drawn lightly over the surface will remove any rough stones, when the work, as far as sowing is concerned, will be finished.

PARSNIPS.—As a rule, the sowing of Parsnips takes place at about the same time as Onions, but on strong land sowing is best deferred until about the third week in March, for on heavy ground the roots are apt to grow very coarse, and so become predisposed to canker. On light soils, however, there is no reason why the seeds should not be sown during the first opportunity when the soil is in good working order. The soil for Parsnips must not have been recently manured, as this is apt to cause the roots to come forked, but it must be deeply worked. Parsnips follow well after any crop which has been well manured. Soot and burned refuse form a good addition, and should be worked into the surface previous to sowing the seed. The drills should be drawn quite 15 inches or 18 inches apart, the soil having previously been equally trodden over if at all light and spongy.

EARLY CARROTS.—The first opportunity should also be taken of making a sowing on a warm border of one of the Early Horn Carrots, selecting for the purpose soil that is in a well-pulverised and fertile condition, yet free from any very recent additions of manure. On lumpy soil an inch or two of finer soil, such as that from under the potting bench, will be of great assistance, or the drills may be filled in with the same. The drills should be drawn 9 inches apart and the seeds scattered thinly. A spare light or two, or even a ground vinery will hasten on a portion of the crop, that is if there has been no previous provision made by sowing on a gentle hotbed. Sowings may yet be made on gentle hotbeds, and, failing any other convenience, a hotbed formed very firmly about 2 feet in depth, so as to generate a moderate warmth, will be sufficient, this being surfaced with 6 inches of fine and fertile soil. Of course a slight covering at first may be provided, so as to give the seedlings a start, but, failing anything else, covering with mats during the night-time will do.

SUCCESSIONAL PEAS.—The late inclement weather has been much against the progress of Peas sown in the open, but directly the young points appear through the surface, a successional sowing should be made, and this of the earlier varieties, such as William I. or the dwarfier varieties. If these early varieties are again selected in conjunction with the second earlies, a succession is more assured than by simply relying upon these latter. As the young Peas appear above ground, give every encouragement by timely hoeing, this helping on the growth as much as anything. Early earthing up and staking with small sticks will also be very advantageous to the earlier varieties. A sharp look-out must also be kept against the many enemies Peas are heir to. Lightly dusting with soot will make the foliage distasteful to birds, but additional protection must be afforded by stretching two or three rows of black thread over the rows. Of course, the wire guards are the best protectors, especially where pigeons or even jackdaws are numerous.

EARLY RADISHES.—It may still be found necessary to make an additional sowing of Radishes under glass, as unless they can be quickly grown, they are not palatable. Those in frames growing on a gentle hotbed must have the soil kept nicely moist, as when this is not attended to, they are hot and tough in texture. Nor must ventilation be neglected, this quickly drawing up the foliage at the expense of forming bulbs. Radishes may be raised on a gentle hotbed as previously referred to for Carrots, the little bottom-heat causing a quicker growth. Ground vineries may also be used, but in every case see that the soil is both rich and sandy. Sowing may take place on a warm border in the open air, but the soil must be in a friable and fertile state. A little litter lightly sprinkled over the surface would assist them during an inclement time, this being removed as soon as the seedlings appear, to be replaced again during cold nights.

LEEKS.—Leeks for winter use should now be sown, as an ounce of seed will raise a quantity of plants. This should either be sown alongside the Onions, or even on a separate bed. Sow thinly, so that strong plants may be provided for planting out. A. YOUNG.

PLANT HOUSES.

STOVE.—EUCHARIS.—The potting on or breaking up of old stools for further increase cannot be done at a more favourable season than the present. Before treating of repotting I may as well say that I am no advocate for giving extreme shifts in the case of this universally-grown bulbous plant; I consider it, on the other hand, a great mistake to do so. If there is the slightest disposition towards unhealthiness at the roots or corresponding indications in the top growth, such plants are not the proper ones to shift into larger sized pots by any means. These should rather be reduced, carefully removing the sour or spent soil and preserving as many of the roots as possible; this will answer oftentimes when there is not much the matter. Should, however, the case of any plants be a bad

one with but little foliage in a healthy state, and that in a weakly condition, then entire shaking out will be found the best remedy. When doing this, all diseased portions and scales should be removed, not allowing more than one leaf to remain upon each bulb, otherwise there will be a weakening tendency. When repotting an unhealthy stock I would prefer to double the amount of silver sand in the compost, which should consist of only good fibrous loam and turfy peat rather than any leaf-soil, for fear of wireworms, which it often contains, and against which the few roots remaining could not withstand an attack, the base of each bulb affording a congenial resting-place for these insidious insects. When leaf soil has to be depended upon, failing a supply of good peat, I would bake it first, or expose it to sufficient heat, to destroy animal life. When growing a large stock of *Eucharis* myself, my custom has been to shake out a few of the larger pots in which the bulbs were found to be the most crowded. This would be done nearly every spring about this time, the bulbs being sorted and potted up accordingly, preserving as much of the roots as possible. About six large bulbs are quite enough for a 9-inch pot, smaller ones in proportion, with the smallest of all placed in 6-inch pots. The amount of crocks in the pots may very advantageously be doubled when potting up such a stock, otherwise there would be more soil than is desirable; whereas the roots later on will be pretty sure to luxuriate amongst the crocks. When potted some support should be given to the leaves, which, if the plants are healthy ones, it will not be advisable to remove to any extent; two leaves at any rate should remain to each bulb. This support may be given by means of sticks and tying material around the sides. After one watering has been given, in the case of plants shaken out, care must be taken not to repeat it too often, otherwise the results will be disastrous. Bottom heat is of considerable assistance to all of the foregoing stock, in that it facilitates fresh root action more quickly, but any excessive amount of heat should be avoided; a temperature of 85° at the time of plunging is quite high enough, and any rise beyond this point should not be permitted. Shading will be required during bright sunshine; if the blinds are not in use, this can be easily effected by means of paper laid over the plants. Gentle dampings overhead, according to the state of the weather, will be found beneficial, a moist atmosphere from other and usual sources being maintained at the same time. Under this treatment the healthy plants will quickly re-establish themselves and give a crop of flowers during the autumn months. Other and healthy plants which are in need of shifting should also be seen to, although, as already indicated, care must be taken not to carry this work to any excess. I have sometimes from force of circumstances had some plants stand over sufficiently long to allow of the pots being broken by the pressure of the bulbs from within. This is letting them go too long for the good of the plants; so is it when it is seen that the bulbs in the centre of a pot are, as it were, upon the top of each other. When shifting is done, only sufficient room should be allowed for about an inch of fresh soil all round the sides, keeping the bulbs covered with about an inch or so of the fresh soil also. The soil has been alluded to previously as to its chief component parts, but in dealing with healthy plants to which no large addition of soil is being made, I prefer to add some bone-meal or finely crushed bones, whilst some pieces of charcoal upon the crocks would also be a good addition. Such a stock of plants as this latter would not require any bottom-heat, not that it would do any harm, but its application would not be of such essential service.

SEED-SOWING.—This will be found a very suitable time for sowing the following seeds of such plants as are annually raised in this manner. *Primula obconica*, which is still growing in favour, will, if sown now, make useful plants that will commence to flower in the autumn, continuing on through the winter with the best display in the following spring. This species is easily raised by adopting the ordinary methods. *Celosias* should

be raised soon, particularly if large plants are the chief object, or an earlier batch of smaller plants; sow this seed thinly and guard against the plants becoming drawn; if too far removed from the glass when quite young they are much disposed this way. Some seed of Ten-week Stocks sown now will grow on into a nice lot of plants to flower early in the summer in pots for the greenhouse or conservatory, making a good succession to the autumn-sown intermediate sorts. The *Marguerite* Carnations are easily raised from seed, which should now be sown and in quite a gentle heat, otherwise the plants will draw up weakly. The spotted *Mimuli* are very pretty pot plants for the summer season, giving great variety from one packet of seed. *Lantanas* also may be raised in the same manner, but will not give much flower the first year.

JAMES HUDSON.

ORCHIDS.

THERE will be plenty of work to employ all hands in repotting, surface dressing, &c. *Thunias* need now to be repotted. One plant may be grown in a small pot, or a number of plants in a larger one. I put three to five in a 6-inch pot, or five to seven in an 8-inch one, according to their vigour. The pots require good drainage. The potting material



Cauliflower Eclipse. (See p. 217.)

should consist of fibrous peat and fibrous loam, with a little Sphagnum and coarse white sand added. I have tried the *Thunias* potted in peat and Sphagnum without the loam, but they make the best growth with a little yellow loam in the compost. They do better in the warmest house than anywhere else. They also require a very light position, for if they have not this some of the varieties will not flower at all, but the growths will continue to increase in length until the end of the season. *T. Marshalliana* is one which has this objectionable character more than any other. All the old compost should be shaken from the roots before repotting the plants. It is necessary to support the stems with a stick. Only the stems formed the previous year will be of use; the others usually die away. The *Calanthes* ought now to be repotted; they will mostly have passed through their resting period, and are beginning to start into growth from the base of the bulbs. I allude, of course, to the deciduous group, comprising *C. vestita*, *C. Veitchi*, and other hybrid forms now so very numerous and beautiful. The staple of the potting soil should be good fibrous yellow loam; a third of peat may be added, a good sprinkling of coarse sand, and some dried cow manure. The pots ought to be half full of drainage, and the bulbs should be planted with their bases just covered. At first water must be very sparingly applied. I give none until the roots begin to push

out. Many beautiful varieties of these hybrid *Calanthes* are now in cultivation, producing spikes of variously coloured flowers a yard long or more; some with pure white flowers are very charming. When the plants have well started into growth and are progressing favourably, they may be supplied with weak manure water. They require a high temperature in which they can grow freely, with space enough for the ample foliage. They need not be grown in an Orchid house; we start ours with the Melons or Cucumbers, or they could be grown well on shelves in a Pine house. The best I ever saw were over the bed in the Pine house. The *Laelia anceps* are now passing out of bloom and may be repotted if they need it, but it is not necessary to repot them annually, nor even every second year.

In repotting these, or placing them in new teak baskets, care must be taken not to injure the roots which are now pushing freely, especially upon those plants that have not flowered, as they start into growth considerably before their time, and perhaps it is better not to repot such at all. The best material is good fibrous peat, to which has been added a third part of Sphagnum. Drain the pots well and add plenty of potsherds with the potting stuff. In their native country the roots of this plant start into growth about the end of February, and at that time a fine rain falls. *L. autumnalis* may also be repotted now, and in the arrangement of the plants this species should be placed in a position where it is scarcely shaded at all from the sun. It does not require a high night temperature, being from the mountain ranges of Mexico and growing on bare rocks or well exposed to the sun and rain on trees. The variety *atrorubens* is the best to grow. *Laelia albida* may also be repotted now. This is a very pretty late autumn-flowering plant, and should be suspended near the roof glass when making its growth. Raisers of seedling Orchids have to be repotting their plants at all seasons of the year, but I find now is a very good time to repot the very small ones for their first shift out of the very tiny pots in which they were first planted, or they may be now potted up from the seed bed. The young plants gather strength with the lengthening days, and having the summer season before them, they generally become well established with but little loss. I have

removed a number of small seedling *Cypripediums* from the surface of the compost in which the parent plants were potted and as they have made about a year's growth they are quite large enough to take well to the new compost. I have also repotted a number of *Cypripediums*, comprising all those needing it in the warmest house, which had not been already done. *C. Leeanum* and *C. Spicerianum* may be repotted annually, and a very good time to do it is when they pass out of bloom, nor is it too late to do so at any time during the present month. Any plants in the warmest house where these *Cypripediums* are growing may be surface-dressed; it seems to throw fresh vigour into the plants; but before removing any decayed material to admit of the fresh clean Sphagnum and fibrous peat being put in its place, it is well to see that the plants themselves are free from insect pests. After the changes and checks of the winter season, insect pests will revive with the greater warmth of the spring, and thrips may appear, however careful one may be to keep them out. They are likely to get upon such plants as *Miltonia Roezli*. To keep the pest off, I dip the plants in tobacco water. Woodlice do a deal of harm, and they should be trapped by placing a boiled Potato amongst a little dry Moss in a pot. We have had a temperature of 80° by day with sun heat, and have taken advantage of it by shutting up early. J. DOUGLAS.

MARKET GARDEN NOTES.

THE season for sowing and planting has again come round, and with the lengthening days increased activity will be needed to keep pace with the work that seems more pressing every day.

GLOBE ARTICHOKEs are beginning to push up young growth, and the old covering used during the winter is being gradually drawn away from the crowns to harden the young growths. The Globe Artichoke needs high culture and liberal supplies of good manure, as unless the flower-heads are large, there is no demand for them.

JERUSALEM ARTICHOKEs have not been in so much request as last winter, owing to the more plentiful supplies of green vegetables. The remnant of the crop is now being lifted and sent to market, or stored for use during spring, and fresh plantations are being made. The old plan of letting this crop stand year after year in the same place does not find favour with market growers, who plant the sets on fresh soil a yard apart, and get splendid crops of fine clear tubers.

ASPARAGUS is now being forced in quantity. Strong plants three years old, raised in the open level fields, are the ones used for forcing. They are laid in thickly on gentle bottom-heat, and come off in time for the pits to be used for Cucumbers. Open-air permanent beds of Asparagus are now being lightly forked over and the manure that was put on early in winter raked down finely, as the shoots will soon be pushing up.

BROAD BEANS.—The main crops of these are sown as early in the season as it is possible to get the soil in good condition. Broad Beans are not in much request after other kinds of Beans come in; consequently no sowing for succession is made.

BROCCOLI.—The early spring kinds are now coming in; they have had rather a trying ordeal to pass through—sudden and severe frosts while saturated with snow or rain. As usual, the hardy open field crops have suffered less than the more tender garden crops. That useful kind, the Purple Sprouting Broccoli, is in fine condition.

BRUSSELS SPROUTS, which have been very fine, are still in good condition, but a spell of mild weather would soon start them all into growth, when their value as a first-class vegetable would be over.

CABBAGE plants put out early are now growing well, the hoe being used freely amongst them. The later sown plants left in the beds during the winter are now being put out in sheltered spots. They look extremely vigorous, but where exposed to the wind frosts a good many have perished.

CAULIFLOWER plants wintered under handlights or in cold frames are being transplanted to other handlights or cloches, as they need shelter from the wind for some weeks yet. Snowball and Early London are favourites here.

CUCUMBER frames are now being filled, and the plants raised in heated houses planted out. The frames come in useful for forwarding a variety of crops until the Cucumbers need all the space.

LETTUCE.—Both Cos and Cabbage of the hardy kinds are being planted on warm borders in quantity; the early batches almost invariably sell well, there being a great demand when they first come in. The old Brown Cos still holds its own for hardness and quality.

PEAS are being sown in large quantities, the soil being well prepared for this crop. The dwarf wrinkled Marrow kinds are decidedly driving the old round white-seeded sorts out of cultivation, and although the seed is more expensive, the crop is so much heavier, and meets with so much readier a sale, as to well repay the extra outlay. American Wonder, William Hurst, and other first-crop sorts are now coming up, while Stratagem and other large-podded sorts are being sown.

POTATOES.—The earliest crops of kidneys are being put in and preparation of the soil is going on rapidly for the main crops. Early kinds like Beauty of Hebron are grown very extensively in this locality, and the area devoted to Potatoes increases every year.

RADISHES, both under glass and in open-air beds, claim a deal of attention at this season of the year; the open-air beds covered with litter are already sown, and as soon as the plants are well above the soil, the litter is lightly raked off into the alleys on fine days and returned at night.

TOMATOES.—Large quantities of these are being raised again this year, some of those for fruiting under glass being well advanced. The main crop for cold houses and open-air culture is now being sown. The cultivation of the Tomato seems to be extending in this district.

JAMES GROOM.

Gosport.

SOCIETIES AND EXHIBITIONS.

NATIONAL CHRYSANTHEMUM SOCIETY.

THE general committee of this society held a meeting at Anderton's Hotel on Wednesday, the 24th ult., Mr. R. Ballantine being in the chair. The minutes of the former meeting having been read and confirmed, new members were elected, including Sir John Llewellyn and Mr. T. H. Spaulding, of Orange, N.J., America. The following local societies applied for affiliation and were duly admitted: The Alverstoke Horticultural, The Battersea Amateur Chrysanthemum, The Forest Gate Amateur Chrysanthemum, and The Tasmanian Amateurs and Gardeners' Association. Three of the affiliated societies, viz., The Colchester, The Taunton, and the West Kent, withdrew.

A rough balance-sheet was next submitted to the meeting showing the receipts during the past year to have been just over £800, but the same cannot be considered as final until it has been laid before the annual meeting, which it is proposed shall be held on the 9th of this month. The draft report and schedule were also submitted, and, subject to a few alterations, the same were recommended to be presented to the members at the annual meeting. Some of the alterations suggested are an October exhibition in place of that held last December, a conference to be held at the same time in regard to the vexed question of altering the size of the show-boards for Japanese blooms; several classes for amateurs at the October show, and the instituting of two classes, in each of which money prizes of considerable value, and two challenge vases, to be called the Holmes' Memorial challenge cups. These were approved of. It may be useful to mention that these cups have been provided by private subscription, and that one will be offered for thirty-six cut blooms of incurred distinct varieties, and the other for forty-eight distinct Japanese blooms. The cups will each be held for one year.

A list of special prizes offered was then read. These were accepted and will appear in due course in the new schedule. It was also resolved that, in addition to the usual matter contained in the schedule, a list of all varieties certificated by the floral committee during the past season be inserted, that a short account of the work and awards of that committee be given, and that the papers on sports read at the November conference be printed for the information of the members.

The Gardeners' Orphan Fund.—The committee met on the 26th ult. for the first time since the annual meeting, and unanimously re-elected Mr. W. Marshall to the office of chairman. The following gentlemen were elected local secretaries for the ensuing year, viz.: Mr. R. Bell, Tyrone, for Ulster; Mr. George Cooper, Kirkstall, for Leeds and district; Mr. F. Collyer, for Ilkley, Yorks; Mr. Malcolm Dunn and Mr. Matthew Todd, for Edinburgh; Mr. Fairgrieve, for Dunkeld; Mr. Goldsmith, High Trees, for Redhill, Surrey; Mr. Hussey, Clive House, for Esher, Surrey; Mr. J. B. Stevenson, for Bournemouth; Mr. J. Lyne, for Chislehurst, Kent; and Mr. Upjohn, Worsley Hall, for Manchester. The following gentlemen who retire were accorded a hearty vote of thanks for their past services: Mr. Furze, Mr. Ellicott, Mr. Frankland, Mr. Lumsden, Mr. F. Ross, and Mr. L. Castle. The

following special receipts were announced as having been received during the month: Manchester Gardeners' Improvement Society, £5; Reading Gardeners' Improvement Society, £2 2s.; Mr. J. Thomson, Hawkhurst, £1 1s.; and Mr. M. Dunn, £1 1s. The sum of £1000 was authorised to be invested, and guardians were appointed for the eleven children who were elected at the annual meeting.

PUBLIC GARDENS.

The Hilly Fields, Brockley.—The London County Council have resolved, on the recommendation of the Parks Committee, to contribute a sum not exceeding £22,000 towards the acquisition of the tract of land known as Hilly Fields, Brockley.

North Park, Eltham.—On the motion of Mr. Phillips, the Council agreed, "That in view of the action of H.M. Commissioners of Woods and Forests with regard to North Park, Eltham, which may lead to the loss of this noble park to the people of London for ever, the valuer be instructed to report upon its value forthwith."

West Wickham Common.—On February 24 a public meeting was held at Bromley, Kent, to raise £1000 to fight out the interests of the public in West Wickham Common. Mr. Shaw Lefevre, M.P., presided, and explained that since action had been taken Sir John Lennard, Bart., lord of the manor, had offered to sell his rights for £2000. Resolutions in favour of the Commons Preservation Society's object, appreciating Sir John Lennard's concession, and denouncing section 10 of the Rangers' Act, 1891, were passed on the motion, supported by Mr. Israel Davis, Miss Octavia Hill, Miss Yorke, Mr. Ritherdon, and others.

Paddington recreation ground.—A deputa- tion waited on the Marylebone Vestry lately to solicit support in obtaining the Paddington Recreation Ground as an open space for the public. Mr. Nevinson, secretary of the London Playing Fields Committee, explained that the lease of the ground would shortly expire, and buildings would then be erected upon it. He pointed out that it was as much to the interest of Marylebone as to Paddington to protect the space, and he therefore asked their assistance to save the ground, which was the last within the four-mile radius, from the builder's hands. The purchase money was £50,000, and they now only required £14,000 of that sum. It was decided to refer the matter to the Parliamentary Committee.

Death of Mr. Harry C. Rowan.—There has lately passed away at the early age of 47 an enthusiastic gardener, who has frequently contributed to the pages of THE GARDEN. He was one of Her Majesty's Inspectors of Schools, and resided for several years at Colchester, where he had gathered together an excellent collection of herbaceous plants, of which he was intensely fond—perhaps Lilies were his especial favourites. He had been in failing health for some time, and last year made a voyage to Australia in the hopes of mending it. The improvement was only temporary. He had removed to Malvern as being more likely to suit him, where he died. His kindly and genial disposition made him a great favourite, and his loss will be deeply felt, not only by his immediate relatives, but by a wide circle of friends.—DELTA.

Names of plants.—*T. Stirling*.—The flower was too much bruised when it arrived; send again.—*J. Woodward*.—A very superior form of *Cattleya speciosissima*, a labiate, but not the true form.—*G. Glynn*.—If the flowers you send are all forms of *Cypripedium Sedeni candidulum*, they should be destroyed, for all are inferior to *Sedeni*, and certainly not pure enough to be called *candidulum*.—*W. S.*—1, next week; 2, *Clivia miniata*, bad form.—*G. C. G.*—1, *Acacia armata*; 2, *Acacia Drummondii*; we cannot name *Epiphyllum*.—*J. Bennett*.—*Cypripedium Harrisianum*.—*T. Graham*.—*Tabernaemontana coronata* fl. pl.

WOODS AND FORESTS.

TOWN PLANTING.

(Continued from p. 178.)

SOPHORA JAPONICA is well worthy of recommendation as a tree that is peculiarly suitable for planting wherever the atmosphere is rendered impure by smoke or other fumes. The almost rampant growth and dark green pinnate leaves render the tree one of much interest, while its freedom of growth even where placed under disadvantageous circumstances makes it all the more valuable. In any of the smoke-infested parts of London the *Sophora* may be seen in perfect health, and though late in the season it may not be just what one could admire, still the health of the tree does not seem to be at all impaired, for in spring it shoots forth with a freshness that is quite surprising. Hailing from China and Japan, the *Sophora* may not, perhaps, prove hardy in every part of Great Britain, but along the sea-coast and throughout England generally it has been found to be well suited for planting.

THE *WEeping ASH* (*Fraxinus excelsior pendula*) takes a prominent place in the vegetation of many of our largest English and Scotch towns, to wit, London, Liverpool, Glasgow, and Manchester, in all of which places it may be counted almost by the dozen. Being of neat and peculiar growth, these qualities render it all the more valuable, while for keeping within bounds for small grounds its susceptibility to the pruning-hook still further enhances its value.

THORNS are condemned by many as being unsuitable for planting in towns, but certainly in the chemically impure atmosphere of Glasgow they are by no means valueless, as many of the squares and public places in that great commercial centre plainly point out. The Botanic Gardens in Glasgow, where the sturdy Oaks and not a few other smoke-resisting trees are dying out from time to time, have as an ornament at or near the entrance gates as fine a specimen of the Tansy-leaved Thorn (*Cratægus tanacetifolia*) as is to be seen in any part of Great Britain. The double-flowered scarlet and pink forms are perhaps best adapted for the work in question. Even in some of the crowded urban districts of London may be seen fairly good specimens of some of the finer-flowered kinds of Thorn. I would certainly recommend that Thorns of any kind should find a place amongst the occupants of a town garden, but by all means procure well-rooted specimens to start with, else failure may be courted.

THE *SUGAR MAPLE* (*Acer saccharinum*) for planting without the city walls or wherever smoke and grime are prevalent is a most pleasing and valuable tree. It is of neat habit, with finely cut leaves and of robust growth. These qualities, combined with its partial smoke-resisting qualities, make it valuable for decoration and for general planting.

THE *BIRD CHERRY* (*Cerasus Padus*) has been found to be a valuable tree of small growth for planting where the air is in almost any sense rendered impure. Then it has the invaluable quality of growing freely beneath the shade and drip of other taller growing trees, and where, too, it produces an abundance of its pretty flowers. In not a few of the back-slums of London may be seen finely-grown healthy trees of the Bird Cherry, while in the very heart of Liverpool and Glasgow its cultivation has been found of the simplest. Few soils would seem to come amiss to this hardy Cherry; even when planted in poor stony rubble or amongst old lime and stone fragments it thrives well. In addition to the above, few other of our commonly cultivated trees have been found really suitable for planting in sooty towns. The Lime (*Tilia europæa*) may and does succeed on the outskirts or in the less smoky parts. The Horse Chestnut (*Æsculus Hippocastanum*) may be seen in a fairly healthy state in certain towns, but only in the more open parts, while the same may, though perhaps in a less restricted sense, be said of the Elm (*Ulmus cam-*

pestris), but, taking everything into consideration, none of these can be recommended. Two species of Holly (excluding our common tree), Hodgins' (*Ilex Hodginsi*) and the Minorca Holly (*I. balearica*), have been cultivated in smoky towns with a fair amount of success. The dwarf form of our common Holly would, however, seem to be best suited for planting in London—at least, it is equally good with either Hodgins' or the Minorca forms.

Coniferous trees have not proved at all suitable subjects for planting in towns, although with the common Yew (*Taxus baccata*) and the Austrian Pine (*Pinus austriaca*) fairly satisfactory results have been achieved in Glasgow and Liverpool. Several other Conifers have been tried, but these soon showed signs of distress, and ultimately died out altogether. A. D. W.

OSIERS FOR BOGGY LAND.

I SHALL be obliged if any of your correspondents can give me information with regard to planting some boggy land with Osiers. I should be glad to know the most suitable sorts to plant, and also the best mode of cultivating them.—B. K.

* * The sets should be planted at the depth of a foot or more, according to the length, leaving about 3 inches or 4 inches above the surface of the soil, which will form the stools from which the rods grow in future years. For the greatest convenience in the after cultivation of the ground, the cuttings should be planted in straight rows, and if these can be arranged to run from north to south so much the better, as then each side of the stool will produce rods of equal quality. The rows should be from 2 feet to 3 feet apart according to the soil, as on very rich loams a less distance is needed than on poor sandy soils of a hungry nature, but as a general rule a space of 30 inches is a good distance apart. The sets should be from 15 inches to 18 inches apart in the rows, for the same reason, as on rich soils, if too wide apart, the rods will be too large and bushy, while if too close together on poor soils, they will be too small to be of much market value. The number of sets required to plant an acre of ground varies from 20,000 to 24,000. The sorts which the basket-maker technically terms "trustworthy" are those to be chosen for profitable cultivation, and where good tough sorts are locally grown, the sets can be had from the local growers. A good basket rod is one that will work without breaking, and which will, when green, twist from end to end without snapping off. Good kinds are the Golden, Brown Spaniard, White Osier, Plum, Long-skinned, and Sussex New Kind, as they are called by basket makers, and for these when sorted there is always a ready sale. Where the Golden grows well it is very profitable, as the small rods, which are of but little value in other kinds, are largely used by market gardeners for bunching. By using the sets from the best sorts, the most profitable results are to be obtained; indeed, a judicious selection of novelties is one of the first considerations in Osier growing.

The after-cultivation consists chiefly in keeping the ground clean, and to do this both hoeing and hand-weeding will have to be done, particularly where Bindweed is in the soil. For the first year, when but little growth is made by the sets, keeping the surface well hoed to destroy annual weeds is of great importance, as there is then great facility for the work, and if hoed over with ordinary Turnip hoes half a dozen times, the expense will not be lost, for the simple reason that by preventing the weeds from seeding, future crops will be greatly diminished, if not quite prevented. Hand-weeding around the sets must be persisted in where Bindweed or other climbing weeds exist, as these spoil the rods when allowed to run up them, besides causing a deal of extra trouble and expense in cleaning the rods for sale. After the first year, the Osier grounds should be hoed over twice or thrice before the young growth gets so forward as to render the use of the hoe injurious, and all climbing weeds should be broken off each time of hoeing. During June and July they should

be broken off several times by hand, but it is not often safe to get about amongst the young growth after July, as the tops of the shoots would be broken about greatly by doing so, and the crop much lessened in value thereby. Where profit is the end in view, the slovenly and unwise practice of planting on grass land without cleaning and trenching should never on any account be adopted, for Osier grounds should always be kept clean, otherwise the result will be disastrous in a very short time, and instead of the plantation lasting for a period of from fifteen to thirty years, it will not survive in profitable condition above five or six years, and even then the produce will not be of first-rate quality. Like all other crops, Osiers require care and attention, and although periodical digging is not necessary, yet hoeing and weeding are and should never be neglected.—T.

SHORT NOTES.—WOODS AND FORESTS.

The Silver Alder (*Alnus incana*) is a nurse tree of great value. It is as hardy as the Birch, and does not require so moist a soil as the common Alder. It both ripens seed well and throws up numerous suckers, so that it is quickly becoming known to planters.

The Black Walnut.—I have never seen any allusion made to this being almost if not entirely rabbit-proof, for when nearly everything else is barked it is left untouched even in a young state. In planting the Black Walnut, it must be borne in mind that scarcely anything will live, much less thrive, beneath it.—W.

The Larch disease.—Can any reader give a description of the disease that affects the Larch? I have a plantation of young trees planted about ten years ago, but they evidently are the victims of some disease, and I fancy it must be the common Larch disease. I presume the disease is a fungus. Am I correct?—M. D.

The Larch is still unsurpassed as the most profitable Conifer for hill-side planting, but on the tops of hills or in low-lying bottoms it is not likely to prove a success. *Pinus Laricio* takes well, and grows away at a rapid rate in thin, poor, exposed land. For such positions it may be recommended. For sheltered valleys *Abies Douglasi* is well suited; it grows wonderfully fast in moist, open soils, but likes shelter from cutting and prevailing winds.

The Austrian Pine.—Apart from its value as a timber tree, this is most valuable for planting as shelter on the exposed margins of plantations. When planted as a screen or shelter plant, it best answers that purpose when allowed plenty of room to develop its side branches. To attain that state of growth, it should not be planted closer than 4 feet apart, unless in extremely exposed situations, and the trees should be thinned out before the side branches injure one another. Being most accommodating as to situation and exposure, it is less fastidious as regards soil than most other Conifers. It will grow in a great variety of soils; in low-lying ground where the soil is strong, and the subsoil tenacious and damp; also on the drier and lighter soils of mountain-sides.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 8d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols., price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers." Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; post free, 1s. 3d.

No. 1060. SATURDAY, March 12, 1892. Vol. XLI.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ROSE GARDEN.

FORCING MARECHAL NIEL ROSE.

ALTHOUGH this is such a disappointing Rose sometimes, inasmuch as no manner of coaxing will induce a plant to start into growth, there is no other Rose so valuable for growing under glass. I refer to the great length the branches will extend in one season, the number of flowers they produce, and the ready way in which the growth responds to fire heat in the dead of winter after a short season of rest. The only profitable way to grow this Rose for forcing is to plant it out in a border where there is a fairly good root-run. It is not necessary to provide an expensive border for the roots, as the condition of my plants as I write testifies. If the natural soil is fairly deep and not too light, there is no danger of the plant not making good growth if the roots are given three or four doses of liquid manure while the young growth is being made. My plants were put out in the natural soil of the garden and got a few doses of sewage during the summer, and they make splendid growth every year. With regard to pruning, I have not the least doubt but that the plan of cutting back as soon as the first lot of flowers is over is the proper way. The blooms produced by the young shoots are so much larger than those produced from spurs, that there is a considerable difference in their value when the produce has to be realised. My object is to get the flowers as large and as early in the year as I can. To do this, I find it necessary sometimes to thin out the young shoots early in the summer to give the others more room, as I find that the stronger the growth the larger the flowers. My plants are trained up near to the glass, and each shoot has a space of 9 inches allowed it. I find this is the only way to get thoroughly strong and well-ripened growth, and unless these shoots are well hardened by full exposure to light and air, the flowers come small and poor in colour.

The next point in the management is to give the plants a season of rest. This is of the most importance when the plants have to be forced early. In my case I devote the house to the Roses, and leave the ventilators open night and day all the autumn and up to Christmas, except when it is actually freezing. Even then the points of the shoots will continue growing in mild weather. I have found that it is of no use to attempt to try to stop them growing, so that I let them alone until about a week before forcing commences, when I cut off 2 feet or 3 feet from each shoot, as I find the best blooms are produced by the growth that is better ripened farther back. In previous years I did not commence forcing until the 1st of January, but this season I started the fire a week earlier as an experiment. This I shall not do again, as I find the flowers are not so fine, as well as giving me more anxiety when the young growth is being made. I could see if I had not managed the temperature very nicely the young shoots would have kept growing instead of forming flower-buds. Until the flower-buds are formed the night temperature is 50°; to get it down to that point I had on several occasions to let the fire out. The reader will bear in mind that the temperature referred to was in the closing days of January, when the

daylight at the best is often dull and of short duration; at the time I am writing, the end of the first week in March, it may be safely from 5° to 7° higher. Until the flower buds were quite prominent the day temperature by fire-heat was not allowed to exceed 60°. In the middle of February I raised it to 70° when the outside temperature admitted of the top ventilators being opened. Taken altogether, the season has not been a good one for the forcing of fruits or flowers, as there as been but little sun, and we have had quite an average number of frosty nights and dull days, so that although I began forcing my Roses a week earlier this season, I have not had a proportionate number of blooms at the same date. On this date last year I had cut about sixty blooms; this season the number does not amount to quite 100, an increase that does not pay for the additional fuel consumed and the anxiety caused by the uncertainty of the flower-buds forming. I know that many amateur readers are averse to thinning out the bloom-buds of Roses, but this is what I do both under glass and in the open air, and my *Marechal Niel*s are so vigorous, that quite half of the young shoots produce three buds on a shoot; these I reduce to one as soon as I can see them, as one well-developed bloom pays me better than three small ones.

J. C. CLARKE.

SHOULD ROSES BE PLANTED IN SPRING OR AUTUMN?

I AM often asked my opinion upon the above question, and will try and give a brief note respecting it, with my reasons for arriving at certain conclusions. It is certainly best to plant Roses in the latter part of October or early in November on all kindly soils, *i.e.*, such as light porous soils, or those that, although somewhat stiff, still have good drainage. On such soils Roses will commence to root at once, and so get partly established in their new quarters before the rigours of winter are upon them. In soils that are naturally wet and heavy, in spite of a fair amount of drainage, I would prefer spring planting. In this case I would plant during February. Should very drying winds set in during March and April, spring-planted Roses are helped very much by a sprinkling overhead once or twice a day. The wind dries the sap of the wood, and as the plants have not got their roots sufficiently established to be able to draw plenty of extra moisture from the ground, the strain upon them is too severe; consequently the wood shrivels, and in many cases dies altogether. An occasional sprinkling at suitable times would have avoided this. Most amateurs must have noticed how very soon Roses form roots after being taken up and relaid in the ground, more especially if the soil be of a light and porous nature. Generally speaking, these roots get torn off or very much mangled during the operation of replanting, and this is another very good reason for autumn planting. Moving the Roses during autumn will also check the sap and growth of any sappy or pithy shoots that do not promise to ripen up well or quickly enough to be safe during the winter. These facts, in conjunction with the better drainage of freshly moved soil, are all advantages in favour of autumn planting.

Roses that have been planted early will give better flowers than those planted in spring upon light ground. During some autumns, and when the Rose is in particularly good condition for early transplanting, we occasionally find the soil too dry for the operation. In such cases either water the plants well before lifting and again upon planting, or else wait until rain comes. If the first plan is adopted you are certain to get your plants partly established during the time the ground still retains a little of its summer heat.

Not the least advantage of early planting is the fact of being able to secure better plants and of the variety you wish. It is also an excellent plan if your ground be wet and stiff to purchase the

plants you require, and then set these in somewhat thickly, choosing a sheltered situation and using nicely prepared soil. By placing your Roses under trees you secure a dry soil for their roots, and at the same time obtain a great deal of natural protection. You can transplant to the permanent quarters at the most suitable time, and the roots also have the advantage of being fresh and free from drying air. A few minutes of the keen drying winds that we often experience during this time of year do a vast amount of harm to the roots of newly-lifted Roses.

R.

TEA-SCENTED ROSES AND THEIR USES.

THE above heading suggests rather an extensive subject, for the purposes to which this popular section of Roses can be put are many and varied. As this class has been so much improved of late, it is even more serviceable than before. Not a great many years ago there were among the Tea Roses few climbers that had any pretensions to quality. Now, however, we can number some of our finest Roses among these, whether as individual flowers or collectively as masses for effect. They have also been greatly improved in constitution, for we have many varieties that are among the hardiest of all Roses. As garden Roses they are surpassed by none, while to the exhibitor they are invaluable—so much so, that of late, classes have been devoted exclusively to them at the majority of Rose shows. It matters little in what form or position one requires the Rose; he can be well suited from among this class. For forcing under glass, covering walls, arches, pillars or trellis-work, as dwarfs or standards in the Rose garden, the Tea-scented Roses are equally at home. The earliest as well as the latest Rose of the year is almost certain to be one of this class, while for delicate perfume no flower can surpass them. There is such a large amount of vitality about this section, that all of the varieties will thrive much better as standards than any of the Hybrid Perpetuals, excepting those of very vigorous habit. They will also grow in any soil and any aspect, and are free from red rust and Orange fungus. Their freedom from these two diseases is a great point in their favour, as there are many of them well worth growing for the charming metallic hues of their foliage. Few things in the culture of Roses are more disappointing than to find the plants suddenly attacked with these blights, and the rapidity with which they turn the leaves rusty and shabby, causing them to drop and leave the plants bare in a few weeks or even days, makes the Tea-scented class of more value than ever. As a proof of their great improvement both in quality and quantity of varieties, I may state that whereas only a few Rose shows scheduled a class for six or twelve kinds a dozen years ago, we now have classes of eighteen, twenty-four and even thirty-six varieties; more than this, they are shown in trebles up to the twenty-four class. Twenty-four trebles of Tea Roses would have been declared an impossibility only a few years ago; not but that the number of varieties was easily obtainable, but it is the high standard of the present-day exhibition flowers that would have been deemed the difficulty. In looking over a box of eighteen treble Teas two years ago I was surprised to find that no less than fifteen of the varieties were of comparatively recent introduction. None of the Tea Roses are so useless and deceiving to the amateur as many of the show varieties of the Hybrid Perpetual division; such, for instance, as *Emilie Hausburg* and *Horace Vernet*—two grand Roses as seen on the exhibition stand, but quite useless for any other purpose, and even as exhibition kinds causing a great deal of trouble and seldom giving a flower.

You may choose among the show Teas and be certain of being pleased. Such free-growing kinds as *Anna Olivier* and *Marie van Houtte* will climb very well if given a little time, although they are not generally considered as climbing varieties. Under glass is where the true beauties and charms of the Teas are most generally found. Here they throw enormous quantities of flowers, that are all exceedingly pretty and useful on account of being

free from dirt. When growing in the open air, large numbers are often spoilt by unpropitious weather.

Tea Roses should be grown on the Brier stock in some form. It matters little whether they are on dwarfs of the cutting or seedling Brier, or upon full or short standards of the hedge Brier. I much prefer them on the short hedge Brier, say with a stem of 18 inches to 24 inches. In this form, such dwarf and drooping kinds as *Souvenir d'un Ami* and *Niphetos* are much better than as dwarfs. Their flowers in this way are kept away from the dirt, and at the same time the plants have not to obtain their nourishment through a great length of the Brier stem. The blooms of the Tea-scented and *Noisette* Roses last much longer when cut than the majority of those of the other classes, nor are they so liable to lose their colour and freshness as those of the Hybrid Perpetuals. Taken as a whole, a dozen plants of Tea Roses will give three times as many flowers as the same number of Hybrid Perpetuals. The so-called "Perpetuals" do not flower more than twice during the summer, while the Teas will give from four to six crops of bloom. The flowers are also produced in greater abundance and in larger trusses.—R.

—These have suffered more in my garden this winter than last. To the inexperienced observer this may appear to be rather strange, seeing that the frost has neither been so severe nor so prolonged as it was last winter. I think this can be easily explained. The condition of the plants in the autumn of 1890 and 1891 was very different. In the first-named year the ground was so dry nearly all through the winter that the growth of the Roses was hard and well ripened, but last autumn the frost came before Christmas and caught the Roses when they were in full bloom. The excessive amount of moisture in the soil, with mild weather prevailing for some time previously, followed by a week's severe weather in the latter half of December, was too much for the soft sappy condition in which the growth was. As a consequence, many of the late-made shoots are killed, and also some of the plants. Such tender sorts as *Innocente Pirola* and *Ma Capucine* are quite killed, while others are dead down to the ground-line. I am very glad to see that such varieties as the *Bride* and *Viscountess Folkestone* have safely passed through such trying conditions. The heavy rainfall of last autumn conclusively proved that these Roses do not object to plenty of root moisture, as was evident from their luxuriant condition up to the time the frost came, as I never remember to have seen the plants with such a number of flowers so late in the year. It is to be regretted, however, that the condition of the soil that suits them so well in mild weather is almost fatal to them in times of severe frost.—J. C. C.

Pruning Roses.—The rapid swelling of the buds is a very forcible reminder that it is high time to be thinking of pruning Roses, and not only thinking about it, but putting it into practice, especially in all cases where early flowers are required. Early pruning means early blooming, as the plants when the shoots are taken off soon start again at the base. To carry out the work properly, it is necessary to know the different kinds of Roses, as the Perpetuals, Teas, and *Noisettes* require distinct treatment, that requisite for the Perpetuals being to have all the small weakly shoots cut out and the others shortened back, so as to leave only about three buds, and then fine flowers will be the result. But if it is desired to produce many blossoms and have more show in the garden, the pruning should be less severe and double the number of buds be left on the plants. Teas, instead of being pruned, simply need thinning, or very little pruning beyond taking or cutting away the small inner shoots and reducing to about three parts their length all others, making the cut just above a bud and sloping in the same direction, as then the work is neat and the wound heals without leaving any dead wood. *Noisettes* or any of the climbing kinds, of which there are Teas and Perpetuals, should only be thinned and every shoot of medium size left full length, as it is

the buds on these that yield the flowers, and if spurred or pruned in the ordinary way of other kinds, nothing but wood-growths would be produced. With the pruning over, the next thing is to attend to the beds, but the digging of them—as some and many do—is bad practice, for this cannot be carried out without injuring the roots, and the better way is not to disturb the soil beyond what is requisite for removing weeds and cleaning the surface, or pointing or forking in a dressing of rotten manure. If the appearance of the manure is not likely to be objectionable, then it may be spread on the top and left, as the rains will carry the juices down, and when so placed it acts very beneficially by keeping out frosts and later on preventing the soil becoming too dry. To stimulate and help to strengthen standard Roses planted singly on lawns, where solid manure cannot well be applied, strong doses in the liquid form should be given, but before this is done the soil ought to be scraped away around each plant and put back again when the manure water has soaked in. This may with advantage be repeated from time to time all through the season, as Roses cannot well be overfed and like their roots moist when making fresh growth.—S. D.

STOCKS AND SOIL.

THE question of stocks for Roses is a very vexed one among many growers. Too many of them go to extremes in treating upon this subject; one will stand up for the Brier cutting, another for the seedling Brier, and far too often each one fancies his own pet stock is the one *par excellence* for Roses. It is very easy to be led away by one's fancy, or dare I say prejudice, for or against one stock. The stock that has proved itself best with you is not necessarily so with your friends or neighbours. Even in a single Rose garden, one stock will do much better on some portions than on another. How much more so, then, when one garden is upon a totally different soil to another. And yet we often find a writer upholding one particular stock against all others. Just as the *Paradise* or the *Crab* stocks are much better for Apples on some soils, so are the various stocks for Roses. There are many sorts of Roses that refuse to do well upon their own roots, and no prominent growers confine their plants to own roots alone. All gardeners are agreed that the stock has a great influence upon the plant worked upon it, and there are very many sorts of Roses that are useless unless grown upon a suitable stock.

Suppose the soil consists of a stiff and close loam, or perhaps what may be better described as a clayey loam. This is excellent for Roses, but not when growing upon their own roots. Own-root plants would be almost certain to fail in such a soil. Grow the same varieties upon a suitable stock, however, and the result will be a complete surprise to any who have tried to grow them upon their own roots. For the class of soil we have been noticing, it would be much better to grow upon the Brier stock in one of two forms—either the cutting or the seedling Brier. Should the soil be of fair quality and depth without a wet subsoil, I would advise the seedling Brier. If the soil is shallow and with, in all probability, a clayey bottom, use the cutting Brier stock. The seedling Brier will be the best for deep soil, as its roots will penetrate to a considerable distance. The same rule holds good with the Brier as with other plants; seedlings root much more deeply than those raised from cuttings. This should be borne in mind. It is very evident that upon shallow soils plants from cuttings must be best, as their roots will spread and have a much more horizontal tendency than seedlings. This is the reason that the cutting Brier does so much better in some places than others, while the same may be said about the seedling Brier stock. If you plant Roses worked upon the seedling Brier in a shallow soil, the main roots of the stock are so soon among the lower and oftentimes very injurious subsoil, that the Rose does badly, and in many such cases the grower condemns the stock when it is really the soil that is at fault. So much, then, for deep or shallow soils

of a heavy nature. A light, loamy and sandy soil is not so suitable for the Brier stock; therefore experienced growers prefer plants of the vigorous varieties on their own roots, and the *Manetti* as a stock for the weaker-habited kinds. The *Manetti* does well upon light sandy soils, and is suitable for many of the Tea-scented and *Noisette* varieties when growing in such composts. Many of our leading exhibitors of the Rose grow the bulk of their plants upon the *Manetti*, in spite of the many disparagements this stock has received of late years. I should be sorry if my readers imagined I was upholding this stock against others, and so practically contradicting the gist of this article, but I must reiterate my opinion that it deserves more commendation than it generally receives. Like all other stocks, its uses can be abused, and it is decidedly unfair to it when a grower runs it down simply because Roses worked on it do not do well with him. For the bulk of the Hybrid Perpetuals, Bourbons, and a few of the strongest Teas, it is a grand stock in the majority of garden soils, and as such it deserves a much more impartial treatment than many writers are apparently disposed to give it.

My readers will doubtless be aware that the *Manetti* is condemned for all Teas and *Noisettes*. However, upon suitable soils, I would quite as soon have the strong growers, like *Reine Marie Henriette*, *Gloire de Dijon*, *Bouquet d'Or*, *Cheshunt Hybrid*, &c., upon this stock as upon the Brier. Many others besides the strong climbers will do well also. I have grown *Mme. Lambard*, *Anna Olivier*, *Homère*, and even *Niphetos* budded upon the *Manetti*, and I would defy anyone to say in what way they were inferior to the same varieties upon the Brier stock. When the *Manetti* is in a suitable soil, and has not been allowed to grow too strongly before being budded, there are many Teas and *Noisettes* that will thrive very well upon it. I am far from upholding this as a general stock for Tea-scented or *Noisette* Roses, believing that the Brier in some form is much the best for these classes.

My own opinion upon the subject is that we should not have heard so much against the *Manetti* had it not happened that the seedling and cutting Brier became recognised stocks contemporaneously with a great advance in the cultivation of Roses, and as the seedling Brier is difficult to bud except close upon its roots, and so cannot throw so many suckers as an improperly worked *Manetti* stock, it soon took the lead, especially in the opinion of amateurs. A properly worked *Manetti* does not throw more suckers than the Brier, and, provided suitable varieties and soil are accorded it, I do not see in what way it is inferior to the Brier.

In growing the majority of the Hybrid Perpetuals it will be well to have some upon each of these two stocks, growing each in the soil most nearly resembling that I have already recommended for it. If you follow these lines you will find that the plants on the *Manetti*, from being in a drier and warmer soil, and also from this stock being naturally a little earlier than the Brier, will throw flowers some ten days to a fortnight before those of the same variety upon any other stock. There are some kinds that flower earlier than others, and I am certain that they come earlier still upon the *Manetti*. *Abbé Brameral*, *Souvenir de Charles Montault*, and others, for example, will generally open a week to a fortnight before *A. K. Williams* or *Alfred Colomb*, and oftentimes three weeks before *Baroness Rothschild*. I believe that the *Manetti* is also a much better stock for pot plants of the Hybrid Perpetuals than is the seedling or cutting Brier.

To make a short summary of these remarks, use the seedling Brier for stiff, deep soils, the cutting Brier for stiff shallow soils, and the *Manetti*, or plants upon their own roots, for light sandy soils. As for the various classes of Roses, use the Brier for the Tea-scented and *Noisettes*, or have them on their own roots; the Brier or *Manetti* for Hybrid Perpetuals and Bourbons, having regard to the nature of the soil they are to grow in. GROWER.

ORCHARD AND FRUIT GARDEN.

FRUIT TREES IN POTS.

THE engraving on p. 229 is from a photograph of a Peach tree trained as a pyramid in my orchard house. The tree is 8 feet high from the top of the 16-inch pot and 4 feet in diameter near the base; it is ten years old and carries a crop of sixty fine fruits. I have twenty-five of these trees in a single row, 4 feet

In the same house, which is 24 feet wide, I have at the sides two rows of dwarf standard trees, with stems from 2 feet to 2½ feet and round heads. These are much less trouble to train than the pyramids, and are therefore more suited to the general cultivator, as they can be kept in order by the pruning-knife and the shoots do not require tying out. They produce quite as much fruit as the pyramids, and can be well accommodated at the sides



Apple and Pear trees in pots. Engraved for THE GARDEN from a photograph sent by Mr. T. F. Rivers, Sawbridgeworth.

apart, in a span roof orchard house 100 feet long. The house runs from north to south, and the trees have the benefit of sunshine on all sides; this is, I believe, a most important element in the successful cultivation of the Peach. I prefer that the trees should not exceed the height of 8 feet to 9 feet, as, although the house is 14 feet to the roof and there is room for trees 10 feet high, the convenience of attending to them at a height which can be reached without trouble more than compensates for the extra number of fruit which a taller tree would produce.

of the house. The pots are placed on the surface of the border and not plunged, the soil is annually removed, and if the trees are in a healthy condition, it will be found to be a mass of rootlets in the autumn. I find that the roots of my trellis trees are apt to stray from the prepared borders as the trees increase; this is very often a sure source of disease and failure. The excessive fertility of the Peach and the energy required to produce the very solid stones need a continual supply of fresh nutriment, which the roots travelling outside the borders do not obtain. I believe my pot trees owe

their good health to the annual renewal of the soil, some of them (now forty years old) still bearing a good crop of fruit. It is possible that wall trees which sometimes appear to be hopelessly diseased may be restored by being treated as pot trees are—that is, by an annual renewal of the soil and the application of lime if this ingredient is not present in sufficient quantity in the soil.

Apple and Pear trees in pots cannot fail to be widely popular, the Apple under glass being very remarkable for quality, size and appearance, Cox's Orange being specially excellent for its beauty and flavour. The cultivation of Pear trees in pots is singularly simple. The trees should be on the Quince stock, grown as the engraving indicates; they can be placed in a glass shed at very close quarters until the time arrives to put them out of doors, that is, when all danger from frost is past, and they should then be plunged in a border prepared for them, over the rim of the pot, so that the roots should ultimately pass into the border. Pots perforated under the rim are preferable. The Doyenné du Comice is one of the best sorts for pot culture, being specially remarkable for its size, beauty and flavour. Owing to the increasing popularity of this Pear in the market, it would be very likely to pay commercially. A good many thousand trees can be grown in a small space, and no heat is required for the sheds. As it ripens from November to December, it comes in at a time when Pears are very much in demand.

The change which has taken place in the opinions held formerly about the cultivation of fruit trees in pots is curiously indicated by the fact that at one of the metropolitan shows, fruit grown in orchard houses is not allowed to enter into competition with the ordinary classes.

T. FRANCIS RIVERS.

KEEPING APPLES.

FOR many years past I have been under the impression that Apples did not need a dry, warm place to keep them satisfactorily in. It is my firm belief that a large number of the places used for storing Apples are quite unsuitable and useless. In these days when so much interest is being taken in the cultivation of hardy fruits, I think it would be well to bring before growers the importance of proper storage. Nor should small growers, such as cottagers, &c., be left in the dark. It is useless to grow good fruit, and then to not get half value for it through bad storage. But this is just what happens in many instances when Apples for late use are stored badly. If proof of this is wanted, let the grower who may have some good samples of Blenheim Orange or Ribston place a few in a warm, dry place, and others in a situation just opposite to this, allowing them to remain till March, and see if he takes them to a good fruiterer's shop what the difference in price will be. During the last thirty years I have had much to do with Apples both for market and private use, and during that time I always took much interest in the keeping of these.

I well remember when quite a boy going to a large private garden in Somerset to get Apples to take to market. In this garden the place of storage was a high stone tower, which had room above room. This tower had very thick walls and small windows. Here the Apples were stored on the floor. From this place at the end of March and beginning of April I have taken many bushels

of the very best and plump, and sound as when taken from the trees. And, in the garden which I took charge of first the fruit room was an old building. This had thick stone walls and the roof was thatched. It only had a very small window. In this room I have kept Blenheim Orange, Wellington, and many other kinds fresh and good till the end of May.

For the last three years I have been making experiments in keeping Apples to find out if damp was detrimental to their keeping, and I am convinced it has no bad effect on them. In the autumn of 1891 I took some rough wood cases into the orchard, gathered the fruit and put it into these cases. I then took these cases and placed them on the brick floor of the potting shed, allowing them to remain four months without looking at them. When I came to look them over and take them out for use, I was astonished to see how fresh and plump the Apples were. In this potting shed we had from 12° to 15° of frost, and it is very damp. The Apples had no protection except the wood of the box. I stored some of the same kind in a warm, dry room, but these did not keep half as well. DORSET.

MAINTAINING THE FERTILITY OF THE SOIL IN ORCHARDS.

If the land produces well, says Professor J. P. Roberts, of Cornell University, in a paper read before the Western New York Horticultural Society, we usually call it fertile; if it produces nothing, we say it is barren; and yet the land which produces little or nothing often contains far more of the elements of plant-growth than does the productive soil. The products of cultivated land are not, as a rule, the measure of the amount of plant food which it contains, nor the amount which may be liberated by scientific culture. In our farm vernacular fertility means production; whereas it should mean the amount of plant food which can be profitably set free by the best methods. To the orchardist the amount of plant food which the trees can get out of the land is practically the true measure of the fertility of that land.

Now, the roots of orchard trees after the trees are fairly well grown occupy very fully the entire ground except a small portion of the surface. From this time on the feeding roots are practically confined to the exact ground from which they have been feeding for the last fifteen or twenty years. The roots of fruit trees set the ordinary distance apart have extended themselves nearly as far into the subsoil at fifteen years of age as they will ever go, because there is little more food that can be reached in that direction. The surface roots have by this time extended themselves as far as they will grow, because they have met and interlocked with those of the adjoining rows.

How to get the orchard grown up to the time when it is in full bearing is now to be considered. First, the land should be reasonably dry. If it is very wet, it should be made dry by draining; if only slightly wet, the field may be thrown into ridges as wide as the rows of trees are to be apart, and if the plan is not to drain the land after the trees have begun to bring an income, then the rows and ridges should be wider—that is, a little land may be sacrificed in order to save the expense of draining, and where the land is not too dear, this is often the cheapest way to solve an embarrassing problem. Having decided the method of drainage, a full year should be given to preparing the land. It should be ploughed deep and often, and if thrown in ridges or lands the subsoil-plough should be used freely in the bottom of the dead furrows. If the land is at all sandy and poor, the ploughings should be not less than four, and none of

them should be later than the middle of September. With this start, for the next five to fifteen years, according to the variety of trees set, enough plant-food can easily be set free by shallow ploughing, cultivating and the use of surface crops. Many a young orchard is ruined by overfeeding with manures, as are also many by starvation, while the soil contains an abundance of food for all necessary growth. The tree is too often treated like the unwise dairyman treats his stock, which are fed to repletion when young, and semi-starved at maturity, when the demand for food is great, especially if a large surplus product is to be secured. Healthy, continuous, hardy growth and not too much stimulating nitrogen are what are wanted in both cases. In rare instances the land may be deficient in fertility. In that case, a little mineral fertiliser will be all that is needed. When the orchard begins to fruit heavily there will be an extra demand on the soil for food, and that must be met quickly and in a liberal way if large, superior fruit is desired. As the roots have been drawing upon this soil for several years, and as they can find no soil from which they have not already extracted the larger part of the readily soluble food, the tree suffers; the quality and quantity of the fruit diminish, and the tree becomes an easy prey to its enemies if something is not done. Something usually is done at about this period of the orchard's existence.

Not infrequently it is seeded down to Timothy, and very often this Grass is cut for hay, and thus more fertility is taken from the land. Of course, the Apple orchard cannot well be kept under the plough all the time after it has come into full bearing, because of the inconvenience of gathering the fruit on a ploughed surface in the autumn months. There is usually a better way than this. Clover should be raised so far as possible in the orchard, and it is not necessary to plough it up often, as Clover catches on sparsely-seeded land nearly as well without as with ploughing. This treatment usually provides sufficient nitrogen in conjunction with a little farm manure.

It should be kept in mind that we are dealing with trees that have occupied the ground for several years, that have already trespassed upon and robbed their surrounding neighbours, and that in turn have been robbed; and there is no escape from slow starvation if the trees are reasonably thick and nothing is done.

And first it should be remembered that, for the good of the trees and of the land, and for the total value of the product, the amount of fruit raised on a tree should not be large, and the quality should be of the best. Bearing this in mind, some questions arise. Is it not possible to prune the orchard by the same rules which are observed in trimming Grape Vines? Our grandfathers let their Vines grow as they would, and they never produced any really fine bunches of Grapes. As soon as we learned to control and direct the growth of the Vine, the value of the fruit increased a hundredfold, while the least possible amount of fertility was removed from the land. Is it not quite possible that fertility might be conserved, and the quality of King Apples, say, be improved by reducing the length of the limbs upon which they grow? Is it true that the nearer the total product of fruit is to the food-supply of the tree the better the results? Or, to state it in another form, are the Apples improved when the material of which they are formed is transported 80 feet through root and branch before they receive it? Is the soil of the orchard unnecessarily drawn upon by growing too much timber?

We assume that the fertility of the orchard has been maintained up to the time of its bearing. What I have said also implies that the trees have not been unduly forced by manure, but have made a steady, healthy growth, and have come into bearing early. What kind of food does the orchard want? Like other plants, it is likely to have enough of all kinds except potash, phosphoric acid and nitrogen. How shall it be secured? Would it be best to get the annual dressing of fertility wanted by purchasing commercial fertilisers, or by the purchase of cattle-food, to secure the desired elements in the form of farm manures by the help of animals?

If the orchard contains ten acres, it will carry 100 sheep from May to October, provided one-fourth of their food be furnished to them in the form of bran and cotton-seed or oil-meal. One hundred sheep, weighing eighty pounds each, will require for one-fourth of their daily sustenance one-half pound of meal per head. In the spring they will want something less than this, in the autumn something more. If these animals take ten per cent. of the manurial value from their food for their natural growth, there will still be left scattered on the land in solid and liquid droppings 228 lbs. of nitrogen, 146 lbs. of potash, and 90 lbs. of phosphoric acid; or 22·8, 14·6 and 9 lbs. respectively per acre.

One hundred and fifty bushels of Apples—that is enough to the acre if they are good enough, and too many if they are poor—contain about 8 lbs. of nitrogen and 24 lbs. of ash, 13 lbs. of which is potash, and 1 lb. of phosphoric acid, worth altogether about 7s.

How much the trees will require for increased growth, how many of the leaves will be blown away, how much nitrogen will escape by leaching, and how much will be restored to the soil by the Clover roots, and how much of the fertility produced by feeding the bran and meal the trees will be able to readily secure, neither the theorist nor the practical man can tell. No charge should be made the sheep for the grass, as the work they will perform in transforming the poor Apples and the worms into valuable fertilisers will be a fair equivalent for it.

Summing up the case, we have the orchard raised through skill and the unaided fertility of the soil. The draft made on the land by the production of Apples and the necessary growth of wood, and the losses of fertility which may occur, are to be fully met by restoring to each acre yearly, through feeding animals upon it, some 23 lbs. of nitrogen for the 8 lbs. removed by the Apples, 14½ lbs. of potash for the 13 lbs. removed, and 9 lbs. of phosphoric acid to replace the one carried off. It will be seen readily that if there is any deficiency it is likely to be in the potash, as scarcely more is returned to the soil than is removed by the fruit; so a dressing of potash is likely to not only improve the quality, but the colour and aroma of the fruit as well.

The hundred sheep would consume in five months at pasture 3750 lbs. of oil-meal, worth £5 12s. per ton, and a like amount of bran at £3 8s. a ton, and the two would cost together £16 10s. The value of the plant food left on the soil, computed at commercial prices, would be £8 12s.; but whether it is really worth that or not no one can tell. Can a hundred lean sheep, purchased in the spring, be made to gain £20 in value in five months of grazing and grain feeding with half a pound of meal per day per sheep, or with the feeding of three-fourths of a pound, if thought advisable? I cannot answer these questions accurately myself, and I leave them for your consideration. Yet I believe that the orchardist is growing too much wood,

too many Apple seeds, too many Apples, too poor Apples, too many badly coloured and badly flavoured Apples, and that this may be remedied by heading back the trees in lieu of thinning them, and by furnishing to the bearing orchard yearly a reasonable amount of available plant food, largely through the aid of plants and animals. I am well aware that the methods here suggested will have to be varied to suit local conditions; still I claim that the principles involved are correct, and that if they are intelligently practised in connection with the best known methods of defending the fruit from its enemies, a great advance will be made.

I contend (1) that the soil should be cultivated and plant-food set free to the utmost limit; (2) that leguminous and tap-rooted plants should be used as plant-food gatherers; (3) that animals should be kept as much for the value of the manure they produce as for the profit realised from their other products; (4) that the least possible amount of stalk and vine and limb be grown consistent with economy and the health of the plant; and (5) after having practised all the economy possible, if there is still a lack of fertility, in order to secure the highest quality of product and the greatest net income, that commercial fertilisers of a high grade should be applied with a liberal hand. If it is found at any time that commercial fertilisers give better net results than farm manures, then there should be no hesitancy in changing from one to the other. I believe that farm manures which have lain in the open yards or have been heated, and which have to be drawn long distances, are far more expensive than are high-grade fertilisers. Well-preserved manure is worth, on an average, scarcely more than 12s. per ton, and our experiments prove that such manure, exposed in piles from April to October, often loses one-half of its value; therefore, I am led to believe that many tons of manure which are transported from the city contain less than 4s. worth of soluble plant food. This manure may act beneficially as a mulch, but, so far as the plant-food it contains is concerned, it is too often an expensive way of preserving the fertility of the land.—*Garden and Forest.*

THINNING FLOWER-BUDS ON PEACH TREES.

SUNLESS, comparatively speaking, as was last season, it does not appear to have prevented the production of abundance of fruit buds. Peach and Nectarine trees, both outside and under glass in our own garden, and judging from reports in others, are in a very satisfactory condition. Out of a great many trees there is only one solitary instance of the buds being rather scanty, and this even not to jeopardise the crop. Whether it is because the trees growing against outside walls are better attended to than formerly, I cannot say, but there does not appear to me to be the same amount of anxiety as regards the success of the crop as there used to be. The trees on the outside walls are simply smothered, the large, plump buds even at this early date showing up wonderfully well. But however gladdening is the sight of this unusual show of flower-buds, certainly it does not necessarily follow that this will be followed by full crops of fruit, as in this fickle climate of ours we have the inclemencies of the season to contend against. Warm coverings over the trees on outside walls will do much to help dispel any misgivings. With trees under glass there cannot be any doubts, for with a good show of bloom the general treatment or formation of the borders will have to be radically wrong to destroy the hopes of a crop of fruit.

It is a well-known fact that any tree after blooming is weakened to a certain extent, and many people who may not have given the subject suffi-

cient thought have been very much surprised that such an unusual show of bloom has been followed by so little fruit. Considering, however, the weakening effect over-blooming has upon any subject, it is not at all surprising. To secure well-proportioned fruits, well-nurtured flower-buds are necessary. Thinning the fruit by most people is looked upon as a necessity, and I will also say that thinning the flower-buds should be looked upon as a like necessity. The stronger buds are easily noticeable by their bolder appearance. These should be retained, all the smaller buds being removed, and triplets should be reduced to one. In thinning the buds remove those from the under side of the shoots, retaining those that point upwards. Considering the brittle nature of the buds, they are easily removed—in fact with much greater ease than if set for fruit, so really instead of extra time being spent on the trees there is less in the long run. I have also noticed that trees on open walls, where the bloom-buds as they open are thin, are less likely to become infested with green fly. I am aware that some people are rather nervous in removing flower-buds, thinking that by so doing they are lessening their chances of a crop of fruit, when really the opposite is the case. As a word of caution against attacks of green-fly during the flowering stage, take all necessary precautions in giving the trees if on open walls a thorough drenching before the flowers open, either using soapbuds or a decoction of Quassia chips. Tobacco water, as is well known, is also a good remedy. At this stage it is too late to apply the petroleum antidote. With trees under glass fumigating is the best remedy, and should always take place immediately preceding blooming.

Y. A. H.

STARTING LATE VINES.

It was a common complaint last season that the latest Grapes had not finished up well. With this the season doubtless had much to do. It will be remembered the spring was very late, and those people who, as many are in the habit of doing, allowed the Vines to start away naturally found them later than usual in making a move, and when they did start, doubtless worked on the penny-wise-and-pound-foolish system of being very niggardly with the fuel. Grapes to keep well must be well ripened, and if this stage is not reached during the month of September, it is almost hopeless to expect it afterwards. Indeed, I like to see the colouring of late Grapes well advanced during the early part of the month, as then there is every possibility of the Grapes keeping well. Late-ripened Grapes shrivel very quickly, and their keeping properties are considerably reduced. In the ripening of both wood and fruit sun-heat is the main factor, although artificial heat has to be resorted to, for I doubt whether late Grapes could be ripened sufficiently without its aid. Artificial heat without sunshine is a poor aid in itself to bring about the desired end. The question is what are the best means to adopt to secure well-ripened Grapes that will prove both good in flavour and also keep sufficiently well after being matured. Sunshine then being the normal factor, it conclusively proves that the earlier the Vines are started into growth, the better ripened the fruit will be.

To assist this further, artificial heat must be applied in conjunction so as to forward them well during the earlier spring months. If the Vines must be forced, force them more during the earlier stages. Many people find their mistake out too late, and apply the extra heat at the wrong time. Late Vines should be started not later than the second week in March, and the first week would be even better. For such late kinds as Gros Colman, Lady Downe's, and last, but not least, Mrs. Pince, a long season is of the greatest benefit, and for the former and latter named kinds this is very essential. Late Muscats should also be started at the same time, for if this is not done they will not take on that bright amber colour so desirable in this noble Grape. Right throughout the season of growth I like to maintain a comfortable heat in the pipes, except perhaps whilst the sun is shining,

but at night-time and on dull days also starting the fire sufficiently early to get the heat to circulate before nightfall, or before the temperature has dropped too low. Stated or fixed temperatures I have not a deal of faith in, although I must admit they are a useful guide for young hands. Once master the details of gauging the temperature by the heat in the pipes, it will be found more reliable than a thermometer at certain times. Very often, as soon as the Vines have started fairly into growth, the fires are let out for two or three weeks together, even where the consumption of fuel is not an object. By such a system well-ripened Grapes will never be had. Some people are under the impression that being late Grapes, and required as such, the more backward they are kept the better. Such views are very erroneous, and the sooner they are dispelled the better.

A. H. S.

NOTEWORTHY FRUITS OF THE PAST YEAR.

THERE are not nearly so many of these that call for special remarks, as in the case of flowering plants. One fine-looking Grape, at least, has been shown, the future of which will no doubt be watched with considerable interest. I allude to the Black Duke, to which the premier prize was awarded at the Edinburgh International Fruit Show in September last. Having had the opportunity of judging of its flavour on that occasion, I can speak well of it. It has the refreshing and juicy qualities of the Hamburgh, whilst the bunch partakes more of the Barbarossa in style and berry, the latter of first-rate colour. I only judge of it as there shown and tasted, but cannot speak of its merits as a grower and cropper. It is the result of a cross between Duke of Buccleuch and Gros Guillaume. In Figs we have a decided acquisition in St. John's, which will prove a first-rate kind for early forcing in pots, being a good cropper, also retaining the autumn-set fruit well. As shown, it has a tendency to form itself into a standard, this mode of culture in many instances being most beneficial. Its flavour is excellent, being both rich and juicy. As it fruits in quite a young state, it has thus another point in its favour. It has been awarded a first-class certificate. An addition has been made to the English cultivated Bananas in the variety shown at the Chiswick meeting in June. The example there shown under the name of Lady's Finger was a large cluster with fruits below medium size, of first-rate flavour, and densely packed upon the bunch. As to its height and adaptability for general culture, no record was presented; its fruit was certainly promising. The most prominent addition to the Nectarines since the introduction of Lord Napier is undoubtedly the new variety provisionally called Rivers' Seedling. It has been fully proved as an exceptionally early kind, and will in this essential alone be most valuable; to this, however, must be added the other good qualities of size, colour and flavour. This fine seedling was well shown at the Temple show in May last. The past season has not been a prolific one in the additions to the Peaches, no kind of very great note or decided advance having been exhibited. This, probably, will not be regretted, considering we have so many first-rate sorts in cultivation at the present time. In Apples there is a promising kind in Chelmsford Wonder, which in one year received first an award of merit in the spring, and later on last autumn a first-class certificate. Its appearance, as shown, speaks well for it; its flavour is, as a cooking Apple, also good, the fruits keeping well. Pines, not now so much grown in English gardens, have received an addition in the seedling called No. 5, shown at Chiswick in October. Whether it will prove to be a decided advance is yet to be ascertained. Although first shown at the last Pear conference at Chiswick, the new seedling Pear named Conference may be fairly considered as a new kind still. As shown during the past year, it bids fair to be a standard sort; the fruits are of a beautiful shape, russety brown in colour, and the tree a prolific bearer. Two other Grapes besides the one alluded to previously are likely to find their way

incomparable; and thus far they have both been shown well by the raiser. I merely allude to the kinds, viz., Appley Towers Seedling and Early Hutt, as detailed descriptions have been already given. Another sort previously known and of French origin is Chasselas Napoleon; this is a handsome looking kind and a good keeping Grape. If it can be included amongst cool house sorts it will be more of an acquisition. New sorts of Melons were not so abundant as usual during the past season; those shown and duly recognised for their merits will no doubt be seen in better form if the coming season prove to be a more favourable one. Two of the most promising were Wythes' Seedling and Halstead Favourite. Two very decided advances in Strawberries should be noted; these bid fair to be of superior merit, the flavour being excellent, whilst the appearance left nothing to be desired. These sorts are named Lord Suffield, with dark coloured fruits, and Gunton Park, which is more after the British Queen type. The foregoing enumeration of new fruits includes the most promising as shown on various occasions and at different shows about the country. It often happens that it takes a few years longer to thoroughly prove any kind, also to ascertain its certain peculiarities as to soil and general treatment. One often hears it said that we have already too many kinds of each respective sort of fruit. This may be so in a few cases, but, taken as a whole, there are not too many first-rate varieties. The advantage of a good choice lies in the fact of having more sorts to select from when one or more in certain localities fails to give satisfaction. Herein lies, I consider, the essential advantage of a good choice in fruits, whether new or old kinds. The variations as regards soil make a vast amount of difference to growers. Positions also have to be studied. When, therefore, one can choose from a number of kinds, it must follow that success will be more certain. Too many kinds of fruit are, I readily admit, grown in gardens, but those only should be retained which have proved to be trustworthy. In another locality these same varieties would perhaps fail; when, therefore, there are still other sorts that may be tested, it must be an essential advantage to possess them. Even under glass in some instances this holds good, but not to the same extent as in the open. H.

Flowering of fruit trees.—Writing of Peach trees in *THE GARDEN* for February 27 (p. 196), "E. H." says, "It is rather remarkable that when early and midseason Peaches are grown in the same house, the earliest trees to open their blossoms are not the earliest to ripen fruit." This, however, is not confined to Peaches. The most forward tree amongst my rather large collection of Pears as I write is a pyramid of Easter Beurré, which is well known to be a very late Pear in ripening generally. Near to this tree are two others, viz., Williams' Bon Chrétien and Brockworth Park, which to all appearance will be a week later in opening their blossoms, yet if they bear any fruit it will be ripe at least four months before Easter Beurré. Amongst Grapes, Buckland Sweetwater behaves in just the same way when it is grown in the same house as Black Hamburg. The bunches will not be out of bloom for ten days or a fortnight after the Hamburgs are over, yet Buckland Sweetwater will be ripe quite a fortnight before the Hamburgs.—J. C. CLARKE.

Alexander Peach dropping its buds.—For the last three or four years I have been more than puzzled to account for the persistent dropping of nearly all the earliest formed and apparently healthiest buds of this extra fine early Peach whilst growing alongside in the same house and border as Hale's Early, Stirling Castle, Bellegarde, and Lord Napier Nectarine, none of which drop their buds to any appreciable extent beyond what is generally found in all very early forced Peach houses. In the above house all share the self-same treatment with such widely different results, that, combined with reports from other growers, I am forced to conclude that this Peach is guilty of jilting one, or otherwise possesses some

hereditary faults of this kind. Alexander has this redeeming feature, that, when nearly all one's hopes have vanished, it sets about developing some small latent flower-buds hitherto unnoticeable, which in process of time open well and set freely, ultimately swelling and ripening large highly-coloured Peaches four to six weeks before Stirling Castle, which had much the best in starting. In 1891 the house referred to above was closed on December 1, and Alexander was ripe at the end of April; whereas Stirling Castle was not ripe until early in June. Bud-dropping is generally supposed to arise from dryness of borders, insufficiency of water at some period, badly drained borders, loose borders, too high temperatures at starting, strong insecticide dressings, or unripeness of wood, but all of these we are proof against by timely precautions. The only suspicious point open to me lies in my inability to entirely remove the roof-lights for thorough exposure, which possibly brings the buds so very forward in the early autumn, being over-matured, consequently in danger of a check brought about by colder weather during what was intended to be the resting period, although I do not infer that Peach trees are ever dormant or stationary. Possibly my inferences are wrong, but seeing there is quite as much gained by publishing one's reverses as one's successes, I should like other growers' experiences with this fickle kind. Discussions have been carried on in a contemporary by Peach growers, able to take all sorts of liberties with Peach trees, who may be able to throw some light thereon. I may add I have tried root-lifting whilst the leaves were green, but the results are the same. I annually manage to secure a crop, as before described, but am not satisfied, hence my query as to this vexatious cause of bud-dropping.—W. CRUMP.

APPLES FOR VILLA GARDENS.

MR. DOUGLAS (p. 149) gives excellent advice regarding the planting of Apple trees in small gardens, but I must take exception to the list of kitchen varieties which he gives, for the reason that they will not be found to succeed on all soils. No doubt they are excellent for soil of the character which he has to deal with, but in giving lists for the benefit of those who do not understand hardly anything about either the varieties or the best method of cultivating them, sorts should be recommended which are likely to give satisfaction over a wide area. The soil which Mr. Douglas has had to deal with, as shown by the article in question, is not by any means the worst for Apple growing. Trees are not so liable to be affected with canker in that as they are in soil which is heavier and consequently colder during winter and spring, the periods in which canker is most generally generated. More varieties of Apples will succeed in soil of the character he names than in that which is heavier, consequently more retentive of moisture during the resting period of the trees—the time when it is least required. Another fault I have to find with his list is that of recommending two sorts so near alike as Lord Suffield and Lord Grosvenor in a limited half-dozen. There is little difference in the appearance of the two named. Both ripen together, or at least are ready for use at the same time, and both belong to the Codlin type. Lord Grosvenor I prefer, because it not only will succeed where the former fails, but its habit of growth is better, especially for small villa gardens, as the branches grow more erect, and consequently occupy less space, yet the produce is quite equal, owing to the short-jointed growth which the trees make. I consider this variety the very best for giving an early supply of kitchen Apples in any soil. In November, 1890, I planted several bush trees of it. All showed plenty of bloom, which was removed before opening to give strength to the trees. One tree, as an experiment, was allowed to carry fourteen fruit; these swelled to a large size, and at the present time the tree does not look a bit the worse for its heavy load. There is an abundant promise of a full crop for the coming season. New Hawthornden and Dumelow's Seedling are too doubtful to warrant

their inclusion in such a small collection. With Mr. Douglas the latter cankered, and I know it is not to be recommended in a soil which is not quite the best for Apple culture. My experience of it is anything but satisfactory; although a splendid Apple where it does succeed, it will not do that everywhere. New Hawthornden is certainly miffy in cold soils, seldom bearing a full crop, either as a bush or a standard. I append my selection of half a dozen sorts: Lord Grosvenor, Stirling Castle, Warner's King, Lane's Prince Albert, Bramley's and Northern Greening. E. MOLYNEUX.

DISBUDDING AND STOPPING VINES.

It is only by close attention to various comparatively small cultural details that many Grape growers succeed in producing presentable crops under, in many instances, great difficulties. Private gardeners are situated very differently to market growers, and I maintain labour under disadvantages of which outsiders have no conception. As a rule, those who grow for the markets crop far more heavily than private growers can venture to do. The former have no fear of a future or early breakdown, for the simple reason that they are in a position to quickly root out one lot of Vines and replant others; whereas the private gardener has to be very careful of the health of the Vines under his charge, well knowing that anything like a failure would not easily be explained away, or at all events the reasons for it would not be considered satisfactory by most employers. In very many gardens there must be no rooting out of old Vines, nor in the majority of cases can enough fresh loam be procured for ordinary purposes, let alone the formation of new Vine borders. With the roots nobody knows where, borders stale and really distasteful to the roots, too little water in many cases, not enough manure in others, no allowance of special manures being made, and other difficulties that might be added, it is not much to be wondered at that there are plenty of failures—partial or complete—that might be chronicled, and there would be still more if the cultural details were not better attended to in some cases than in others.

With the Vines in a decrepit state, it is of the greatest importance that there be no undue waste of what energies they do possess, and it ought not to be tolerated even if they are in a more vigorous condition. Disbudding, timely and judicious, is really a very important operation, and stopping is equally so. In private gardens the houses are turned to such a variety of purposes, that anything like a complete rest is rarely, if ever, accorded the Vines, and in this respect, again, the market grower has the advantage. When the houses are thrown open for several weeks after the Vines are pruned, no attempt being made to shut out frosts, a thorough rest is ensured, and a strong and even break an equally sure consequence when they are once more restarted. Contrast this with the behaviour of many of those Vines that are never rested, owing to the necessity for the houses being kept sufficiently warm to suit pot plants, and I have no doubt what the verdict will be. The non-rested Vines break most irregularly, and unless more than ordinary pains are taken by those in charge, an unsatisfactory crop is the result. What should be done is to freely and early thin out the buds where there are more than will be required, and to stop any shoots that are taking the lead at the second joint beyond the selected bunch as soon as they can possibly be got at. This timely check quickly diverts the flow of sap elsewhere or where more wanted, backward

buds and weakly shoots being strengthened or even rendered fruitful accordingly. The latter may seem to be a somewhat extravagant assertion, but it can easily be tested, though not so readily disproved. Rub out the outer buds, and those next in succession will break more strongly, and, what is somewhat inexplicable, will be usually well furnished with bunches. I repeat inexplicable, as it is somewhat difficult to account for the disappearance of the bunches, always supposing they were originally stored in the bud. With the Vines in a vigorous, well-rested state, the break being strong and even, delay in disbudding and stopping may not be of very great importance, but it is inadvisable all the same; while in the case of any breaking irregularly, these ought to be gone over almost daily. The removal of a few buds and stopping of only two or three shoots may have a far more beneficial effect than at first sight seems possible.

Not unfrequently very many more buds or shoots are left on the Vines much longer than they ought to be, in order that those in charge may have a greater selection of bunches than would be the case if early and somewhat severe disbudding were practised. Inexperienced growers may plead this excuse justifiably, though not if they leave whole clusters of buds where at the most two would be ample, while experts ought to be able to decide much earlier which to retain, especially when there is plenty of stout, blunt-pointed productive buds to select from. These, as a rule, produce from two to four embryo bunches in each, and afford plenty of scope for selection. In the case of grosser varieties, among which I will include Gros Guillaume, Duke of Buccleuch and Golden Champion, the stoutest shoots of these sometimes fail to produce bunches, and it is advisable, therefore, to early remove these and depend upon the back breaks for producing bunches. With me, Gros Maroc, Gros Colman, Alicante, Mrs. Pince's Muscat, Lady Downe's, Alnwick Seedling, Golden Queen, and Mrs. Pearson have never failed to produce bunches freely from the strongest breaks, and it need hardly be added Madresfield Court, Black Hamburgh, Muscat of Alexandria, and Foster's Seedling are equally productive, while Buckland Sweetwater scarcely deserves such a good character. If from any cause Vines in good health fail to produce or early lose what bunches are formed, the plan of removing all the laterals in the hope of securing a crop from back and it may be still dormant buds has much to recommend it. Even if the latter should not produce the requisite number of bunches, nothing will have been lost by resorting to this bold experiment, and if it leads to the formation of fresh young rods to take the place of exhausted or crippled old ones, may be the means of laying the foundation of a prosperous fresh start. From first to last there ought to be no delay in stopping the laterals and sub-laterals; allowing these to lengthen and strengthen so much as to require cutting back with a knife is a great waste of energy, and the principal cause of a faulty finish of crop. W. I.

Pyramid Pear trees.—Should a favourable flowering period be experienced, the owners of pyramid Pear trees will very likely have a good time of it this season. Very many of the wall trees are but sparsely furnished with flower-buds, but not so those in the open. The latter are exceptionally promising in appearance never more so, in fact, the flower-buds being both numerous and strong. There are few or no exceptions to this rule, even those trees that have borne heavy crops for the last two years being as well furnished with buds as any that have not been so hard worked. This affords yet another proof that a sunless sum-

mer is not particularly injurious to fruit trees, and that they more often than not suffer from want of sufficient moisture at the roots.—I.

KITCHEN GARDEN.

REMARKS ON PLANTING POTATOES.

LAST year the month of February was exceptionally fine and open, and the ground being in an excellent state, I unhesitatingly completed the planting of the whole of the late or main-crop Potatoes, and the result, in spite of very severe March frosts, was highly satisfactory. A

stirred or got into a finely divided state at planting time, and when once it is found to be sufficiently dry to admit of trampling on it with impunity, then all hands are set to work and the planting hurried on as expeditiously as a hay crop might be got together in a showery season. No scamping of the work is tolerated, however, and I have a very strong objection to the ordinary labourer's favourite trick of glossing over the surface. If lumps of soil are left anywhere near to the Potato rows, these ought not to be just below the sets, but rather on the surface of the ground where they can easily be broken to pieces before the moulding up takes place.

Planting with the aid of ploughs may answer fairly well on free-working soils, but it is about the most slovenly and objectionable method that can well be tried in private gardens, more especially in all cases where the soil is of a heavy, clayey nature. Deeply-worked, finely-divided soils invariably yield by far the heaviest crops, let the season be what it may, while ground that is only stirred to a little depth and left in a lumpy state never really repays for even that small amount of labour bestowed upon it. Planting with a spade is a favourite method hereabouts, no other, in fact, being seen in other than the gardens under my charge. In not a few cases the ground has not been manured or dug since the preceding crop was cleared off, and as a consequence is not stirred much below 6 inches in depth. When this rule is departed from, the ground being either trenched or dug a full spit deep during the winter, spade-planting is still objectionable, as it is apt to leave the soil in the drills too closely united to suit the Potatoes when their roots commence to ramify. The digging-fork is to be preferred to spades, and it ought to be possible with these to open drills, cover the sets, and to loosen the spaces between the rows all under one operation, and that, too, without leaving lumps of soil or soil run together anywhere. Two-tined or Canterbury hoes are not often met with out of Kent and Sussex, where they are absolutely necessary for the purpose of chopping and fining down the stiff Wealden clays, but their use might be extended with advantage to other localities where the soil is naturally of a tenacious description. Not only is the ground after being well laid up during the winter thoroughly chopped and the lumps broken down with the back of the hoes, but the drills are also opened with these hoes, this further loosening the soil and bringing up any lumps previously



Peach tree in pot in Mr. Rivers' nursery. (See p. 225.)

very different state of affairs prevailed this February, the ground being in a close, cold and saturated state, and it would have been little short of madness to have commenced Potato planting. Being laid up roughly to all weathers, the heaviest soils ought soon to become well pulverised, the frosty winds of March being especially searching, and only a moderate amount of rainfall will then be needed to render the ground fit for planting. As far as Potato planting is concerned, I am altogether an "opportunist," that is to say, the first favourable opportunity is taken for getting the bulk of this done, whether this be in February, March, or April. I hold it to be of primary importance that the ground for Potatoes be well and deeply

missed. After the sets are in position, the hoes once more perform their part in moulding over, followed by a loosening generally between the rows. As will be readily understood, this is a very laborious proceeding, the planting taking three times longer to perform than is the case when the work can be done with a fork, but it pays for the trouble taken, Potatoes turning out surprisingly well from clayey ground thus cultivated.

More really depends upon the preparation of the ground than either the quality or quantity of manure that may be used; in fact, the latter can very frequently be well dispensed with when Potatoes are grown in succession to other crops for which manure was freely applied.

Especially is this the case when bastard-trenching has been resorted to, the small quantity of fresh or, it may be, virgin soil brought up and mixed with that on the surface apparently supplying the needed fertility. Even when Potatoes are grown for several years in succession on the same ground, it is not a great amount of manure that is required to cause them to produce profitable crops. Those heavy dressings of nearly fresh and very rich farmyard manure spread by farmers in the Potato drills certainly seem to answer well, but if the ground was better cultivated and less manure used, the crops would be heavier and the tubers fit to eat. The private gardener's substitute for the farmer's solid manure is usually old hotbed manure, with nearly all its virtues evaporated or washed out of it. Far better would it be in most cases to reserve the heap of vegetable refuse that accumulates in every garden especially for the Potato plots, this being first prepared by turning and separating, stones being thrown out, sticks and other coarse materials burnt, and the residue mixed with the larger heap of fine or fairly well-decayed matter. If to every five loads of the latter is added one load of fresh lime, the whole, after the latter is slaked, being well mixed together, a perfect manure for Potatoes will be formed, successional crops being benefited and the ground, in fact, permanently improved by its application at the rate say of from fifteen to twenty cart-loads to a quarter-acre plot. If somewhat scarce, there is no reason why the Kentish cottagers' time-honoured custom of distributing decayed garden rubbish or refuse freely in the drills after the Potatoes are planted should not be resorted to, and for this purpose the trug baskets common in Kent and Sussex are very handy, these saving much wheeling over the ground.

According to various authorities and analyses, potash is largely present in the ashes of Potatoes, and it is the absence or otherwise of potash salts that largely affects both the weight and quality of the crops. A heavy dressing of humus, for that is all that old hotbed manure amounts to as a rule, may, in conjunction with fairly good culture, lead to the production of a moderately heavy crop of tubers; but what is the good of these unless they are fit to eat! Supplement the decayed manure with a sprinkling of potash salts in the drills and another in the case of late varieties when these are "hacked" or hoed among prior to moulding up, and the probability is the crops will be superior in every way. Kainit is the cheapest form of potash salts, and can be had in a concentrated form at about £4 per ton. Each year I tried this in connection with poor solid manure; 4 cwt. per acre proved ample. For the past two seasons I have substituted what is known as double salts, or sulphate of potash and magnesia; this is applied at about half the rate recommended for kainit. It is a more expensive manure, but the extra outlay is more than compensated for in the improvement effected in the weight and quality of crops. The tenth crop in succession from the same plot of ground was taken last year, and in spite of the most unfavourable season the quality is surprisingly good. Better Potatoes than I now have never have been placed before me, and much of this is attributable to the use of potash salts. Strong nitrogenous manures ought never to be applied freely to Potato ground, but a judicious use of either guano or superphosphate of lime or both in mixture is usually followed by most satisfactory results, and soot freely used is also good for this crop.—I. M. H.

The man who prepares his sets so that they may be in the best possible condition for planting, and also sees that the soil is in a suitable condi-

tion, may look for good results. The preparation of the sets need not be referred to here, as this has repeatedly been commented on lately in the pages of THE GARDEN. All are agreed that a well-stored and prepared set is the most likely to give the best results. Sets kept in a dry store, so that they may receive a thorough rest preparatory to planting, are those likely to produce the largest yield. This I have referred to in passing, as I have seen it noticed that sets for planting may be left in the rows that they were grown in during the whole of the winter, protection from frost being guarded against by earthing over with extra soil, the argument being that chance sets left out in the open during the winter generally remain sound and good. This, I think, is an erroneous opinion, for although the sets may be preserved sound, yet when taken up for planting they do not start away with the same vigour as the more rested tubers.

As regards the most suitable time for planting, there is often a conflict of opinion, some favouring early planting and others late. The time of planting does not appear to have any effect upon the crop, but such is the case, as it has been proved by carefully conducted experiments that the yield has been very much reduced when the planting has been carried out too late. This has been more particularly noticeable with the later varieties than with the earlier ones, although these are subject to the same deterioration when planted later than they should be. When the soil is in a dry and well pulverised condition, gardeners, directly March is in, cannot resist the temptation of setting about the work in earnest, that is with the later kinds, for, incredible as it may appear, except for a few for early digging, and where they can be protected if need be, the later kinds are generally planted first. During the early days of March last season quantities of Potatoes were planted, and although a very inclement time followed, I do not think that any harm followed. This season the elements are against us for early March planting, although a few days often make a deal of difference, but, except for getting the work over, no appreciable difference would be noticed in the yield if planted from the middle up to the end of the month, or even the first week in April; after that time, however, the yield is apt to gradually decrease.

A passing reference to the dreaded Potato disease will not be out of place in these notes, for though planting has no direct influence, yet indirectly it has. As is well known, the disease rarely attacks the earlier varieties to do them any serious harm before the end of July, and this being so, it is clear that too late planting with these is a mistake, even if required only for seed, as I have known late-planted breadths which were to be reserved for this purpose become badly attacked simply through late planting. The yield of the early sorts will not be materially affected if planted either at the early part of April or up to the latter end, but those first planted are more likely to be the freest from disease. After May is in the yield will decrease, and also be liable to the attacks of disease. With the later varieties the time of planting (unless done too late) does not materially affect the tubers.

If good results are to be expected, the soil must be in a highly pulverised and fertile state and also well drained. It is on the badly-drained soils that the quality of the tubers deteriorates. The ground being also cold, prevents those chemical changes which a well-drained and consequently aerated soil conduces to. Growing the Potatoes on the same plot of ground year after year cannot but affect the tubers, for although there may be bulk, they must be short of those constituents which go to form good quality. Certainly this may be counteracted to a certain extent, for in these days of chemical research it has been proved that the same crop might be grown on the same plot of ground annually if pains are taken to return to the soil those elements which the previous crop has extracted. There are some soils so rich in the mineral constituents which go to form the Potato, that ordinary manuring will enable the Potato to be grown on the same plot annually. Look at the fine crops which the cottager is often

enabled to produce in his garden annually. Coming nearer home, our earliest Potatoes outdoors have been grown on the same south border for the past six years, the only addition being a dressing of burnt refuse and old Mushroom-bed manure. I have never seen better crops than from that border, and the quality is also first-class.

Potash and phosphates are the known elements which materially add to the quality of the Potato, and where these are deficient the quality is depreciated accordingly. As regards the manure to use, there is often a conflict of opinion. One man puts his faith in artificial manure and another uses horse and cow manure only. At the present time scientific knowledge is now asserting itself, or rather people are becoming more fully alive to its principles, and the time is coming when both farmers and gardeners will agree that it is greatly to their benefit to act in conjunction with the chemist. The question is what are the best manures to apply at planting so that the best results may follow. If after applying the ordinary manure the best results are not obtained, it will be as well to consider what we can add to the soil so as to make a change. I was speaking to a large farmer and Potato grower the other day when the question turned upon manures for Potatoes. He told me that, instead of using farmyard manure for his crop, he gave a dressing of lime instead, when the crop far exceeded his expectations both in quantity and quality, turning out when cooked, to use his homely phrase, "like a clod of lime." The soil, I must say, was in a high state of fertility, being well drained, and it had previously been well attended to as regards manuring. There cannot be any question as to the beneficial properties of lime on over-manured soils, which are consequently over-rich in humus and devoid of those mineral constituents which are so essential to the production of Potatoes of high table quality. The lime is best applied after the drills are got out for the sets, sprinkling it equally over the surface previous to laying in the sets.

Potash and phosphates, being those constituents which are beneficial to the Potato, are best applied in the form of superphosphate of lime and kainit, a form of potash, or, failing this, muriate of potash, to form the basis for the potash salts. These should be mixed together and applied at the time of planting. A sprinkling of guano would also add to the fertility, but this perhaps would be better applied by sowing it over the surface as soon as the growth appears through the surface, afterwards hoeing it in. Equal parts of the kainit and superphosphate of lime, at the rate of 4 cwt. per acre, would be a fair dressing—the guano at the rate of 1½ cwt. Manure from the stable and farmyard is best applied to the surface and dug in previous to planting. I have had good crops of early Potatoes by drawing out the drills and laying spent Mushroom-bed manure direct into the drills, laying the sets on top. Various are the plans of planting adopted. In my district, where there are hundreds of acres planted, the method adopted is by the double plough—an implement made for the purpose and adapted both for planting and earthing. But we need not discuss the methods for large fields, but for garden or home use. Out of various ways, the best I have seen is using heavy and wide hoes, commonly called "calfs." With an implement of this kind it is astonishing how quickly the work may be got through, and the work attending the chopping out of the rows and filling in all assist in getting the soil into a pulverised state. The depth to plant must be gauged by the texture of the soil, as on heavy soils we find it of great advantage to plant nearer the surface, drawing extra soil to them from between the rows.

The width between the rows is of the utmost importance. For the earlies, the rows should not be less than 2 feet apart, with 1 foot or even 15 inches between the sets. This has reference to the Ashleaf section, whilst with the second earlies or the late, 30 inches will be close enough, and for the latest 3 feet. With the second earlies, the length to which it is known the haulm will grow to is the gauge, whether the distance be 30 inches

or 3 feet. There cannot be any mistake in giving them the maximum amount, whilst with close planting there is, so that it is best to plant at the widest distance if there should be any doubt. By allowing a fair distance between the rows, light and air, which are so desirable if stems are to be built up with sufficient tissue in them to stand well against attacks of disease, can have free access. Certainly, cultivation is not sufficient in itself to ward off the disease, but much may be done to combat it and so lessen the attack.—A. Y. A.

Two good early Tomatoes.—I find Horsford's Prelude and Conference very valuable for giving a few early dishes, and though for size they cannot be compared with Perfection and other kinds, they make up for this by their early free-setting qualities. I grow them in pots, and for early fruiting, pots have much to recommend them, as I find when the roots are in a confined space I can always secure a crop in April and May. Many object to these varieties on account of their small size, but when they are thinned, a medium-sized Tomato in April is a valuable addition to the list of vegetables. Another point worth notice is that they also set more freely early in the season than the large smooth-fruited kinds. Horsford's sets the most readily, while it is one of the best for outdoor purposes, as it rarely fails to produce a quantity of fruit in the worst seasons. Conference is larger, similar in shape and colour, and specially adapted for culture in the open ground. To get good plants for the open air, a start should now be made, sowing thinly in pots in a warm house. By pricking off and potting on finally into 8-inch pots, good plants will be had set with fruit for planting out in the second or third week in May. To follow these varieties, Conqueror, Ham Green, and Perfection are invaluable.—G. WYTHES.

Early sowing of Broccoli.—A warning note against early sowing of Broccoli may not be out of place, as this season it is our early-sown plants that have fared worst during the late severe weather. I fear the early varieties will have suffered much. I find it the best plan to sow late, and was pleased to see the note from "I." (p. 142) on the subject, as I find it more reliable in every way to sow in May as he advises. It is those long-legged succulent stems with a mass of leafage that are so soon cut down in severe weather. I do not grow any Broccoli that I know is inclined to run tall; I prefer those short sturdy-legged kinds. These latter are uninjured; on the other hand, they receive special treatment, being sown late, then pricked off and planted with a bar on hard ground, not dug or manured. The pricking off keeps the plant dwarf, and also prevents weakness. The great fault with many of the Broccoli in light land is their running up when sown early, so that late sowing and planting in different aspects all tend to preserve the crop. For late work, and one to stand the worst winters, I can recommend Model. It is very dwarf and hardier than many others. So far I have not lost one of the late-planted lot.—S. H. B.

Runner Beans.—The seed crop of last year was far from being a good one, because of the exceptionally wet autumn. For that reason not only may very much old seed be sent out for sowing this spring, but very much of the new may be comparatively soft or imperfectly ripened. Should, as a consequence, the growths be irregular, it need not be a matter for surprise. It will be an excellent plan for those who sow Runner Beans in ordinary gardens to run their seeds carefully through and pick out for outdoor sowing all the freshest-looking and firmest, and to sow the softer sample singly in small pots stood in a frame or greenhouse where there is the aid of a little heat, as in such case many Beans that would decay if sown out in the cold ground would probably live and grow into strong plants. The value of a stock of several dozens of such plants in pots can hardly be over-estimated when the outdoor growth is bad. There is then no loss of some three weeks whilst a fresh

sowing is made, but the outside losses can at once be made good from the pot stock. It will not be a matter for surprise should some of the varieties such as Ne Plus Ultra, the best type of Scarlet Runner yet known, be found rather scarce. Those having these newer sorts and having saved some seeds for own sowing are best off. But even with the greatest care in gardens it was last autumn found very difficult to ripen the pods thoroughly. The best substitutes are found in the original Scarlet Runner and the Painted Lady, whilst the white Dutch Runner is not less good, for it furnishes the bulk of the Beans sent into the London market.—A. D.

GROWING LARGE LEEKS.

ALTHOUGH for the generality of purposes Leeks for ordinary use may be cultivated with little trouble, yet where the large Leeks are required, such as are often seen at the late summer or early autumn exhibitions, other than ordinary means are necessary. Large Leeks are a very telling dish in any collection of vegetables, and they are also sure to carry weight with the judges when there is length of blanched stem combined with extra diameter. When these are upwards of a foot in length and large in proportion they may be considered good. As a rule they are considerably shorter than this, and this is mainly attributed to planting on the level and earthing up as for Celery. Leeks with many people form a very favourite dish, and as the larger Leeks bring out the highest qualities when cooked, a few dozen when grown as large as possible would be sure to be appreciated. Large Leeks, like the monster Onions, show superior cultivation. The best varieties for the purpose of growing to a large size are the Lyon and Ayton Castle Giant. To secure these large Leeks the ordinary mode of sowing in the open air will not do. To obtain large Leeks the seed must be sown during the early days of February, which will allow of from seven to eight months for them to make their growth, and if this is encouraged as much as possible there will be ample time for the plants to grow to a large size. Although it would be from three to four months before the plants are to be planted out permanently, yet the preparation of the ground should take place simultaneously or thereabouts with the sowing of the seed.

Although it is not essentially necessary to take out trenches, that is, if the site for the plants is in a very satisfactory condition through deep cultivation and heavily manuring with some good rotten manure, yet to concentrate the material about the roots trenches may be formed to quite the depth of 2 feet and be filled up with a richer and lighter medium. Where only a row or so of plants is to be grown, this will perhaps be the most economical system to pursue. Cow manure is the best for Leeks, and previous to planting a dressing of soot forked into the soil will prove of great benefit. It is an excellent fertiliser for almost any class of vegetable, as well as distasteful to various insect pests.

The seeds should be sown thinly in a well-drained seed-pan filled with light and rich soil, afterwards giving a gentle, but thorough watering. The pan will have to be put in a gentle heat or even on a hotbed, as this is very necessary to cause early germination. As soon as this takes place, keep the pan well up to the light and also in the same temperature. As soon as large enough, and and before they have become matted together, pot off the seedlings singly into 3-inch pots. The little plants will now grow away nicely if kept attended to with water and by being well elevated up to the light. The plants will grow quite as freely and perhaps better if kept growing on in a gentle hotbed, plunged well up to the glass. It will be seen that the main point is to keep the plants growing freely without the least check. Therefore, as soon as they have become fairly rooted in the little pots, pot on at once into 6-inch pots, the soil being a little rougher and in the proportion of four parts loam to one of manure, with a little soot and wood ashes. Plunge

the pots as before on a gentle hotbed, when the young Leeks will soon advance in size, and to keep them moving a little manure water, as soon as they have become rooted sufficiently to stand it, will also assist them greatly. The plants must be hardened off, so as to enable them to be planted out about the middle of May, or about the 20th, as after this date we are not likely to experience frosts, at least not in the southern or midland counties.

The Leeks for planting out and also the site for their reception being ready, it will depend largely upon the manner of planting whether the blanched stems are as long as stated above after being grown. Planting the balls level with the soil, with the idea of their making a strong growth before being blanched, is not the best method to adopt, for if such is done, the stems will not be as long as they should be. The hearts require drawing out, and this is best effected by planting the balls quite 9 inches below the surface, so it will be plainly seen from this that something rich and substantial is needed for the roots to ramify into, for if such should not be provided, the Leeks cannot be expected to grow to the largest size—mere surface cultivation will not do. The balls being planted at the depth stated, the outer foliage must be gathered up together so as to protect the hearts, as obviously these must not be buried. The soil being packed around the outer foliage, the hearts will be preserved, or, as some good growers adopt, the stems and foliage should be bound round with stiff brown paper, taking care not to draw it so tightly as to cramp the plants. The soil being drawn up to this a vacuum is formed, when the hearts will not be long in drawing to the surface, the length of blanched stem being therefore assured, or nearly so, as a slight earthing of soil will afterwards be needed. Liquid manure (not surface dribbles, as this would not reach the roots) would also be highly beneficial, pouring it along the drills at the side, so that it will reach the roots and not get into the hearts. A. A. H.

ORCHIDS.

RENANTHERA COCCINEA.

THIS has long been known as a very shy-blooming Orchid, and perhaps this comes about through the plants which we have in this country coming nearly all from the same stock—a shy-blooming plant to start with. Mr. David Pryce, writing to me, says he has acquired a large plant, and he wants to know what treatment it requires in order to make it bloom every year. This question I am sorry I am unable to answer, as I have never flowered the plant myself, but have seen it blooming occasionally at various places. I have been assured that it was bloomed every year by Mr. Owen Thomas at Chatsworth. The plan usually adopted is to train the plant along a rafter of the Orchid house or stove, thus allowing it to be fully exposed to the sun and light. Shading should never be used for this plant, and the syringe should be frequently applied and the atmosphere kept in a nice moist state. After it had done growing I have seen it roasted, but this had no effect upon it in the way of making it produce flowers. Instead of this treatment, I would advise Mr. Pryce to take the plant down from the rafter and place it in the warm end of the Odontoglossum house, keeping the plant as moist as the Odontoglossums. Here the thermometer will not fall lower than about 48°, which the plant will bear well enough. I am inclined to think this lowering of the temperature will do more in the way of resting than keeping it in a dry, hot place. I am led to infer this from having seen a plant some 9 feet or 10 feet high blooming in an Orchid house in Sheffield. It was said to have been wintered after the plan I have here stated,

and it had a magnificent panicle of bloom with several branches. It is a beautiful flower, and the blooms last several months in good condition. The flowers on the outside are of a tawny yellow, the dorsal sepal and the petals about equal, of a deep reddish scarlet, marked with narrow transverse bands of yellow; the lateral sepals, much broader, undulated on the margins, and deep orange-red in colour, are blotched with deep crimson. The lip, which is small, is yellow, streaked with scarlet. As regards potting and potting material, I have heard it said the plant sends out enough aerial roots to support itself, and perhaps it does; nevertheless, for the sake of order, most people will like it potted, which may be done in well-drained pots, using for soil good rough peat and Sphagnum Moss. A large pot should not be used if the plant can conveniently be got into a small one.

WM. HUGH GOWER.

Vanda suavis.—"J. D." sends me flowers of this species for a name. He says his specimen plant has three growths which are bearing four spikes, which fill the air with their fragrance. I see that these flowers come from a good strong plant. There may be some varietal difference, but they seem to me to represent the true old Veitch's suavis that I used to see and to grow years ago. I wish Vandas were more grown now. It appears evident, from the manner in which the various nurserymen are getting them together, that we shall soon see these plants taking their true position in the Orchid world.—G.

Orchids from Jamaica (Orchid).—I should advise your friend to pack the plants among shavings. Any plants attached to pieces of trees should be nailed fast to keep them from bruising the other plants. Packed among dry shavings in a strong wooden box securely nailed or screwed down, they would come home without requiring any water on the passage. Your friend should get them put into a cool part of the boat at a good distance from the boilers, and he must see that the shavings used are dry. There should not be much of these used—only sufficient to keep the plants from being bruised. The plants should be collected during the resting season, and everything should be dry when put into the box.—W. H. G.

Dinema polybulbon (J. Kenley).—I think this is the name of your plant, but from such a piece it is somewhat difficult to say with certainty. *Epidendrum polybulbon* is the older name, but Lindley made a new genus, and under this name it is figured in the *Botanical Magazine*, t. 4067. It will thrive on a block of wood in a basket or treated as a pot plant, but from its size I like it best in a basket, which should be well drained. The best potting material for it is rough fibrous peat and chopped Sphagnum Moss. It likes a moist atmosphere and a temperature not lower than 55° or 60°. In the summer it would thrive in the cool house.—W. H. G.

Cœlogyne cristata.—By what "G. G." says at p. 180 respecting his specimen of *Cœlogyne cristata*, I should say that the plant has certainly been wintered in too low a temperature, and that this, coupled perhaps with too much moisture, is the reason of the spikes decaying. A temperature of 55° is quite low enough for this species during the winter months, although 2° or 3° less on cold nights would not do any harm. Of course, I take 55° as the night temperature, this rising naturally during the day. Although Orchids generally are lovers of fresh air, yet this must not be put on indiscriminately so as to lower the temperature to a given degree during the daytime, and this is where many people err, especially amateurs with a limited experience. The pseudo-bulbs of "G. G.'s" plant may not be too crowded; and if spikes have formed from the centre of the plant as well as at the outer edge, they would not be so. The *Calanthes* will certainly not succeed in such a low temperature; they require the warmest treatment. As the plants,

as a rule, bloom naturally during November and December, the flower-spikes would commence to form long before this, and under good treatment not any water would be necessary after the spikes are a foot or so in length, or until the first flower opens. If "G. G." cannot command a higher temperature, he had much better abandon the culture of *Calanthes*. An article at p. 60 would assist him, and he would do well to peruse it if he thinks of carrying out their cultivation.—A. W.

ONCIDIUM AMPLIATUM MAJUS.

THE lovely panicles of bloom now unfolding of this *Oncidium* remind us of its undoubted merits, for if not the largest, it is certainly one of the most beautiful of the whole genus. Unlike some other forms, it can be depended upon to bloom annually, and the plants also to increase in size. This is certainly unlike some other forms of the genus, which are also noteworthy for their beautiful flowers, for, try how one will, the noble *O. Marshallianum* after it has lost its native vigour and *O. concolor* degenerate, and give but little returns afterwards. Yet during the first year or two of their existence in this country no other members of the genus will bloom with greater freedom. The treatment necessary for many of the *Oncidiums* is also very diversified, for although some of the species maintain their vigour when grown in the cool house, yet some others require the very warmest treatment; in fact, I know of no Orchid which requires—if it is to succeed well—a greater amount of heat than *O. ampliatum majus*. Another advantage is the time the flowers will remain in condition, although for obvious reasons it is better for the future well-being of the plants that the spikes be not allowed to remain on too long. I find it succeeds a deal better under pot culture than in baskets. The pots must be well drained and the potting material should consist of the best peat fibre with the usual admixture of clean potsherds and pieces of charcoal, also a little Sphagnum. The firmer the potting the better. Directly blooming is over the plants will commence to make fresh growth, when they should be removed to the hottest structure at disposal. I place our plants with the *Dendrobiums* whilst they are making growth, but do not syringe them. That they like this treatment is evidenced by the large pseudo-bulbs. Whilst in full growth a liberal supply of water is needed, and until the pseudo-bulbs have swelled out to their fullest size. After the growth is made I remove the plants to a light position in a plant stove, where the compost is kept fairly dry. No unduly drying off should be practised, as this would have the effect of shrivelling up the pseudo-bulbs. Our plants are watered about once a week. The strong and succulent shoots commence to push out at midwinter, and at this period the compost must be kept fairly moist. Mr. Childs, when gardener at Garbrand Hall, Ewell, used to exhibit a fine plant annually.

A. W.

SHORT NOTES.—ORCHIDS.

Lælia flava (Ireland).—This is the name of your flower, and not *L. harpophylla*, which I spoke about lately. It is equally pleasing in colour, but *L. flava* requires more heat than does *L. harpophylla*, and, moreover, it does not flower so freely.—G.

Lycaste alba.—J. Wood sends me a flower of this measuring upwards of 7 inches across. I remember, however, measuring a flower some two years since which was quite 8 inches across. The sepals of J. Wood's flower, although so much across, are somewhat narrow, making a starry flower.—W. G.

Masdevallia polysticta (Bournemouth).—This certainly is the name of your specimen, and a very elegant plant it is. It may be distinguished from *M. melanopus* by its lip, which is oblong, having several deeply-indented lines, whilst in *melanopus* it is spread out at the point into a yellow boss.—W. H. G.

Vanda cristata.—A spike of this species has reached me, but no sender's name is enclosed. The raceme bears three flowers, each of which measures about 2 inches across. The sepals and petals are yellowish green, the front part of the lip rich yellow,

streaked with deep blackish purple. Griffith found it growing upon trees in Bhotan. It used to be grown largely at one time, but one seldom sees it now. Although a small-growing species, it should not be neglected.—W.

Masdevallia Roez'i rubra (M. R.).—This is the variety you send, and a very fine flower it is, differing only from the typical *Roezli* in having the pubescence less dense and of a deep reddish colour. Care should be taken not to cut the spike off when the flower drops, because fresh ones are developed after some little time.—G.

Cattleya Trianae delicata (G. Marsh.).—This is the variety you send. Many people say it is alba, but it has a tinge of lilac or mauve in the front lobe of the lip, whilst alba is of the purest white, saving the yellow in the throat. I consider *delicata* as handsome as the variety alba, but, of course, it has not the money value of the latter.—W. H. G.

Spotted Odontoglossum crispum (J. Anderson).—A very fine variety, well and evenly spotted. I fancy there is little difference between it and the variety known as *Cooksoni*. A very fine spotted form of this plant called *nobilis* was shown by Mr. Ballantine, gardener to Baron Schröder, before the last meeting of the Orchid Committee of the Royal Horticultural Society. It was perfectly unique.—W. G.

Odontoglossum Rossi.—"J. B. W." sends me some flowers of this species. They certainly are very fine varieties, and beautifully marked. *Roezli* himself, who met with the plant between Orizaba and Mexico, we are told, was surprised at the varieties. Your No. 5 appears to be the variety *asperum*, having the sepals and petals soft yellow, with spots of bright brown. This you should take care of.—W. H. G.

Epidendrum ciliare (David Thomas).—This is a well-known species; the first figure of which we have any record appeared in the *Botanical Magazine*, t. 463. The plant from which this figure was taken flowered in Mr. Whitley's nursery in February, 1799, and at irregular periods before. It is too much the fashion to disparage this plant. Yours is a very good variety, and if strong will produce four or five flowers upon a stem. It is widely spread in South America and the West Indian Islands.—W.

GARDEN FLORA.

PLATE 848.

SWEET PEAS.

(WITH A COLOURED PLATE OF (1) H. M. STANLEY, (2) MRS. ECKFORD, (3) ORANGE PRINCE, (4) DOROTHY TENNANT.*)

THE hardy annual Sweet Pea that twines its slender shoots round many a rustic porch and fills the air with a sweet fragrance is known to all, but the common variety of the cottage garden is different to the beautiful types that have, thanks to Mr. Eckford, of Salop, sprung up of recent years. The flowers are larger, exhibiting a greater breadth of colour, and just as sweet as those of the old favourites, and the result of thoughtful and successful hybridising. At several of the shows last year a boxful of Sweet Peas from this raiser was a conspicuous and welcome exhibit, but, unfortunately, such fragile flowers are not seen in beauty on the exhibition table. They have lost their freshness, and therefore something of those delightful colours which are their great and enduring charm. There are many kinds, and the best known are Butterfly, Invincible Carmine, Invincible Purple, Purple Striped, and Fairy Queen; but some of Mr. Eckford's new introductions overshadow the older favourites. Captain of the Blues is the finest blue variety, the standards of a rich blue shade, the wings paler, and producing a rich contrast of two tints. Very distinct from this, but delightfully soft and delicate in colour, is Mrs. Gladstone, the standards pink and the

* Drawn for THE GARDEN by Miss Travers in Mr. Gumbleton's garden at Belgrove, Queenstown. Lithographed and printed by Guillaume Severeys.



NEW SWEET PEAS

1 HM STANLEY 2 MRS ECKFORD 3 ORANGE PRINCE 4 DOROTHY TENNANT

wings bluish. Primrose is, as its name suggests, primrose in colour, distinct in its way, and certainly the nearest approach to a true and effective yellow-flowered Sweet Pea. Purple Prince, maroon and purple-blue; Empress of India, rose-purple and white; and Countess of Radnor, the standards mauve, and the wings of a paler shade of the same colour, are all good varieties, and with just the same characteristics as the old kinds. In the raising of these distinctly improved forms Mr. Eckford has not relied upon chance seedlings, but endeavoured to fertilise the best varieties with pollen from others that have some distinctive characteristic likely to produce a novel and beautiful progeny. To these have now been added among others the beautiful varieties figured in the plate issued with this week's number.

As regards the culture of the Sweet Pea, it is unnecessary to say much. Autumn sowing was once strongly recommended, but just as good results are to be had from sowing the seed in pots or boxes in the month of February, and

annual. It will clamber quickly over a hedge, or of itself make a hedge that will produce a picture of beauty in the summer months, and supply endless posies of bloom for the house. But if the plants are simply required to cut from, it is best to have in the kitchen garden a row or more according to the demand, so as to leave those flowers that are to give beauty to the dressed parts of the garden untouched. The Sweet Pea is not used in the many charming ways its freedom of growth and flower and graceful beauty warrant. The annexed illustration speaks for itself. It is a simple vase filled with Sweet Pea flowers, and no one could wish for a daintier ornament for the table.

Mr. Gumbleton, in whose garden at Belgrove, Queenstown, Co. Cork, the drawing for our plate was made, sends us the following notes concerning the varieties figured:—

The accompanying plate is an accurate and faithful portrait most carefully and delicately reproduced of a water-colour drawing of a group of



Sweet Peas loosely arranged in a vase.

when the plants are about an inch in height hardening them off, as is usual with things to be planted out, and transferring them to the open in well-prepared soil in April. The plants start away quickly into rapid growth and are free from the ravages of slugs, which make short work of the tiny seedlings as they appear above the ground. Place the plants moderately thick, and, if planted in rows, it will be necessary to put feathery sticks to them to support the growth. If the soil is well manured, the seed-pods carefully picked off, and a moderate mulch given if the weather is very dry, a rich profusion of flowers will result. In the autumn when the plants are giving out, it is a good plan to cut down the growth to about the level of the stems, so as to promote strength at the bottom of the plants. The seed may, of course, be sown in the open, but the best way to cultivate Sweet Peas is as advised.

There are many positions in the garden that may be made beautiful by this lovely flower, many an untidy corner that wants hiding, and nothing better could be chosen than this hardy

these exquisite novelties drawn in my garden during the past autumn by my friend Miss Travers. The four varieties as named underneath the plate were all of them raised by Mr. Henry Eckford, of Wem, Salop, and sent to me for trial about this time last year. All of them bloomed most abundantly and beautifully in my garden during the summer and autumn, and were much admired by all who saw them. Only one of them, Orange Prince, is yet in commerce. Mr. Eckford hoped to have been able to distribute seed of varieties Nos. 1 and 4 this spring, but owing to the cold and wet summer of last year, combined with a series of severe gales which literally blew away large numbers of the flowers, the yield of seed was so abnormally small, that these beautiful varieties cannot be sent out till 1893. Mr. Eckford has about 2½ acres of land under Sweet Peas, from which his usual harvest of seed amounts to about 25 bushels, but last year, owing to the untoward circumstances above named, he was able to save only about a bushel and a half, so Sweet Peas will be scarce this summer, I fear. I consider H. M. Stanley to be quite the largest-flowered and finest dark Pea I have ever seen, and the deep mauve Dorothy Tennant is quite a new shade in these flowers, and I am sure

will be much admired. Mrs. Eckford is also a fine, large flower, and a great improvement on Primrose, the so-called yellow Sweet Pea sent out some two years ago, but which is really only of a pale buff colour. Another beautiful group of four other varieties drawn by the same artist from my flowers, and embracing the striped variety Senator, the fine scarlet Cardinal, the deep purple Monarch, which comes next to H. M. Stanley, and the lovely delicate blush Venus appeared on January 15 in *L'Illustration Horticole* of Brussels.

THE WEEK'S WORK.

FRUIT HOUSES.

EARLIEST GRAPES.—So much sunless, cold weather has necessitated employing fire-heat very freely, and the chances are red spider will soon be troublesome unless active steps are taken to prevent its spread. The foliage ought to be carefully and frequently examined, and on the first signs of red spider been seen, sponging with soapy water should be at once resorted to. Also maintain a more moist atmosphere than formerly, but overhead syringing is never advisable after the flowers are expanded. Very hard forced Vines seldom form many fresh roots till long after the crops are well set, but if those in pots are top-dressed with a rich compost, this not unfrequently induces the production of extra strong roots from the stems just above the old soil. These new roots should be taken good care of, and even led over the rims of the pots into the plunging material surrounding them. They will then contribute largely to the finish of the crops. Pot Vines, especially those not plunged, will now require abundance of water and liquid manure, allowing them to come to a standstill for want of it having a ruinous effect. There ought to be no undue delay in reducing the number of bunches to reasonable bounds, and the thinning out of berries should be done early, though not very severely, as those retained seldom attain the largest size. It will now be advisable to maintain rather high temperatures, and these may range from 60° to 65° by night to 70° and 75° in the daytime, air being admitted rather sparingly, especially when easterly winds prevail, and the house closed early enough to run up the temperature to 80° for a time.

SUCCESSIONAL VINES.—In some instances these will be well advanced in growth, in others only now ready for tying down, while in not a few cases they will only be just breaking. Early thin out the buds, and if the back breaks are unduly weak, depress the ends of the rods considerably, so as to check the upward rush of sap. Fixing the rods in position must be done very carefully, and if the wires are near to the glass, be content to suspend the Vines from them. Stop the laterals two joints beyond the selected bunches, as soon as this can be done, with the finger and thumb, but the tying down must be gradual, or otherwise some of the stronger shoots may be drawn clean out of their sockets. Thin out the sub-laterals if very numerous, and stop all reserved at the first joint or leaf. During the flowering period maintain a drier atmosphere than formerly, overhead syringing, as previously advised, being thenceforward discontinued, and raise the night temperature to 60°, another 5° on mild nights doing no harm, from 5° to 10° being added in the daytime. When it has been necessary to make the pipes rather hot during the night, damp the floors in the morning and again when the house is closed on clear days. Shy-setting varieties, notably the Muscat of Alexandria, usually require to be artificially fertilised, and this can best be done and a good set ensured by first drawing the palm of the hand over flowering bunches of Black Hamburg or Madresfield Court and then over the bunches to be fertilised, the foreign pollen thus conveyed to the stigmas proving more potent than that of Muscats. All that is neces-

sary in other cases is to smartly tap the laterals or stems of bunches when the pollen is dry, or say towards midday, and this will effectually distribute it. Directly it is seen which bunches have set the most freely, remove any that are not wanted, and thereby prevent a waste of vigour.

LATE GRAPES.—If Black Hamburg, Madresfield Court, or any other comparatively early ripening varieties are wanted plump and good in the autumn, the Vines should be prevented from starting as long as possible, and this can only be accomplished by setting the house wide open by night and day till the buds are well advanced, when a little gentle heat ought to be given. Unless such varieties as Gros Colman, Lady Downe's, Alicante, Mrs. Pearson, White Tokay, and Calabrian Raisin are fully ripe by the end of September, they rarely attain perfection afterwards, also keeping badly. Having been duly pruned, cleaned, and rested for not less than a month, the house containing them ought at once to be closed and a gentle heat maintained. Syringe freely two or three times daily, a moist atmosphere favouring a strong early break. Start with a night temperature of from 50° to 55°, increasing to 60° to 65° in the daytime, the higher figures recommended being for mild weather only. If not already done, give the borders a good watering and a rich top-dressing.

PRACTICAL.

THE KITCHEN GARDEN.

MAIN-CROP TOMATOES.—Unless there are structures specially used for Tomato growing, so that the seedlings may be either planted out or potted as soon as ready, plants raised earlier than this are apt to get neglected. Sturdy plants which have been grown well exposed to the light are the most likely to turn out satisfactorily, as they are better able to withstand attacks of disease consequent upon the tissues of the stems being more solidified. The above being borne in mind, nothing should prevent good crops being secured, as if plants are attacked by disease under glass, it is more the fault of the grower, that is, where light and efficiently heated and ventilated structures are provided. There not being the least benefit in raising more plants than are required, the seeds should be sown thinly in well-drained 6-inch pots, so that when the little plants appear above the surface they will stand clear of each other. The seeds may be raised in any warm structure or gentle hotbed, taking the precaution to expose the seedlings well to the light directly they appear through the soil. When large enough, pot off singly into 3-inch pots, taking the precaution to warm the soil beforehand. The young plants should be kept growing in a temperature of 60° or 65° during the day, of course allowing the natural rise by sun-heat during the daytime. Repot again into 6-inch pots before the plants become in the least pot-bound, and stand them well clear of each other, ventilating the structure so that cutting winds will not blow on the plants. In this way good plants will be provided either for planting out or for growing on in large pots or boxes.

EARLY POTATOES.—Where frames are plentiful, planting early in the open or even where they may be afforded rough shelter may be dispensed with. A portion planted now would provide a few early dishes. For this purpose a row of one of the Ashleaf section is sometimes planted at the base of a south wall, but if there are fruit trees in the way, as is very likely, this is not a very convenient method. The best way is to devote a portion of a sloping sunny border, which has been brought to a well pulverised state through the addition of good material, such as burnt refuse, old Mushroom bed manure, material from under the potting bench, and such like. The sets having been duly prepared, each having a stout sprout, should be planted in drills drawn about 20 inches apart and 5 inches or 6 inches deep, the sets being placed in the rows 9 inches apart. Naturally such well-prepared sets, planted on such a sunny site in good compost, would quickly come to the surface, and to guard against frost, which is very likely to occur, the border should be protected by having

boards on edge placed along the sides and ends, with strips of wood across. This would have to be covered with mats or prepared canvas during the night and on cold days. There would be very little trouble attached to it, no more than in covering frames, and there would be the advantage in securing an early supply of tubers.

EARLY TURNIPS.—The great fault with Turnips when sown early in the open air is their liability to bolt instead of bulbing, and as Turnips are likely to be scarce, there should not be any delay in making a sowing. This is especially necessary where there has not been the convenience for sowing on a gentle hotbed, as I have previously advised. The protection even now of a spare light without the addition of fermenting material would prove very advantageous, the protection only being needed until the seedlings are well on the way. For outside sowing it is not advisable to sow a large quantity, a few rows now and again every ten days being the most likely to give satisfaction, and if there should be the convenience, sowing partly on a sunny border and on a cooler site being the safest to adopt. The soil must be rich and in a highly pulverised state, so that after germination takes place a speedy growth will ensue. Early Milan is the most satisfactory Turnip for early sowing. The drills should be drawn 15 inches apart and not too deep, also taking the precaution to sow thinly, as besides other injurious effects, thick sowing predisposes to bolting, on account of the disturbance at the root necessary upon the extra thinning required.

HERBS.—In all cases where a supply of herbs is looked for, it is necessary that the whole stock be overhauled. Considering that in all well-appointed establishments herbs are in almost daily demand, some system should be in vogue, so that each kind is grown in a separate bed. In some cases where the plants have become exhausted, all those of a herbaceous character may require dividing and replanting; others may only require top-dressing with rich material. This will refer to such as Mint, Balm, Tarragon, pot Marjoram and Pennyroyal, although both the common and Lemon Thyme will also stand dividing if planted low enough and firmly. This latter may also be raised from seed if sown in boxes of light soil and eventually planted out, or any of the kinds may be sown in the open air in April, selecting a sunny border. Sage, also Lavender, are easily increased by cuttings. All that is necessary is to pull off pieces about 6 inches in length with a portion of old wood and insert them firmly. I merely plant them as if they were rooted plants. Sweet Marjoram is raised from seed if treated as advised for Thyme. Sweet Basil should be sown on a gentle hotbed in May and planted out the latter part of June.

A. YOUNG.

ORCHIDS.

A CLASS of plants not so much cultivated as they ought to be are the Anæctochili. They are in their way exceedingly beautiful, the leaves being beautifully marked with red, olive-green, gold and silver venation. This is now a good time to repot them, and as they need a good supply of water the compound in which they are growing is apt to become sour and unsuitable for the roots unless they are repotted annually. Those who grow a collection of these plants have to provide a glass case for their accommodation inside a warm house. The plants need not have large pots to grow in, and the pots ought to be half full of drainage. Over the drainage place clean Sphagnum. The potting soil should be good clean Sphagnum chopped into small pieces, some fibrous peat, and coarse white sand. The stems should be a little above the rim of the pot and the fibrous roots just covered with the potting stuff. Four-inch and 5-inch pots would hold about three plants. Before potting them the leaves and stems ought to be washed with soft soapy water applied with a soft sponge: this is necessary to destroy red spider and thrips, which are both likely to get upon the leaves. If they are badly attacked by these parasites they seldom do any good. As the plants

increase in growth roots are produced at the joints above as well as below the potting material, and they may be readily propagated by cutting the top off with some roots attached. The cuttings ought to be planted in small pots, as they form roots more readily in such. The old stool ought to have a prominent eye from which a new growth will be produced. If a glass case has not been provided for them they may be covered with bell-glasses, by placing the flower-pots containing the plants in larger ones, and the rims of the glasses would rest between the two pots. The plants like a moist, rather close atmosphere, but the glasses should be wiped daily to remove the condensed water. A little air should be admitted night and day by tilting the glass a little. The temperature after repotting and cleaning the plants should be about 65° as a minimum.

I notice that some of the Cape Orchids have lately been sold, and this leads me to speak about the treatment required for Disas, Satyriums, &c. They are usually found on Table Mountain, South Africa, and do not thrive if they are placed in a warm, close house. They are more greenhouse than hothouse plants, but, as a rule, the ordinary greenhouse in which New Holland plants thrive is too dry for them, and the ordinary cool Orchid house is too close and moist. I grew the Satyriums well in a span-roofed greenhouse and the Disas fairly well. They were placed at the warmest end of the house, and they were not exposed to the direct air. I used to leave the lights close over them. They do well in pans, or if planted in pots they should be well drained. They may be repotted now, but the operation is more safely performed in January. The imported plants should be carefully placed in the shallow well-drained pans, using a compost of Sphagnum Moss, fibrous peat, decayed stable manure and some coarse white sand. I have seen the Disas succeed admirably placed at the coolest end of the cool Orchid house, and in a position where they were extra freely ventilated by the agitation of the air caused by the opening doors. When they are in growth they may be syringed or dewed overhead twice a day with the fine rose of a syringe. The cool Orchid house will require attention by way of shading now, as the sun sometimes comes out very suddenly about noonday, or earlier, and if the house is well exposed to the sun, the shading must be let down when the temperature has risen to between 55° and 60°. At this season, when light clouds are constantly passing between the sun and the house, sometimes obscuring it for a considerable time, it is not, I think, good management to run the blinds down and up as is sometimes done in the anxiety neither to shade too much nor too little; far better leave the shading down, and if the sun does not appear very fully in the afternoon, draw the blinds up earlier than usual. Of course the clouds are sometimes so dense, that the shading need not be let down at all. We have looked over the plants in this house and made sure that there are no green-fly left upon the spikes pushing out from between the leaves of the last formed pseudo-bulb. The inverted flower-pots upon which many of the plants stand are examined, and slugs, with any other midnight marauders, are destroyed. They frequently shelter themselves by day under these flower-pots, but not unfrequently they crawl down into the Sphagnum Moss on the surface of the potting material. In that case it is not easy to catch them except at night when feeding. I find more moisture is now required in the atmosphere of this house, but those who would sprinkle the water about too freely in all kinds of weather may find their choicest *Odontoglossum* flowers damaged with damp spots. This is most likely to happen in mild, damp weather, when not much artificial heat is needed. The night temperature generally stands about 50° at 10 o'clock p.m., but on cold nights we may find it down to 45° in the morning. The Cattleya house is now gay with *Dendrobiums* and *Cattleyas*, but we now find that on hot sunny days shading is needed here principally to preserve the flowers, for they last a long time at this season in a moderately dry atmosphere and a temperature of about 55° at night.

One can readily tell by taking hold of the *Cattleya* leaves with the hand when the sun is shining upon them whether they are too hot. In the last week of February I took hold of the leaves of some plants of *C. labiata* suspended near the glass on the sunny side to ripen, and I was almost afraid they were getting too much sun-heat. Now we are well into March, it is better to run the shading down, and at this season *Cattleyas* and *Dendrobiums* do not require very much moisture in the atmosphere nor to be too freely supplied with water at the roots. Being anxious to preserve the flowers, we are keeping the house about 55°. It is positively dangerous to allow the sun to shine freely upon the plants in the warm house. The small-growing *Angrecums*, all the *Phalenopsids*, and some *Cypripediums* suffer much if not carefully shaded. Keep up the minimum temperature to 65° now.

J. DOUGLAS.

PLANT HOUSES.

GREENHOUSE.—**SOFT-WOODED PLANTS.**—*Fuchsias*, which up to the present time have been kept quite cool and in a dormant state, should now be pruned and shaken out for repotting. Unless extra large plants are required, it is much the best to prune back into sound, well-ripened wood; the young growth will soon make amends for close pruning when once a good start is made. When shaken out the roots will require some pruning also. For my own part I always prefer to reduce sufficiently to allow of a fair amount of fresh soil for each plant, potting them at least into pots one size smaller for a start. I consider this much better than placing them at once into the pots which they are to occupy until they flower and throughout the season. If potted at once into these larger pots, the roots having a tendency to extend to the sides of the pots, the intervening soil is not so well permeated with roots as it should be. Exceptions may be made in the case of large specimens which have reached their limit as to size. When treating such as these I would not reduce the balls so much, but in the case of all plants that are intended for growing on into larger ones, the former system is much the better. When repotting, if any plants are noticed to be extra dry at the roots, it will be much better to soak the ball in a tub of water before potting; this is decidedly preferable to potting first and then watering heavily afterwards, the new soil receiving the greater portion, through its powers of absorption being greater. When potted, a gentle heat with moisture and frequent syringings will encourage an even and vigorous break. A Peach house just started is a very good place at this time, affording just what is required without undue excitement. Good fibrous loam, leaf soil, and some spent Mushroom bed manure with sand will make a capital compost. I have found the manure as advised to be a great assistance to *Fuchsias*, encouraging a rapid growth. Cuttings struck this spring should be looked after, being potted off singly as soon as they are well rooted and before they draw each other up weakly. A young stock should always be worked up every spring to take the place of failing plants.

LANTANAS, &c.—These are not so much grown as they should be—in fact in many gardens they are rarely seen at all. Where, however, there is a large conservatory to keep gay in the summer months these plants will be found extremely handy, affording a large quantity of useful flowers, at the same time making a welcome change. They do well under the same course of treatment as that given to *Fuchsias*. To raise a young stock, seedlings may be raised; these will the second season grow into good-sized plants. *Heliotropes* which have been saved through the winter to make larger plants for pot culture under glass should now receive attention. These will thrive well under the same culture as the foregoing, and will amply repay for a little additional trouble being bestowed upon them. Both light and dark varieties should be grown; some of the newer kinds, as *The Queen* (light) and *Roi des Noirs* (dark), are great improvements upon the older sorts so often seen. *Abutilons* which have been doing good service can

now be spared with other plants coming on in greater variety to take their place. If the plants are scrubby, a hard pruning will be the best thing for them, but if unhealthy, then cast them aside at once where young ones of the same kinds are growing up to supply their place. Cuttings should now be struck for obtaining a serviceable stock of plants to flower during the autumn months. The culture of these plants in small pots will give good returns when fairly treated; being of an enduring character, these plants too often receive but scant attention. *Sparmannia africana* grown in the form of standards makes a good addition to the list of winter and early spring-blooming plants for a cool conservatory. It is a plant of easy, as well as rapid growth; cuttings struck soon would make plants 5 feet and 6 feet high the first season, a head being formed the second year. Another good, but old-fashioned plant is the *Aloysia citriodora* (the Lemon plant or Sweet Verberna); this is well worth growing in pots to a good size, but to obtain large plants in a more speedy way, the cuttings struck this spring should, later on, be planted out and lifted in September, soon enough for them to make a few roots to keep them safe during the winter. A good form of growing these is in the style of standards at any convenient height; these, with good care, will last as well as *Fuchsias*.

Humea elegans, which has been steadily growing through the winter will now make more rapid progress. Look to it that the plants do not suffer by becoming pot-bound. If they have fairly well filled their pots with roots no time should be lost in giving them another shift; a generous treatment with good soil (turfy loam and leaf-mould) will amply reward the cultivator for his trouble. The plants have at times a provoking way of dying off just when they should be making good progress; this may, I think, be caused by either of the two extremes in respect to watering, a medium course being much the best to adopt. *Salvias* of such varieties as *S. splendens*, *S. splendens Bruanti*, *S. Bethelli*, and *S. Hoveyi* should be struck as soon as cuttings can be had of each kind. A steady heat will be necessary for this to be done effectively, but it is not wise to keep the atmosphere too damp as in a close pit or frame. Other kinds, as *S. Heeri* and *S. gesneræiflora*, for flowering next spring may be struck a few weeks later, otherwise they will grow into too large plants. These two last-named kinds are very handy in large houses at this season and onwards for another month. Herbaceous *Calceolarias* if in small pots proportionate to the size of the plants should have another shift given them; there will yet be ample time for them to re-establish themselves before flowering, the plants being considerably strengthened thereby. *Cinerarias* now showing flower will be considerably benefited by occasional doses of weak manure water, that from the farmyard being as good as any that can be chosen. A sharp look out for green-fly must be kept now upon both *Calceolarias* and *Cinerarias*.

JAS. HUDSON.

COLOURED FOLIAGE FOR WINTER AND SPRING DECORATION.

COLOURED leaves are in great favour just now, when their warm tints have a most cheerful effect. The common English Ivy is much used, and it is curious how its leaves vary in colour according to the position the plants occupy. In complete shade they remain of a dark green all through the winter, but where they are more or less exposed to sun and a free circulation of air, they develop most beautiful bronzy and metallic hues, such as can hardly be found in any other hardy plant. In woods, and where Ivy has taken full possession of trees, one does not find these bronzy tints. It is where trees stand singly and the young growths are running up their stems that they are to be found in perfection. In this district there are numerous old hedgerows studded with Elms and Oaks. These are trimmed up from time to time, and, in a general way, the Ivy is cut down to the ground. Young shoots are thus always pushing up, and the exposure they get gives them the much-admired

colouration. Every winter men collect them and dispose of them in the neighbouring towns. It is said, but I cannot say if the assertion is correct, that the finest colour development is found on plants growing on the Scotch Fir. Another kind of coloured foliage, quite different in character, but equally valued, is found in the large breadths of *Carrots* grown in Surrey for market. As winter approaches many of the older leaves take on very lovely and varied autumnal tints. Some are of the softest yellow, others are more or less tinged with red, approaching in some instances to scarlet, and the majority have these colours intermingled so charmingly and in such varied proportions, that it would be impossible to find two leaves quite alike. Shoots of the variegated *Ivies*, especially of the large-leaved kinds, have a very nice effect in vases in combination with the bronzy leaves of the common *Berberis Aquifolium* and dried Grasses. The *Berberis* varies remarkably in the colour of its foliage. I have seen plants with leaves that shone like burnished copper on a sunny day in winter and these have a fine appearance in combination with foliage having a considerable proportion of white or yellow in it, such as that of the small-leaved variegated *Ivies* and golden *Periwinkle*, or spray-like shoots of the yellow *Retinosporas*. The gold and silver variegated *Euonymuses* will also be found of use. Flowers in the open are scarce, yet with a handful or two of either *Snowdrops*, the latest Christmas *Roses*, or the earliest bright-coloured *Primroses*, and a plentiful use of green and coloured hardy foliage, rooms may be made bright and cheerful when the wild March winds are sweeping over our gardens.

J. C. B.

STOVE AND GREENHOUSE.

SPRING PROPAGATING.

WHILE propagation of various kinds is carried on more or less throughout the year, it is during the spring months that the greatest activity prevails in this department, for among the host of plants that can be propagated at the present season may be mentioned nearly all of the soft-wooded class—whether stove or greenhouse, many indoor shrubs, and where forcing is carried on, the young shoots of several hardy plants will root freely under proper treatment. Where summer bedding is carried out, great numbers of plants employed for this purpose are struck from cuttings in the spring, and the increase of many hardy herbaceous subjects by means of division is effected during the early months of the year, added to which are the great number of seeds sown at that time. Firstly, in the case of plants propagated by means of cuttings formed of the young growing shoots, the principal consideration is to obtain suitable cuttings, and when this is ensured the greater part of the difficulty is overcome. Included under this head may be mentioned *Bouvardias*, *Salvias*, *Fuchsias*, *Heliotropes*, *Begonias*, *Eupatoriums* and many others that strike root very readily, as well as several of the bedding plants, such as *Coleus*, *Iresines*, *Alternantheras*, *Verbenas* and things in this way. Most of the stock plants will have been wintered in a greenhouse or in a structure slightly warmer, then, with an increased rise in temperature at the approach of spring, the plants will quickly start into growth. Where there is not a propagating house at command, a close case must be prepared for the reception of the cuttings, and placed either in the warmest part of the structure in which they have grown, or in one a little warmer. On no account should the rise in temperature amount to more than 10° or thereabouts, for a greater change than this will often cause many of the cuttings to damp off. Bottom-heat is by no means essential to success in the case of these soft-wooded subjects, as with good cuttings and proper treatment many of them take but a few days to root. Where a good many cuttings of one kind are required, shallow boxes or pans are very convenient for the purpose, but when numerous varieties, many of them perhaps limited in numbers, are

put in at the same time, the better way is to insert them in pots, as in this way there is no danger whatever of mixing them. They will root in almost any medium provided it is not too heavy; thus a mixture of two parts of cocoa-nut refuse, peat or leaf-mould to one each of loam and sand, all sifted moderately fine, will be just the thing. If the pots are small, drainage is by no means essential, but in the larger ones it must be ensured. In the case of all ordinary soft-wooded cuttings I do not trouble about drainage for pots up to 4 inches in diameter (*Chrysanthemums*, of course, excepted, as they do not get the heat given to the others, and consequently they stand longer in their pots before rooting). Whenever possible the pots are prepared before the cuttings are separated from the parent plant, as the very soft shoots quickly flag, and when in this condition it takes much longer to dibble them in than when fresh. In taking the cuttings it is by no means necessary, as many suppose, to cut them at a joint, for roots are produced just as well from the spaces between as from the joint itself. In taking cuttings of a very choice subject it is necessary to bear this in mind, as with cutting it at a joint and removing the bottom pair of leaves for the purpose of insertion a good deal is wasted; for instance, two cuttings may often be made from a shoot which would only yield one taken off at a joint. The cuttings must be dibbled in not too thickly and given a thorough watering, enough, in fact, to settle everything in its place. Then after being allowed to drain they may be placed in the close propagating case, and will oftentimes need no more water till they root. It is much better to water them previous to putting them into the case than afterwards, as too much stagnant moisture is liable to make them damp off. By many the cuttings are simply stuck in the cocoa-nut refuse forming the bed of the house, and on which the propagating cases are stood. This has one disadvantage, and that is after they are struck, the very brittle roots are more liable to be broken in lifting and potting than when they are confined in pots. In any case they should be potted off as soon as ready, for if the roots are allowed to get matted together they are apt to be broken, and consequently the young plants suffer.

The above remarks will also apply to the large class of stove or intermediate house plants, such as *Eranthemums*, *Plumbagos*, *Tydeas*, *Aphelandras*, *Justicias*, and many others, all of which require a higher temperature than those which grow in a greenhouse. Many shrubs, such as *Deutzias*, *Lilacs*, and *Azaleas*, can be struck from cuttings of the young shoots which are formed under glass at this season, but in the case of the *Azaleas* sandy peat pressed firm is necessary. For *Crotons*, *Francisceas*, and *Gardenias*, as well as several allied subjects, the young shoots are better taken at a joint, and the best soil for such things is peat or leaf-mould and sand, with a little loam.

While, as above mentioned, it is by no means necessary to leave a joint at the base of the various soft-wooded cuttings, exception must be taken in the case of the different *Pelargoniums*, as they root in a more satisfactory manner from a joint, or rather they are less liable to decay at the base. In the case of zonal or Ivy-leaved *Pelargoniums*, where it is desired to increase any particular variety to the greatest possible extent, the cuttings are necessarily taken when small, and then the leaf at the base had better be allowed to remain, as where very succulent the spot from whence the leaf is removed will often form a seat of decay, and if left on it will quickly shrivel up and may be removed without injury. Of course where good firm cuttings are obtainable the bottom leaf or leaves may be taken off to facilitate their insertion in the soil. *Pelargoniums* must not be kept close in the manner recommended for the various classes of plants previously mentioned, the best place for them being a sunny shelf, where, if moderately supplied with water, they will soon root. For a few days after insertion, should the weather be very bright, an occasional dewing with the syringe will assist in keeping them fresh. *Pelargoniums* of the show or decorative class will strike root

fairly well if formed of the old wood, but, as a rule, the results are not so satisfactory as when the younger shoots are employed for the purpose, and, consequently, at the present time these latter are generally preferred, though a few years since the more woody cuttings were chosen by many.

Seeds, especially very minute ones, that are sown under glass must on no account be allowed to become dry, for just as germination commences they are quickly injured by drought. Various means are employed to prevent too rapid an evaporation, the most general being to lay a pane of glass over the pot till the young plants make their appearance. When this is done small seeds will not require any other covering, but especial care should be taken that the sun does not shine directly upon them, otherwise in a short time the heat will be so great in the limited space that the seeds will be almost parboiled. In sowing small seeds a general error is to sow them too thickly, as then the young plants are so crowded together that they are very liable to damp off. Directly any signs of decay set in, the seedlings should be pricked off, and for this purpose the soil must be moderately fine. In pricking off seedlings care should be taken not to bury them too deeply, a very good guide being to put them at such a depth that the cotyledons are just clear of the soil. This holds good not only in pricking off small seedlings, but also in potting larger ones, the losses being much greater among those potted in such a way that the cotyledons are some distance above the soil than in those which are just clear of it. Where small seeds are covered with a pane of glass this must be removed directly germination commences.

H. P.

Giant Callas.—At Abinger Hall I lately saw some remarkably fine *Callas*—huge plants in 11-inch pots, with splendid stems and carrying very fine flowers. Mr. Payne plants out only the smaller bulbs or offsets, but keeps the larger ones in pots constantly, in that way securing finer stems and flowers than when planting out is adopted. He also finds that the plants force better when well established in pots than when autumn-potted. The Abinger loam is exceedingly sandy, but it seems to suit *Callas* all the same.—A.

Rondeletias.—I am asked for some information respecting the treatment of these plants. They are very beautiful, but somewhat difficult to grow. *Rondeletias* used to be well grown and shown by Mr. Aitken, when gardener to Lord Gage, and he always cut them back hard every season, potting them in good fibrous peat and turfy loam made sandy. They like stove heat and a fair amount of moisture both to the roots and overhead, but when the flowers begin to appear, syringing must cease. *R. speciosa* major is perhaps the most beautiful variety, and this I should advise "T. W." to grow. It will, however, take several years to form a specimen. W. H. G.

Begonia Triomphe de Nancy.—Besides the various hybrids claiming parentage from the distinct and beautiful *B. socotrana* that we owe to Messrs. Veitch, there are others which if not so well known are still very ornamental, notably *Triomphe de Nancy*, upon which an award of merit was bestowed by the Royal Horticultural Society last April. It forms a close compact-growing plant, which when less than a foot in height bears in the greatest profusion its little bright coral-red blossoms. It was in company with a second variety, *Triomphe de Lemoine*, put into commerce two years ago by M. Lemoine, of Nancy, and announced by him as the result of intercrossing *B. socotrana* with the pollen of another *Begonia*, probably *B. Roezli*, better known now in this country as *B. Lynchiana*.—T.

Eulalia gracillima univittata.—Besides the two *Eulalias* mentioned on p. 174 in the article on "Every-day Plants" there is a third bearing the above name, and a very pretty plant it is for the decoration of the greenhouse or conservatory. It is less vigorous than either of the commoner kinds, the leaves being a good deal narrower and more gracefully recurved. The ground colour of the

leaf is green, with a comparatively broad stripe of white down the centre of each, a totally different style of variegation from either of the others. These *Eulalias* are all of easy culture, and with the existing taste for Grass-like plants they are, as a rule, much admired. I find that the form in which the variegation is in the shape of transverse bars (*zebrina*) is if growing very freely somewhat apt to turn green, which does not happen in the case of the others.—H. P.

Eupatorium probum.—This species of *Eupatorium* is very little known, though it has been grown for some time at Kew, and was also to be seen in good condition at Pendell Court before that famous collection of plants was disposed of. It possesses the features of the better-known kinds *E. riparium*, *E. Weinmannianum*, and *E. odoratum*, that is to say, a kind of half-shrubby character, though the foliage is a good deal different, as instead of the Willow-like leaves of the others, those of *E. probum* are more heart-shaped and pubescent on both surfaces. The flowers are arranged in little crowded heads, collected together in dense corymbs about 4 inches across. The strongest heads are the size of a shilling, but some are less than that. The individual heads of flowers are therefore larger than in the better-known kinds, while it will flower freely in a smaller state than the others. The same sort of treatment is applicable to all, viz., strike the cuttings in the spring, grow them on during the summer, then in the autumn allow them to flower. By growing a succession of plants, these *Eupatoriums* may be had in flower throughout the autumn, winter and spring months.—H. P.

Forcing Narcissi.—We have no better trade grower of *Narcissi* for market than is Mr. Walker, of Ham. When I called at his place the other day, I found an enormous quantity of *Narcissi*, especially of the white ornatus, in bloom. I found that there were from fifteen to eighteen bulbs in each 8-inch pot. In no case were foliage or flowers overdrawn; indeed, all looked as if just brought in from the open air. Mr. Walker mentioned incidentally that one secret of the success which attended his forcing was the gradual transition of the pots or boxes, for huge quantities of bulbs are forced in large boxes also, from the low temperature in which first placed, to induce rooting, to the final heat in which forced into bloom. Too often growers transfer the bulbs from the low temperature after being rooted into the forcing temperature of 60° to 65° at once. Mr. Walker both practises and advises the placing of the bulbs into a very moderate or intermediate warmth first for a couple of weeks, as the sudden transition tends to induce excessive leaf-growth and loss of flowers. He mentioned that frequent complaints were made, even by experienced market growers, that the bulbs were not good enough; whereas the fault really lay in the method of culture or treatment. Good, hard, well-ripened, medium-sized bulbs were often better for forcing than the largest ones. It was very important that all roots for forcing should be thoroughly ripened.—A. D.

Akebia quinata.—The list of greenhouse climbers that flower thus early in the year is not an extensive one, but among them must be included this *Akebia*, which though hardy in some districts blooms in a more satisfactory manner when protected by a greenhouse than in the open ground. It is a slender growing twiner, that, however, makes rapid headway when once established. Being deciduous, it is not particularly effective during the depth of winter, but early in the year the bright green prettily divided leaves make their appearance, to be quickly followed by the flowers. These blooms, which are borne in axillary racemes, are of a vinous purple colour and very sweet scented. They are certainly quite distinct in colour from anything else in bloom, and the tender green foliage serves as an admirable setting to them. As a rafter plant in not too large a structure this *Akebia* is seen to advantage, as the slender shoots dispose themselves in a very graceful manner, and the somewhat spare foliage keeps off but very little of the light from the plants below, added to which

it is seldom attacked by insect pests, which are as a rule particularly partial to climbers. When grown out of doors it may be trained to a wall, but it is more at home when allowed to ramble over some neighbouring shrub, which will be soon festooned with its slender shoots. In a greenhouse it flowers during February and March, often for a long time together, then later on in the summer a second crop is occasionally produced. Out of doors, however, it blooms a good deal later than it does under glass. No particular cultivation is needed except that no more pruning should be done than is absolutely necessary, for the more the shoots ramble the greater will be the display of blossoms.

suited. *S. colchica* is a native of the Caucasian district, but the date of its introduction seems to be somewhat doubtful. At all events it was but very little known till its value as a subject for forcing brought it into prominence. This *Staphylea* forms a rather free-growing shrub, whose branches have a somewhat upward tendency. In winter the flower-buds can be readily distinguished from those that will only produce leaves by being far more rounded and blunt than the leaf-buds are. The flowers, which are borne in large, partially drooping panicles, are white, against which the yellow anthers stand out very noticeable. They are also agreeably scented. Plants intended for

as they do not grow nearly so strong as in the open ground. The principal thing in the case of pot plants is after flowering to encourage them to make as free a growth as possible, for this is the way to obtain the large, plump flower-buds. As the season advances the plants should be plunged out of doors, in order that the wood may be thoroughly ripened, but care should be taken that they do not during that time suffer from want of water. In the case of a forced specimen, the young leaves commence to unfold much about the same time as the flowers, and being of a pleasing shade of tender green they add greatly to the beauty of the plant.—H. P.



Eulalia japonica variegata in a garden at Norwich.

In propagating this *Akebia* it will be found that cuttings of both the shoots and the roots will strike readily, while an established plant will often push up a few sucker-like stems that form roots of their own, when they may be removed without difficulty. This *Akebia* is a native of China, and is one of the many plants from that region for which we are indebted to Robert Fortune.—T.

Staphylea colchica.—Two species of *Staphylea* have been long known in this country, but neither of them is particularly attractive and is very seldom seen, while a third, *S. colchica*, has within the last few years become very popular for forcing into bloom, for which purpose it is well

forcing are by some lifted and potted in the autumn, and by others kept altogether in pots. This latter method possesses several advantages, as the roots of the *Staphylea* have a somewhat straggling tendency, with a not very large amount of fibres, and consequently if potted as early in the autumn as possible the plants will be none too well established by the time they are taken into the forcing house. When kept altogether in pots the flowers of the *Staphylea* (as with other forced shrubs) last in perfection for a longer time than if just lifted from the ground. After flowering they may if required be shortened back, but, as a rule, when kept in pots little of that will be needed,

FLOWER GARDEN.

THE EULALIAS.

ONE of the most beautiful of these is the variegated form of the type known as *E. japonica variegata*, introduced by Mr. Thomas Hogg from Japan. The leaves of this are marked with alternate stripes of creamy-white and green after the manner of the old Ribbon Grass. The flower-stalks appear in September. The flower panicles are at first brownish, with erect branches, and not at all showy, but as the flowers open the branches of the panicle curve over gracefully after the manner of the Prince's Feather. The other variety is known as *E. japonica zebrina* (the zebra-striped *Eulalia*), also introduced by Mr. T. Hogg. It resembles *E. japonica variegata* in form, habit and flowers, but the manner of its variegation is quite distinct. In the older variety the markings on the leaves run lengthwise, while in the variety under notice they are across the leaves, which present alternate bands of varying width of creamy-white and green. The colours, however, are well defined, and produce a most singular effect. The late Mr. James Taplin, of Maywood, New Jersey, who kindly sent us the photo from which the engraving was prepared, also enclosed the following note :—

I enclose photo of a clump of *Eulalia zebrina*, showing what a beautiful hardy plant it is in this country. It was taken from a clump of six plants in my garden. We had a sudden hard frost a few days before, so that the foliage is not as graceful as before. It is backed by a nice young tree of *Liquidambar*, and to the right is a young plant of *Retinospora filifera*, which is thoroughly hardy in this country. I have seen *Eulalia japonica variegata* stand 10° below zero, but I consider *E. zebrina* more handsome. When the dry north-west winds of winter begin to blow, the plumes to some extent show their character, taking the form of ostrich feathers. This, however, in the damp climate of England would not be seen. If, however, the stems be cut and placed in a warm dry room they assume this character in a very short time and form one of the most beautiful room decorations I have ever seen. There is no difference in the flowers of *E. japonica variegata*, *E. zebrina*, and those of the plain-leaved *japonica*, of which I once saw in Pennsylvania several hundred plants in full beauty. The Pampas Grass is not hardy here.

Bare places.—May I add yet another to the list of plants given by "A Gloucestershire Parson" (p. 168) for growing under Beech trees. The pretty little *Saxifraga granulata* is a gem for growing under an isolated specimen of the Copper Beech, and in its flowering season it clothes the soil with a carpet of white. I doubt its being able to thrive under a group of trees, except, perhaps, as a fringe, but where there is a single specimen nothing could do better. In the pasture fields of this neighbourhood it is quite at home, holding its own amongst the herbage, though, except when flowering, it looks such a frail delicate little plant. Here, too, the winter Aconite (*Eranthis hyemalis*)

does remarkably well under the Beeches quite in the shadiest parts, as the barer the spot is from other undergrowth the better this little gem succeeds and carpets the ground densely at this time of the year, coming into flower before the Snowdrops and out-staying them.—J. C. TALLACK, *Suffolk*.

Daffodils Ard-Righ and Countess of Annesley.—To all growers of Daffodils I can strongly recommend the above two varieties either for pots or outdoor culture. I have grown them for some time, and I do not hesitate to say that they stand at the head of the list for early Daffodils, Ard-Righ coming in with obvallaris (but twice the size) and Countess of Annesley about ten or twelve days later. I cut blooms of the former on February 3. They are a splendid pair; Ard-Righ a beautiful yellow, both perianth and trumpet, and Countess of Annesley, perianth primrose and trumpet yellow; they are both very hardy and free-flowering, producing from two to three flowers from a single bulb. They are good seed-bearers. I have several batches of young seedlings coming on from seed that I have saved from them.—J. C. TONKIN, *Isles of Scilly*.

THE YELLOW CARNATION AND PICOTEE.

THE cultivation of this section has been very much extended during the last few years, probably because the taste of the general public has inclined in the direction of the yellow and buff colours more than in previous years. I have taken considerable interest in them, not only in raising seedlings, but also in cultivating them out of doors and under glass. People want to know of their hardiness, and many complain that they are too tender for out-of-door culture. Others have an idea that the yellow Carnations is quite a new plant in England. The yellow Carnations was introduced from Poland to England towards the end of the sixteenth century, and early in the seventeenth century it was very extensively cultivated. It is mentioned by the writers on gardening subjects in those periods. Yellow and buff flowers, marked and striped in various ways, were amongst the plants cultivated. John Gerard mentions the yellow Carnations, but he does not state that the flowers were other than a pure yellow self colour. In the early years of the present century yellow Carnations were very popular. They were grown under the name of Picotees, but if the modern definition of a Picotee was applied to them, they would need to be classed as Carnations, or what in modern parlance is termed fancies. One point in their favour which all the modern varieties do not possess lay in the rich deep yellow colour; they were yellow, not straw-coloured. The fringed edge to the petals would be a fault, and the petals being marked with lines and stripes of two colours in the most admired irregularity was another point again them. They were grown plentifully on the Continent, especially in Germany, at that time, where, in truth, they are still well cultivated. When James Hogg, of Paddington, wrote his interesting treatise upon the Carnations some sixty years ago, he had a good deal to say about the yellow Picotee and Carnations. He says they were cultivated by royal and titled amateurs, including the Empress Josephine, who had an admirable collection at Malmaison, and this leads me to remark that I am frequently asked by good Carnations growers if I can say when or where the variety *Souvenir de la Malmaison* was raised. I cannot say, but have suggested that as Carnations were grown and valued at Malmaison in the garden of the Empress Josephine, might it not have been raised there? Our own Queen Charlotte and the princesses had a superb collection of yellow Picotees at Frogmore which they obtained from Germany, and Hogg informs his readers that they were the delight of all who saw them. Hogg imported a fine lot of plants himself from the south of Germany, and described thirty-six varieties. Many would like to have such colours now. There were "chocolate and yellow; pink and yellow; sulphur and crimson; buff, scarlet and grey;

yellow, purple and white; yellow, crimson and chocolate; yellow, slate and grey; some with scarlet stripes upon lilac grounds." They soon, however, passed out of cultivation, Hogg stating that he could not keep them alive many years.

Perhaps the most successful attempt to raise seedlings of this class was in 1855-56, by a Mr. R. Smith, of Witney, Oxfordshire. He exhibited some of his best flowers at a public exhibition in 1858, and won all the leading prizes. Writing in 1858, Smith states that he had been working at them for about ten years previously. He crossed the yellow and white ground varieties together, and thus obtained good form in the flowers with the Picotee edge; but the alliance of a deep yellow ground with a pure white would, in the natural order of things, give a straw-coloured ground. And as Smith succeeded in giving breadth, substance and form to the petals, he also erred in bringing out paler grounds. However, there is not, that I am aware of, any trace of Smith's seedlings left. At that time a new style of gardening caught the popular fancy, and yellow *Calceolarias* took the place of yellow Picotees and Carnations, and I think I am right in saying that nearly all the English-raised Picotees and Carnations now in cultivation owe their origin to an excellent yellow kind sent out by Messrs. Perkins, of Coventry, named Prince of Orange. It had a vigorous constitution, and I still grow it in my collection of yellow ground varieties. The yellow ground Carnations have this advantage over the others, that most of them flower rather later than the other sections, and the recently introduced varieties are also of vigorous constitution. They grow very freely in the open garden here in the moderately deep loam, which is enriched with decayed stable manure that we obtain from a yard where peat litter is used. I find this material excellent for Carnations and most border flowers. It has the fault of sometimes producing a fungoid growth amongst the plants; this is a grave objection, but I find it does not cause much damage when the material is well heated by fermentation in a heap previously. Leaf-mould and mortar rubbish are excellent to mix with heavy clay soils, for when such are well prepared by frequent working they are the best for Carnations, as the plants do not suffer from drought in hot, dry weather in summer, as they do in light, sandy soil. The plants also flower more strongly and grow with greater vigour when planted out and established before the winter. We have many that could not be planted until November, both seedlings and named varieties, but they seem as if they would succeed very well; the weather at planting time was mild for the season. As a general rule, November is too late to plant out Carnations of any kind; early in October is the best time. We also preserve a large number of yellow ground Carnations and Picotees in frames during the winter. It is necessary to grow them in small flower-pots, for although no plant is more amenable to transplantation in the autumn, the roots ought not to be disturbed in the same way in the spring. As I write these lines the frost is intense, and when this is the case we are thankful for a good covering of snow to protect the frames as well as the plants in the open border. After a spell of really mild weather for the season, it is really trying to have such frosts at the middle of February. A sudden change caused the thermometer to fall, until on Tuesday night (Feb. 16), 16° were registered; Wednesday night, 12°; Thursday night, 20°, &c.

The raising of seedlings from yellow ground varieties is exceedingly interesting and instructive. If seeds are saved from the white ground Carnations and Picotees, white ground varieties or self colours will be produced, but this likeness to the parents will not be the result of seeding from yellow selfs or yellow ground varieties. A large number will revert to the original colour of the primeval parent, which was not yellow, nor anything like yellow; many white ground Carnations and Picotees will be amongst them, also red and rose selfs. One grower tried the experiment of saving seeds from one of the best yellow selfs; he had almost every colour but yellow amongst 200 seedlings.

There was one yellow, but it was not worth growing again. I do not find this the usual result. I get about forty to fifty per cent. of yellow ground flowers, but they may be either flaked or bizzared, or marked with spots and lines of colour. The true yellow ground Picotee with a clear yellow colour and an edge of red or rose seldom appears in the perfect form. But by saving from the best varieties after careful hybridisation, the chances are that a modicum of, say, five per cent. of really choice varieties may be obtained; but such a wealth of beautiful blooms of all colours is produced that, even if non-progress was made, the results could not be deemed unsatisfactory. In two or three weeks the seeds should be sown to produce the plants that will bloom in 1893. They ought to be sown in pots or pans, and be placed in a hotbed to vegetate.

J. DOUGLAS.

THE CULTURE OF MOUNTAIN FLOWERS.

BEAUTIFUL plants for a rock garden may be almost anything in the shape of lowly vegetation, on the principle that "all that is fit is fine also," and so of course rockeries themselves may vary much in shape, size, position, and aspect, but as a rule they are elevated and so drier, and if sheltered sufficiently, are also warmer than the level garden ground around them. Very often they are too dry, and too much exposed to sun and wind, and then are only suitable for the most robust of woodland or lowland vegetation. Some of the prettiest and most successful rock gardens I have seen have been wholly, or at least in part, depressed or sunken below the ground level, so that shade and moisture and genial shelter were thus obtained. Again, some of the best rock gardens I know are so constructed that they offer many aspects, and have some parts sheltered, others fully exposed, some shaded, some dry and sunny, and others again damp, or actually sliding gradually into the lakes or pools of water in which aquatics pure and simple are grown.

A perfect rockery has so far perhaps never been built, and one can only regret that it has not even been attempted in even the best and richest of our public parks and gardens. Of course, even if a perfect rock garden could be made to-day, it would to-morrow want some rearrangement and attention, or, as the Rev. C. Wolley Dod once told us, we must make a new rockery, or at least a portion of one, every year. In it all positions, aspects, and all the main geological formations would find a place. We should grow *Lewisia rediviva* in a little exposed and dry northern desert, and *Ourisia coccinea* would hang over the water from its peaty bed rich in humus, just as Miss M. North tells us she saw it luxuriant in South America, near the region of the Chilean Pines and Mutisias. Thereon, in partial shade we should find flourishing colonies of the Pyrenean *Ramondia*, purple and lilac and white; and from a dry and sheltered nook *Onosma taurica* would hang out its bee-swarm-like mass of golden bells. The "dot-and-carry-one" system of planting would be superseded by groups of many, if not all the exquisite mountain flowers now known, and hereon even *Eritrichium nanum*, that most "milly" of fairy Forget-me-nots, would at last be happy! In the deep, rich, boggy portions we should see the great fresh *Nelumbium*-like leaves of the "Water Lily of the shepherds" (*Ranunculus Lyalli*), and in limpid pools would float all the choicest of hardy Water Lilies, white and cream, yellow and rose; while the fragrance of the Bog Myrtle and of the sweet-scented Reed would be borne on the balmy

breeze. It would be an ideal spot for all the most exquisite of flowers, would it not? But, alas, the millenium of floriculture has still to come.

In such a rockery the rocks themselves would be here of limestone, there of granite, now a few great blocks of old red sandstone, or of shelving slates and shale, and we should have great beds of peat or bog-earth, now bare and dry, and heathy, or again wet and Sphagnum-covered, and sliding down into the very Water Lily pools below.

Of course in a big scheme of this kind, we should not attempt to imitate Nature always, simply because Nature herself is not always at her best! Could we exactly imitate her best conditions, we could not do better, but Nature is as a rule too intricate and complex for us to completely understand her even in her more simple moods. We may find the same plants thriving here in wet peat, there in pure loam, on clay subsoil, or again in Sphagnum beds, resting on decomposing granite below, and in a case like this we may pretty safely assume that soil or geological formation is less essential than some other physical conditions, and it seems more than probable that in such cases moisture is really the dominant condition required. Again in the case of ericaceous plants generally, lime as a factor must be absent, and then with ample moisture any other soil suits almost equally well; on the other hand, caryophyllaceous plants never do so well as on limestone soils.

The sun or shade question often resolves itself into one of drought *v.* moisture, for do we not know many plants that luxuriate in full sunshine in a damp cloudy climate that absolutely refuse to exist in a more sunny land, or garden even, unless shade is supplied. The actual amount of moisture absorbed and held by soils is largely dependent on their mechanical condition, good culture really aiding in the absorption and retention of moisture.

A friend writing to me on this rock-plant-and-moisture question some time ago said, "It is quite true that all plants will not grow in a bog garden, but more plants will be happy in a graduated bog than out of it." By this, no doubt, he meant to say that if you place the plant so that it may either grow down to the water or recede to the drier soil above, it will soon make its own selection, and so thrive rather than dwindle or die. It is no doubt a broad fact that more plants die or fail from their having too little moisture rather than from their absorbing too much.

For many years now I have almost totally disregarded the advice of those friends who try to persuade you to grow your plants under the conditions in which they thrive in their own gardens or in those somewhere else, or as they thrive under certain supposed conditions in Nature. My golden rule is to consult the plant itself, and I here adopt a system of using what I call index plants. Thus if I wish to grow any new or rare plant of which I know absolutely nothing, I not only go to books and listen to practical advice, but I divide the plant or increase it if possible, and then plant out the stock at the best time (May is perhaps the best month if one only is to be selected) under diverse conditions, viz., one plant in a bog, one in a hot, dry border, one in a deep and shady one, with more moisture, one again may be put in a wall pocket, and another on the Grass or beside a pond. This index planting is a sort of guessing at truth, but it is really not so empirical as it may at first sight appear, since even the Huxleys and Tyndalls of science are daily trying what Darwin called

"fools' experiments" of this kind, an intellectual game with Nature that he himself dearly loved, as his own works show. In a word, I am always grateful for all the knowledge that science can give, although holding utter contempt for that kind of science that cannot grow beans. Our experiments are not so lawless and indiscriminate as at first sight they may appear, for every good gardener has a vast fund of insight or inspiration for which even he himself might find it difficult to account in any logical way. An observant gardener is like a poet; he is born rather than made by study, although without much study he could not approach perfection. He is often quite as much of an artist as a painter, and will mix a compost for one plant widely different from that he will mix for another of the same genus, or even species. He will indeed employ the most delicate and exquisite shades in soils, temperatures, aspects, &c., just as the poet does in words or phases, or the painter in colour and tone.

But we must return to our rock gardens. It has been too much the fashion or custom to assume that because alpine or mountain plants grow naturally in elevated positions, say roughly at 2000 feet to 12,000 feet above the sea, that they therefore require to be elevated on stony mounds of earth when brought down to our gardens. This is a fundamental error that once for all deserves to be swept out of our minds. Every gardener who is really successful in the culture of alpine plants knows well that many, even if not most, of the mountain plants from Alps and Apennine, from Pyrenees or Himalaya, from the Rocky Mountains, from Japan, or from the glacial *débris* of Mount Cook, or from the snowy Caucasus, really thrive better in sheltered and moist rockeries below ground level, or even in artificial bogs of peat or loam and Sphagnum than they do on those elevated stony deserts often miscalled rockeries in our gardens. Apart from soils or geological formations altogether, I am convinced that moisture is at least one of the, if not the most important factor in cultivating mountain plants with success, and even moisture in the soil itself is not even half the battle, for many plants, perhaps most mountain plants, are practically bathed in a vapour of mist or shower or cloud for at least nine-tenths of their existence, and one of the main reasons why such plants fail in lowland gardens is owing to an uncertain, *i.e.*, fluctuating and much drier atmosphere. This fact of alpenes being cloud-swept also throws a vivid side-light on their succeeding so often in bogs or in Sphagnum after having failed in drier soils.

I believe M. Correvon, of Geneva, lately told us much as to the difficulties he experiences in the growth of alpenes, and it is to him that we owe our thanks for the golden and potent suggestion that many difficult subjects, almost impossible to cultivate under ordinary conditions and soils, will succeed and thrive when planted in living Sphagnum or bog Moss.

As to the action of Sphagnum and formation of peat, I may here quote Schimper, who says:—

Unless there were peat Mosses, many a bare mountain ridge, many a high valley of the temperate zone, and large tracts of the northern plains would present a uniform watery flat, instead of a covering of flowering plants or shady woods. For just as the Sphagna suck up the atmospheric moisture and convey it to the earth, do they also contribute to it by pumping up to the surface of the tufts formed by them the standing water which was their cradle, diminish it by promoting evaporation, and finally by their own detritus, and by that of the numerous other bog plants to which they serve as a support, remove it entirely, and thus

bring about their own destruction. Then, as soon as the plant detritus formed in this manner has elevated itself above the surface water, it is familiar to us by the name of peat, becomes material for fuel (or food for higher vegetation), and all Sphagnum vegetation ceases.

Braithwaite says:—

It is by means of the pendent branches and cuticle of the stem that the wonderful hydraulic property of the Sphagna is maintained, and this is readily seen if we place an uninjured stem in a glass of water and allow the top to hang over the margin, for the water rises by this channel and soon begins to drip from the drooping end, until, like a syphon, it has drawn off all the contents. Not only do the Sphagna thus give off water to the atmosphere, but they can, on the other hand, also absorb moisture from it and transmit it downwards; in this way a constant interchange goes on between the stagnant pools and the atmosphere, by which means no doubt the pools are prevented from becoming putrid.

This same bog Moss has enabled us to grow the so-called alpine, or moisture-loving Orchids, such as *Odontoglossa* and *Masdevallias* of the pluvial and mist-drenched Andes, in our comparatively dry-as-dust plant houses at home, where they are frequently during summer scorched by sunshine and the air is largely robbed of its moisture by hot-water pipes—at least during the winter season. These Orchids grow in dense and often shady *Usnea* and Lichen-draped woods, high up in the continual mist or cloud-zones of the mountains, and many of the most exquisite and lovely of all our hardy mountain flowers or alpenes also live continually when at home beside the stream-washed or Moss-draped boulders, or sheltered beneath or among rocks high up in a climate of continual mist and rain. No doubt it was some instinctive, even if not practical shimmering, of this natural state of things which caused my correspondent above referred to write to me that more plants would be happy in a bog garden than as planted amongst dry rocks or stones on higher ground.

I hope most sincerely that all alpine plant-lovers on dry, hot soils will give M. Correvon's idea of living Sphagnum Moss a fair trial, especially as placed in such a position as will enable it to draw up a continual supply of water or moisture from below, and to throw off continual aerial moisture by evaporation.

F. W. B.

INTERESTING WILD FLOWERS.

To those who know wild flowers, the article by "A Gloucestershire Parson" in THE GARDEN of Feb. 27 is interesting. The county of Suffolk is certainly favoured in its wild flowers, and possesses within a comparatively small area many that in other parts of England are more widely distributed through several counties. The Broom Rape mentioned on pages 183-4 as parasitic upon Broom and Furze also finds a supporting host in other plants, notably the Red Clover. I first found this plant in a Clover field. The crop had been cut and carried, and a second growth was starting, but all over the field were hundreds of brown spikes of Broom Rape. I have known it appear in beds and borders of loamy soil that has been recently dug from pasture land. I saw the Fritillary growing wild last year for the first time, and so plentiful that it was worth the walk of many miles to see it. "A Gloucestershire Parson" mentions the Sea Holly and Horned Poppy as being in association, but upon the Suffolk coast we have another pretty plant running through the sand, carpeting the ground and mingling with the Sea Holly; it is the Sea Bindweed (*Convolvulus Soldanella*). Its flowers are of a rosy colour, and in size equal those of the great white kind, which is beautiful, though so common. The Sea Holly and Horned Poppy taken

from their sea breezes and sandy soil do not "cease to be objects of interest," for both plants are grown well in many inland gardens that have light soils, and appear not less luxuriant or ornamental under their altered conditions of life. Among things that are effective in winter, nothing in the way of hardy plant foliage surpasses strong, large-leaved tufts of the Horned Poppy.

I have only met with the Henbane twice, never truly wild, but on both occasions under singular circumstances. In the first, a lake had been cleaned out, the mud deposit being wheeled out upon a pasture and spread about when dry. During the summer several large groups of Henbane appeared from that mud deposit. How the seed came there I cannot conjecture, as the plant was certainly non-existent along the banks of the stream that fed the lake, this having its origin in an adjoining wood. In the second case a strange plant appeared in a nursery bed of hardy plants, and was so luxuriant in leafage that I did not recognise it, but, struck by its apparent singularity and distinctiveness, it was suffered to remain till flowers appeared, when its identity was established.

A. H.

GENTIANA VERNA.

I AM sorry that your correspondent "Delta" should think that I "took him up short" (*vide* page 186), for it is not a pretty thing to do that under any circumstances, and least of all with an old friend about flowers. But it is true that I considered the letter he wrote to you a few weeks ago about alpine plants to be needlessly discouraging, and I said so to him at once. Half the amateurs in England had better give up the cultivation of alpine plants if his ideas are correct. No better instance could be found of his finding difficulties where none need exist than his reference to *Gentiana verna* in your impression of Feb. 27. *Gentiana verna* grows with the greatest possible ease where it is treated as it likes to be, and no doubt will not grow at all where the reverse is the case. That is the sum total of the matter. Of course, Mr. Burbidge is right when he says "it is a great lover of underground moisture," and this gives the reason why "Delta" fails with it so much. His garden, interesting as it is in so many ways, is still a very hot one in summer. I never should have expected *Gentiana verna* would do well in it unless some very special means were taken to prevent its being dried up. But there are innumerable gardens to which this does not apply. It does not apply to mine, hot though it is, for the atmosphere is laden with moisture, and thus compensation is found. I am not nearly so sure as Mr. Leonard is that this *Gentian* is a great lover of chalk when it is under cultivation. I have been experimenting about it for more than a year, and as yet I can see no very great difference in the results between the presence and the absence of lime, nor do I find that the point is insisted on by any authority I have consulted about the matter. In "Alpine Plants" the word runs thus: "A few things are essential to success in its cultivation and they are far from difficult to secure. These are a good deep sandy loam on a level spot on rockwork, perfect drainage, abundance of water during the warm and dry months, and perfect exposure to the sun." To all of this I say, amen. M. Froebel prescribes sandy loam. Herr Max Kolb, who must know what he is writing about, tells us on page 83 of his work on alpine plants that it thrives in pastures of the Alps in peat and clay. M. Bouvier speaks of alpine pastures, and to quote only one more writer on this head, Miller, in his "Gardeners' Dictionary," and in his cultural advice, is silent altogether about lime

and refers us to moist meadows. Mr. Leonard may have made a discovery, but I do not think it is at all certain.

For me it is enough to know that, given only a bright clear atmosphere overhead and plenty of good peat for it to grow in, which is mixed with a little sand and burnt earth, *Gentiana verna* is as certain as anything can be to do well and to give no trouble at all. I put a great emphasis on a large proportion of peat being used. It never will be happy where the soil burns and dries up. I was, oddly enough, as this question has turned up just now, engaged for some little time yesterday in tearing to pieces some large clumps of *Gentiana verna* and planting them out. I sacrificed the blossom this year so that the little plants may become established before the hot weather sets in. But when one clump will tear up into a dozen or more individualities, it cannot be said that

of the prettiest of all Lilies, and I should be really quite grieved if I thought it unmanageable.

"Delta" must pardon me for saying that on one important point I think there is some confusion in his remarks. In one place he argues that a plant must like this or that because it is found under certain conditions in some native habitat. In another place he writes: "I am sure there is a good deal more to be learned concerning the cultivation of many of our hardy plants, and we shall be surprised the more we note it at the adaptive power of many plants." But if so, what does it matter if the kind of soil which Backhouse prescribes for *Lilium Kramerii* is not at all that which it meets with in Japan? It is just because I do believe most thoroughly in the adaptive power of plants that, if any one of them is happy in my hands, I ask no more questions about it, and I leave the native habitats to themselves. And I often find that there is a strange contrariety between what I may have expected in the first instance and what I find to do best in the end. Of course, the plant is quite true to its own nature; there is no doubt about that; but one cannot servilely copy the complexities that went originally to make up the sum total of its surroundings, and it may find something very much indeed to its liking which does not appear at all to the eye.

I see nothing in "Delta's" reference to Japan which serves in the slightest degree to throw discredit on Messrs. Backhouse's advice with regard to *Lilium Kramerii*. One thing more and I have done. I wish "Delta" would give his name and address in full. The former would not detract from the merit of his observations; indeed, far from it; and the latter might be decidedly of great use to many persons, as pointing out the latitude and longitude under which he lives. I am sure this is of importance wherever cultural recommendations are given. H. EWANK, *St. John's, Ryde, Isle of Wight*, Feb. 27.

— All lovers of really good rock plants will be interested in reading the remarks of "Delta" in THE GARDEN for February 27.

Very few, according to my observations, can get on with *Gentiana verna*. When residing in North Hants, where the soil is of a hot, dry sandy nature, I found great difficulty for several years in growing *Gentiana verna*, *Dianthus neglectus*, *Dryas octopetala*, and a few other things satisfactorily. After this, I made a small rockery facing north-east. Although only small, I grew a large number of plants on it. When making this I made a portion with limestone, another with principally peat, a third with poor gravelly soil with brick broken small, a fourth with loam, &c., and when planting I selected the soil according to the requirements of the plants. Although previous to this I had tried several plants of this *Gentian* in other places, I resolved to obtain three good plants from a reliable source; these I planted in the portion composed of limestone, choosing positions where the water would run down at the back of the plants without running over them, thereby keeping them moist. After they were planted (or



Eula's zebra in flower in the late Mr. Taplin's garden at Maywood, New Jersey. (For description see p. 237.)

it does not feel at home, and this was the case with *Gentiana verna* in my hands. I advise "Delta" to leave it alone in his hot and very often parched-up locality, but he should abstain from telling others to do the same. There is no reason for it in many other places. With regard to *Lilium Kramerii* and my injunction regarding it, I can only say that I got my wrinkle from Messrs. Backhouse's catalogue (p. 29). I acted upon it in the autumn of 1890 and with good results, as was shown in the following summer. So satisfied was I that this method was right, that last autumn I purchased several more bulbs of the same sort, and they have been dealt with in the same way. Of course, it is too early for them to appear above ground at present, but I shall be much disappointed if there is any failure with them. I feel grateful to Messrs. Backhouse for their little cultural note, for I hold this to be one

in fact, while planting) I put in some flat pieces of limestone on the top to keep the soil moist. During the summer I always kept this rockery wet by continual watering in dry weather. In this position this lovely *Gentian* grew beautifully. I well remember counting the flowers, which numbered from forty to fifty open at one time on a plant. I never disturbed these plants, but let them grow as they pleased. After frost, I always pressed the stones round them into the ground to make all solid. I believe one of the chief things to obtain success with this and many other *Gentians* is to grow them in firm soil.—J. C., *Forde Abbey*.

NOTES OF THE WEEK.

Apples from Tasmania.—The Peninsular and Oriental Company have arranged that their steamers shall make twelve visits to Hobart, Tasmania, for the purpose of bringing to England a consignment of 240,000 bushels of Apples. The first lot has been despatched, and will arrive in London towards the end of the present month. The fruit is packed in cool chambers during the voyage.

The Gardeners' Orphan Fund.—An earnest effort is about to be made in Kingston to do something in aid of the Orphan Fund. In response to a circular sent out, about twenty-five gardeners attended a meeting held in the Albany Hall. Mr. Burrell, of Claremont, was chairman and Mr. A. Dean acted as secretary. It was unanimously resolved to promote a concert in aid of the fund shortly after Easter, and a sub-committee was appointed to carry out the arrangements.

The new fruit and vegetable market.—It is expected that in about three weeks the new fruit and vegetable market at the corner of Charterhouse and Farringdon Street will be opened for business. The new market will be a structure of a light character with glass roofing, after the style of Covent Garden, and will possess the advantage of being in railway communication with every part of the United Kingdom, the extensive substructure having been let for a term to the Great Northern Railway, whose lines pass through it. Under the Act of Parliament authorising its construction, Farringdon Market will be finally closed on the day the new market is opened, and the site disposed of.

The herbaceous ground at Kew.—Alterations are not always improvements, but those recently made in the herbaceous department of the Royal Gardens, Kew, are very decided improvements indeed, with the additional advantage of giving the visitors better facilities for studying the collections. The path running through the centre, and which at the top bore off at right angles to a narrow opening, has been carried right through to the Cumberland walk, so that visitors from that direction can get easily into the herbaceous ground. A walk has also been carried through the wall about the centre of the grounds, and this leads by steps into the rockery at that point. This will be a great convenience to visitors from the rockery to the herbaceous ground or *vice versa*, and save much time and trouble.

Hypericum Moserianum.—Having had no experience of this plant, which I have never yet seen mentioned in catalogues, I cannot speak about its hardness; but when "A. D. W." says, on page 194, that it is proved by its parentage, I may remark that neither *H. calycinum* nor *H. patulum*, which are its reputed parents, is hardy in my garden in Cheshire. I know that *H. calycinum* is included in catalogues of native plants, and that it thrives in several places in England and especially in Ireland, where it has established itself as a wild plant, but being a native of the Levant, it belongs to a warmer climate than ours, and with me is always cut to the ground by a temperature below 5° Fahr., and though it generally struggles into life again, it is crippled for the next season. *H. patulum* is far less hardy, being killed to the ground by a temperature of about 15°, and I am

obliged to keep cuttings or seedlings in a frame every winter, or I lose it. *H. oblongifolium* I find the best and hardiest of these large-flowered *St. John's Worts*. I have had it for ten years and it has never yet been cut down. The severe frost of February ought to have tested the hardness of *H. Moserianum*.—C. WOLLEY DOD, *Biarritz*.

The Glory of the Snow.—For greenhouse work in early spring the *Glory of the Snow* (*Chionodoxa*) quite eclipses the old Siberian Squill, over which it has at least two advantages—the colour of the flowers is brighter and more attractive, and success is more certain. The trouble with the Squill, even with extra large bulbs, is that the flowers never come together. It simply refuses to force well. It is altogether different with the *Chionodoxa*. *C. Luciliae*, *sardensis*, and *gigantea* have all been tried, and although the *sardensis* flowers are much the smallest, the colour is more intense with little or no white in the centre. Home-grown bulbs are of course best for forcing; they are more certain, and one has not the disappointment of seeing half the pot full of *Scilla bifolia*, which seems to be found mixed with the *Chionodoxa*, the bulbs of which are very similar.—K.

The Lenten Roses.—The cutting easterly winds of the last few days have almost entirely destroyed the Lenten Roses (*Helleborus orientalis*) in the London district. Here the blooms were well forward, and a week ago were a perfect picture. They are now, however, cut to pieces and lost for this year at least. Unless grown in sheltered spots it is almost useless to trouble about this section in the south at least, and in gardens that are swept by these east winds. They should, if grown at all, be planted in the coldest and shadiest position in the garden, by which means the flowers may be kept back until towards the middle or end of March instead of, as with us, towards the end of February. *H. colchicus* and its numerous varieties are the best to grow. They flower much later, and may be grown with safety on the rockery, where they always attract attention in late spring.

Rats destroying Bamboos.—For several months we have been troubled with rats in our Bamboo plantation. They have destroyed many hundreds of canes. The rats have shown their partiality for two kinds only, viz., *Bambusa Simoni* and *Bambusa Metake*. The reason of this is, I think, that they contain more saccharine matter in their stems than the following kinds, which are growing with them on a small island of about half an acre, which is devoted to them: *Bambusa aurea*, *B. nigra*, *B. Mazelli*, *B. edulis*, *B. mitis viridis*, *B. viridi-glaucescens*, *Phyllostachys bambusifolia*, *Thamnochloa Falconeri* (syns.), *Bambusa gracilis* and *Arundinaria falcata*, and *Bambusa palmata*. None of these have been touched, although the canes of some of them are much softer than those eaten. Water-fowl and pheasants prevent us using poison to destroy the rats.—W. O., *Fota*.

Cerasus Watereri.—I send you some sprays of this Cherry which I find invaluable for slow forcing where a mass of flowers is required for any special purpose. For ordinary cutting it is not so valuable as many hardy shrubs on account of the flowers fading quickly, especially when hard forced. *C. Watereri* is a valuable addition to the list of double Cherries. It forces very freely, the lovely tinted blush or pink flowers being larger than those of the old forms. The flowers sent have been open ten days in a cold Peach house, thus showing their long-lasting properties. To get these plants to force freely year after year, it is necessary to harden off the new growth after flowering, as, like all the Cherry tribe, it is an early tree to mature its buds. When turned out of the house after flowering the tender shoots are often injured by cold cutting winds, and the plant has to make a second growth that is often weak and useless for forcing. It well repays a little attention after blooming by keeping it in a cold house to mature the new growth.—G. WYTHES.

Turnip Extra Early Milan.—We have, according to your correspondent "S. H." (p. 218), in the above a truly good variety, as far as earliness is

concerned, but for quality it is one of the worst—at least such is my experience. "S. H." says the flesh is white, solid and keeps good for a long time. If not used when small, the flesh, I find, becomes very bitter, and in a cooked state goes dark and watery. As an early variety, a few rows should be sown. The Snowball should be sown at the same time, as in the latter we have good properties, and the same may be said of Veitch's Red Globe. I depend principally on the above two, with Chirk Castle for winter, and it is doubtful whether there are any better for general purposes. I do not think there is much to be gained, unless the weather should prove very fine and mild, by sowing in the open early, as usually the first lot runs to seed. Turnips, like many other vegetables, require to be grown quickly and on rich land, otherwise the bulbs soon become stringy and soft.—H. MARKHAM, *Mereworth Castle*.

Sparmannia africana.—It is now about 100 years since this plant was first seen in Europe. It was at that time, and owing in a great measure to the collectors sent from the Royal Garden at Kew that the floral treasures of the Cape of Good Hope were being rapidly introduced to England. This species is, therefore, one of the oldest of greenhouse plants in cultivation. Easily grown, and if properly treated very free-flowering, it is at the same time one of the most beautiful conservatory plants flowering at this season. The flowers are borne at the apex of last year's growths in large heads or umbels, which stand well above the foliage on a stout, erect scape. The terminal flowers open first and are almost erect, but the lower ones being pendent give a very graceful appearance to the inflorescence. Each flower is a little over an inch in diameter, pure white, but enlivened by a large and conspicuous cluster of stamens in the centre. In order to get this plant to flower freely, it is necessary to ripen it off thoroughly in the autumn, and it may at that time be placed out of doors with advantage. It blooms better, too, if somewhat stinted for root room.

Helleborus niger v. angustifolius.—*Angustifolius* and *latifolius* are both old names of Sweet, but no one now knows to what particular varieties these names were applied by him, since he gave neither descriptions nor figures in connection with them. It is an error to apply the name *angustifolius* to *St. Brigid's* var. of *Helleborus niger*, and the same is true of what is known as the Manchester variety, which is now considered by many growers quite distinct. The name *angustifolius* was applied by the late Mr. McNab, of Edinburgh, to a dark-leaved *Helleborus niger* with a speckled leaf and flower-stalks, as grown by the late Miss F. T. Hope, and this variety has certainly narrower leaflets than most other kinds. The *Helleborus niger angustifolius* of McNab is a distinct plant, very like those imported from Italy, and it has been more recently sold as *scoticus* and *intermedius* in the northern nurseries. Some years ago I visited Miss Hope's garden and there saw a large plant of this variety and a few of *H. maximus* (= *H. altifolius*), and these were the only two vars. of Christmas Roses in the place.—F. W. B.

At Straffan.—Despite the cruel frosts of March the Snowdrops at Straffan are to-day (March 7) very fair and lovely under the spreading Limes. They have long been there, and having seeded, are very variable. *G. Elwesi* and *G. Fosteri* are here very fine on the flower borders, and there is a bed of *Iris reticulata* that has gone through 16° of frost, and is still beautiful. *Iris reticulata* major of Max Leichtlin is beside the type much more stately, and perhaps a shade deeper in colour, and the wine-coloured *I. reticulata Krelagei* also does well here. In the houses all things are cosy and well cared for, but the floral gem amongst the Orchids was a little past its best. *Cœlogyne cristata* is always lovely when well grown, but a plant here of the *Lemoniana* variety at its best bore sixty-three spikes, many having eight, and two spikes had nine flowers. *Cymbidium eburneum* Dayanum, with ten spikes and leaves as green as rushes, will also be a picture in a few days, and I should particularly like Mr. Gower to see a plant of the not

too common *Drynaria* (*Polypodium*) *diversifolia*, which is just now in perfect condition, 6 feet through, and the longest fertile fronds are 5 feet in length. When speaking of Snowdrops I ought to have alluded to the Snowdrop of Straffan, about which experts differ, some calling it *G. caucasicus*, and others *G. nivalis grandis*. It is both bold and beautiful, and one of the early spring sights at Straffan is to see it at its best. At Straffan, despite a severe climate, even outdoor flowers encircle the whole year.—F. W. B.

Rhododendron scabrifolium.—Of the thirty-four new species of *Rhododendron* recently discovered by the missionary Delavay in Western China, this is, we believe, the only one that has flowered in Europe up to the present, although numerous others from the same district are in cultivation both in this country and in France. *R. scabrifolium* was found on the mountains in the province of Yunnan at an altitude of about 8000 feet. A year ago it was figured in the *Botanical Magazine* from one of several plants in cultivation at Kew. These had been obtained from the Jardin des Plantes at Paris, to which establishment Delavay had sent his seeds. In a young state it is of tall, sparse growth, a character which detracts from its value as a garden plant, but which doubtless can be corrected by careful stopping and training when small. Both the leaves and young branches are hairy, the leaves being 2 inches to 3 inches long and broadly lanceolate. The flowers are borne in a cluster of several heads at the apex of the growth; they are pure white and much flatter than is usually seen in this genus. The corolla is 1½ inches across, and is divided into five rounded, oblong lobes. The species is quite distinct from any other in cultivation, and the fact of its flowering so soon from seed says much in its favour. As frequently occurs with new plants that have flowered for the first time under cultivation and been immediately figured, the plate above mentioned does not show the full beauty of the plant. A specimen in flower now at Kew proves it to have greatly improved under cultivation, and to be a really pretty species.

BOOKS.

MISS NORTH'S TRAVELS.*

MISS NORTH was born at Hastings in 1830, and died at Alderley, Gloucestershire, in August, 1890, and she is known to the world as the painter and donor of some hundreds of sketches of the world's vegetation, now to be seen in the "Marianne North" gallery at Kew. During her lifetime she visited most parts of the world in search of the subjects she best loved, and the gallery at Kew, which she presented to the nation, and these volumes are perhaps her best memorials or monument. The collection of plant pictures at Kew represents Miss North's public work, and as such it serves to emphasise her energy and also to mark her liberality and public spirit. Her sister, Mrs. John Addington Symonds, who edits these "Recollections," is careful to tell us frankly that Miss North was "intolerant of rules in all things (except perhaps in music), exceedingly and scornfully sceptical as to rules in art, for instance, the laws of composition in painting. She painted, as a clever child would, everything she thought beautiful in Nature, and had scarcely ever any artistic teaching. In music it was different, and there, I think, her real genius lay." No doubt this is the truth, and all artists, or those who know what the best art really is, have regretted the total lack of many of the best qualities of art as shown in the sketches at Kew. These drawings are often marvellously like the things represented, and yet they are highly-coloured diagrams rather than pictures of tropical fruits and flowers, and as Mrs. Symonds, the editress, says,

* "Recollections of a Happy Life," being the Autobiography of Marianne North. Edited by her sister, Mrs. John Addington Symonds. Two vols., 8vo, pp. 683, with three portraits. London and New York: Macmillan and Co., 1892.

no doubt her sister did lack much that only good teaching and careful study of technique can give even to those naturally possessed with a love of painting.

Her love of travel led her into many lands, including Egypt and Syria. One of her first journeys was to Canada and the United States; then she revelled in the West Indian Islands, her appetite for which paradise had been whetted by a perusal of Kingsley's "At Last." Then the gardens and forests of Jamaica delighted her with their wealth of tropical fruits and flowers—Bananas and Bamboos, Sugar Cane and Mangoes, tangles of snowy-white Cherokee Roses, and intertwined jungle of Orchids and Ferns. She noted the apparent wildness of *Phajus grandifolius* and a sweet-scented Garland Flower or *Hedychium* in this lovely isle of beauty. In 1872, after a short stay in London, she again set sail for Brazil, and here, also at Bahia as at Rio, she scarcely seems to have known which most to admire, whether the forest wildings or the luxuriant garden flowers as naturalised from other lands. She especially noted the delicious *Frangipani*, *Bougainvillea*, the *Cassias* and *Erythrinæ*, and those most graceful of all tropical Irids, the *Maricas*, surrounded by a circle of young flowering plants upspringing from the pendent apices of their old flowering stems.

In the highlands of Brazil she especially delighted, and was surprised at the profusion and variety of flowers.

One had always been told that flowers were rare in this forest scenery, but I found a great many, and some of them most contradictory ones. There was a coarse Marigold-looking bloom with the sweetest scent of Vanilla, and a large purple-bell *Bignonia* creeper with the strongest smell of Garlic. A lovely velvet-leaved *Ipomæa* with large white blossom and dark eye, and a perfectly exquisite rose-coloured *Bignonia* bush were very common. Large-leaved *Dracænas* were also in flower, mingled with feathery Fern trees. There were banks of solid greenery formed by creeping Bamboos, as smooth as if they had been shaved, with *Thunbergias*, and *Convolvulus* and *Abutilon* spangling them with colour. Over all the grand wreaths of *Taquara* Bamboo and festoons of lianes, with Orchids and *Bromeliads*, Lichens and *Lycopodiums* on every branch.

On New Year's Day, 1875, Miss North again left the frost and snow of England for Madeira and Teneriffe. At Puerto di Arotavo she had a room in the house of a friend "on the roof," with a separate staircase down to the exquisite garden below. Near sea-level were the Palms, the graceful Bamboos and the gigantic-leaved *Caladium esculentum*, but in this garden the collection of flowers was well nigh unique. Here were—

Myrtle trees 10 feet or 12 feet high, *Bougainvilleas* running up Cypress trees (Mrs. S. used to complain of their untidiness) great white lancifolium Lilies (or something like them) growing high as myself. The ground was white with fallen Orange and Lemon petals, and the huge white Cherokee Roses covered a great arbour and tool-house with their magnificent flowers. I never smelt Roses so sweet as those in that garden. Over all peeped the snowy point of the Peak, at sunrise and sunset most gorgeous, but even more dazzling in the moonlight. From the garden I could stroll up some wild hills of lava, where Mr. S. had allowed the natural vegetation of the island to have all its own way. Magnificent Aloes, Cacti, *Euphorbias*, *Arums*, *Cinerarias*, *Sedums*, *Heaths* and other peculiar plants were to be seen in their fullest beauty. *Eucalyptus* trees had been planted on the top, and were doing well, with their bark hanging in rags and tatters about them. I scarcely ever went out without finding some new wonder to paint, lived a life of the most perfect peace and happiness, and got strength every day with my kind friends. Amongst the ironstone rocks near Cata Branca grew the rarest and most beautiful plants, Orchids, *Vellosias*, Gum trees, *Gesneras* and many others, perhaps as yet unnamed. The lovely *Macrosiphonia longifolia* (No. 67 at Kew) is like a gigantic white Primrose made of rice paper, and has a throat 3 inches long. It was borne on a slender stalk, and had had leaves like white plush or velvet and a most delicious scent like that of Cloves. There was there also a gorgeous Orange Thistle with velvety purple leaves.

Miss North's next journey was to Japan (*via* the United States), where she admired the long-spiked

Wistarias and the quaint old Pines, the *Chrysanthemums*, and the fantastic little gardens near the neat and clean toy-like houses. In the valley of Mimbo famous for its Maples, hills are described as

Perfectly on fire with different tints of red, crimson, scarlet, and every shade of carnation and of different purple hues. Near Kioto, patches of rich cultivated country were passed through—Rice, Tea, Cotton, Buckwheat, Mulberries, Bamboo, Camellias 20 feet high, full of single pink and white blossoms. Oranges, Persimmons, and Japanese Medlars (*Loquat*) seemed the common fruits.

The scenery and cold weather and rheumatism of Japan were exchanged for the tropical luxuriance of Singapore. Here the hotel was in a lovely garden of plants one only can see cooped up in glass hot houses at home. One window was blocked up by a Bread or Jack fruit tree, each golden fruit as big as a Melon, and glossy leaves 2 feet long, while quite near the fragrant Lemon trees were in full bloom and in fruitage at the same time. The Mangosteen was ripening, as also the great spiky-fruited Durian, one of the rarest and most delicious of all known tropical fruits.

No wonder that Miss North writes (p. 233) "The botanic garden at Singapore was beautiful." Behind it was a jungle and a bit of real old forest untouched, which added much to its charm. Here *Nepenthes* grow amongst the *Gleichenias* in the wet ditches, and *Ficus Bengamini* mimics our Weeping Willows as it shimmers in the sunshine beside the lake, while at one corner near the entrance is a bold and beautiful group of Sago and other Palms. When will someone be lucky enough to cultivate the red-stemmed *Areca* Palm, one of the most striking features in gardens and jungles of Singapore and Malaysia. Like most visitors to the "Liverpool of the East," Miss North made a pilgrimage to the Whampoa Garden with its canals full of *Nelumbium* and *Victoria* Water Lilies, its rare shrubs and trees, feathery Palms and its quaint clipped figures. The great hedges of *Wormia excelsa*, and the exquisitely coloured foliage of the Rose Apples (*Jambosa*), and the cloister-like shade of the Cocoa-nut groves by the shore are all delightful to the traveller from less genial lands.

From Singapore, it is quite a natural transition to Borneo the Beautiful and to Java, which is, perhaps, the finest example of tropical colonisation known. It was on her first visit to Borneo that Mr. Everett, of Sarawak, showed her the noble Pitcher Plant (*Nepenthes Northiana*), and the painting of this fine plant, as is well known, led Mr. H. J. Veitch to send collectors to Borneo in order to make sure of such a prize. When in Sarawak, our authoress lost all traces of the rheumatism which had so afflicted her in Japan, and she luxuriated in the most exquisite vegetation.

Everyone collected for me (p. 238) as usual (she writes); Orchids and Pitcher Plants were pulled for me most ruthlessly, the latter being of several varieties from the tiny little plants which grew in the meadow near, and whose pitchers were not half the size of thimbles, to trailing plants of 6 feet to 8 feet long. There were acres of Pine-apples, many of them having exquisite pink and salmon tints and deep blue flowers. These grew like weeds. They were merely thinned out, and the ground was never manured; they had been growing on the same patch of ground for nine years. . . . We used to cut the top off and scoop out the fruit with a spoon—the truest way of enjoying their incomparable flavour. The Mangosteen, *Granadillas*, and Custard Apples were also in abundance.

With Java and its Dutch rulers our fair traveller was enchanted.

The order of everything in Java is marvellous, and in spite of the strong rule of the Dutch, the natives have a happy, independent look one does not see in India. Java is one magnificent garden of luxuriance, surpassing Brazil, Jamaica, and Sarawak all combined, with the grandest volcanoes rising out of it all. These mountains are covered with the richest forest and have a peculiar alpine vegetation on their summits. One can ride to the very tops and traverse the whole island on good roads, by an excellent system of posting arranged by Government. There are good rest-houses at the end of every day's journey, where you are taken

in and fed at a fixed tariff of prices. Moreover, travellers are entirely safe in Java, which is no small blessing.

The Botanic Garden (Buitenzorg) was a world of wonders, such a variety of different species was there. The plants had been there so long that they grew as if in their native woods—every kind of Rattan, Palm, Pine or Arum. The latter are most curious in their habits and singular power of emitting heat when in flower. All the gorgeous Water Lilies of the world were collected in a lake in front of the palace.

She found a kind and obliging director, and remarks that the Palms alone in flower and in fruit would have taken her a lifetime to paint. The blue *Thunbergia* and other creepers ran to the tops of the highest trees, sending down sheets of greenery and lovely flowers.

The view from the bridge in the very High Street of Buitenzorg was the richest scene I ever saw—a rushing river running deep down between high banks covered with a tangle of huge Bamboos, Palms, Tree Ferns, Bread-fruit, Bananas and Papaw trees, matted together with creepers, every individual plant seeming finer and fresher than other specimens of the same sort, and the larger such plants were the grander their curves. Then they had the most exquisite little basket-work dwellings hidden away amongst them, and in the distance was a Bamboo bridge—a sort of magnified human spider's web. Looking straight along the street from the bridge was another pretty view—little shops full of gaily coloured things, such as scarlet Jambosa fruit, yellow Bananas, Pomeloes, Melons, Pines and hot Peppers of the brightest reds and greens. Pretty birds in bamboo cages, people in every shade of purple, scarlet, pink, turquoise-blue, emerald-green and lemon-yellow; small copper-coloured children carrying all their garments on the tops of their heads, grass-cutters carrying inverted cones of green fastened to their bamboos and almost hiding them. Long avenues of huge Banyan trees bordered the principal drive to the palace, with large Bird's-nest Ferns growing on their branches, each tree forming a small plantation of itself, with its hanging roots and offsets from the branches.

At Tosari she enjoyed the mountain very much. It is 6000 feet above sea-level and mostly cultivated, but where crops are impossible are Tree Ferns and sub-alpine flowers, Marigolds, Balsams, Nasturtiums, Sorrel, Raspberries, great Forget-me-nots and Violets. Then she is enthusiastic over the wondrous Hindoo or Buddhist ruins at Boro Boro, all exquisitely carved, and finds herself wishing her friend Mr. Fergusson, the architect, was there to explain to her their meaning. After Java, Ceylon, where the Cocoa-nut trees at Galle and Colombo attracted Miss North's attention, being there the "weed of weeds," and growing actually on the sea sand, which is at Galle golden, and tropical crabs "ran over it like express trains." From Ceylon to Aden and Suez, and thence home to England, *via* Naples.

In September, 1877, Miss North set out for India *via* Gibraltar, Malta, and Ceylon. At Kunar the whole hillside was one sweet garden—lovely creepers over the bungalows, hedges of Heliotrope, exquisite Tea Roses, and flowering *Ipomæas* and creepers of all kinds hanging from the trees and weighing down the great Bamboos. Wild Rhododendrons covered the hillsides all around, not bigger than English Apple trees, with deep red flowers. Then came visits to the hill places of India, such as Lahore with its splendid tombs, and far-famed Simla with its Deodars on the southern slope and Oaks on the northern one. On the slopes of Jako the *Benthamia* was at home, covered with its primrose-tinted bracts. Here also were *Spiræas*, Dog Roses of several kinds, Columbines, Pinks, and Primulas, a tiny white Lily, together with *Cypripedes* and other Orchids, all, of course, in the open air. The flat-topped old Deodars, draped with red Virginian Creeper, made delicious foregrounds. The *Potentilla* flowers here are of many colours. White Jasmine covers everything like Honeysuckle in England, blue and white *Anemones* peep up from below, and from the low herbage the Cobra Arum (*Arisema* sp.?) poked its nasty-looking head and hung out its long black tongue or spadix. On the road beyond Markunda were grand "forests of Pines 200 feet high often draped to the very tops with Virginian Creeper,"

while Maiden-hair Fern carpeted the ground amongst the flowers "as Grass does in England." At p. 19, vol. ii., she writes:—

I admire Almora more and more with its rich gardens of Pomegranates, Bananas, Apricots, and Apples, then its rocky, bare hill leading to terraces of Corn quite golden in the sun's rays.

Benares, with its temples and Poplar trees (*Ficus religiosa*), its holy animals, and sacred plants, was next visited, and afterwards Calcutta with its wonderful botanic garden. The Plain of Bengal also proved interesting with its rich crops of Sugar-cane, Indian Corn, Indigo, Arrowroot, Toddy Palms, and Bamboos of magnificent luxuriance.

Then "the flowers about Darjeeling seemed endless." *Thunbergia coccinea* was most striking, twined to the tops of Oak trees and hanging down in rich tresses of brilliant colour. The Oaks themselves had leaves like a Sweet Chestnut and great acorns as big as Apricots almost hidden in their cups. Here also *Ipomæas* and a tricoloured wild *Hydrangea* were much admired, while in the spring-time the hillsides are painted by the great forest of Rhododendrons then in bloom, and perfumed by the *Magnolias* which grow amongst them. *Crawfordia speciosa* and *Meconopsis Wallichii* were also seen here in great beauty, together with other lovely flowers and shrubs, Ferns and Mosses too numerous to name. Rajpootana, Baroda, Champanir, Songarh, &c., were visited, and then back to Bombay and home to England.

Then came a second visit to Borneo, and to Queensland and New South Wales, with their trees, flowers, birds, and butterflies; then next came Western Australia, with its remarkable *Hakea* Victoriae, Grass, Gum Trees, and Banksias, Tasmania and New Zealand; thence to Honolulu and California, with its big trees (*Sequoia*), one of which had a large room in its hollow trunk at such a height as only to be reached by a ladder. At St. Louis Miss North met with the late Mr. Shaw, who showed her his wonderful Missouri garden (which he has since willed to the State) and all its treasures; thence *via* Philadelphia and New York, and thence home again to arrange with her friend Mr. Fergusson about the gallery at Kew.

In 1882 Miss North started for South Africa in the *Grantully Castle*, and soon found herself reveling amongst the glittering flora of the Cape. She describes the hills near Cape Town as covered with low bushes, Heaths, Sundews, Geraniums, and Gladioli, Lobelias, Salvias, Ixias, Babianas, and other bulbs, Daisies growing into trees, Polygalas, and Torch Lilies or Tritoma. She made a pilgrimage to Table Mountain, but did not chance to see the Disa in flower there. The plant itself formed a thick edging to the watercourses and springs, and so far is only known to grow here and on the Cedar Mountains of the Clanwilliam district. Near to the Disas, which were small, green, and flowerless, grew tall reddish Heaths and blue Broom, *Todea africana*, *Asphodels*, *Tritomas* and *Watsonias*, as well as tiny crimson rosettes of *Drosera* and *Utricularia* not bigger than pins' heads in the black bog earth near the streams. Higher up among the rocks *Protea cynaroides* was seen, and in one of its old dried flowers a honey-sucker had built its dainty little nest. Here on a spur of Table Mountain the Silver Tree was also seen.

Near the little town of Ceres, *Hyduora africana*, a root parasite of a species of *Euphorbia*, was seen, and its underground fruit is dug up and roasted by the natives. The bulbous *Pelargoniums*, also seen here, were very varied in colour, green, claret, brown, or black. The roots or stem of one kind are eaten by the natives, and its popular name is the "Kafir's Potato," as are also the fruits of some *Mesembryanthema*, which taste like bad Figs.

After her return from the Cape Miss North rested awhile and then set off again, this time to the Seychelles, to see the double Cocoa-nut at home and all their other numerous tropical treasures, such as Vanilla, *Phalenopsis* and *Angræcum eburneum*. She also saw Dr. Wright's lovely Gardenia, but, alas! in fruit only and not in flower. On the very top of the Nun's Nose Mountain, *Nepenthes Wardii* was found forming a dense mass

amongst the creeping Grass on the top of a great smooth granite boulder.

Miss North's last voyage was to Chili in November, 1884, in order to paint the great Chilean Pine or *Araucarias* at home. These forests or groves are reached from Angol, where the railway ends. The ride up of 2000 feet from Angol is delightful, the way fringed with Cactus and Puya, &c. Leaving the snow-clad volcanoes behind, there comes a further ride through the forest and pasture scenery, and stream after stream of running water. *Embothrium coccineum* is here at home on mossy boulders and in damp and partly shaded spots, while *Ourisia coccinea* hangs its graceful bells over the water, and in cracks of the rocks are enormous masses of *Gunnera*, the leaf-stalks of which are eaten like Rhubarb. Here are small and graceful Bamboos, Oaks covered with grey Lichen or Usnea, and gay with *Loranthus*. The Beech trees also have a small golden green Mistletoe growing upon them, and on the bushes are sundry Pea flowers, *Lapagerias*, and the pink and orange stars of the *Mutisias*. Here also are tall Tree Fuchsias and *Buddleia globosa* with its healing leaves and honey-scented balls of golden flowers, and among the Grass were scarlet *Amaryllis*, three or four exquisite terrestrial Orchids, *Alstroemerias*, and *Salpiglossis* of many a hue. The first and distant view of the *Araucarias* had reminded the artist of black pins loosely stuck in the cushion formed by the mountain-side; the first specimens were seen close at hand in a boggy valley, but they also extended to the tops of the rocky hills, and seemed to drive other trees away, and covering many miles of hill and dale, but few being seen outside the one forest. None of the trees were over 100 feet high or 20 feet in circumference, and all seemed very old or very young. "I saw none of the noble specimens of middle age we have in English parks, with their lower branches resting on the ground." They did not become quite flat at the top like those of Brazil (*A. brasiliensis*), but were slightly domed like those of Queensland, and their shiny leaves glittered in the sunshine. Their trunks and branches were draped with white Lichen and weighed down with cones as big as one's head, and the male cones on some of the trees were dispersing clouds of golden pollen. Bronze-green parquets extract and steal the seeds from the cones, and both natives and settlers also enjoy them when roasted like Chestnuts. The bark on old specimen trunks is curiously arranged in five and six-sided slabs as neatly as a honeycomb, an effect rarely, if ever, shown by specimens in cultivation.

At Quilpué near the coast many garden flowers were at home. Roses, Carnations, Jasmine, and a great *Magnolia grandiflora*, flowering freely, scented the air around.

The cliffs were wreathed with Fig Marigolds, *Calandrinias*, Cacti and Puyas, Fuchsias, Oxalis, and the curious *Ephedra andina*, whose fruits are very sweet and are quite edible. On the hills above was much wild scrub; a scarlet *Mutisia* and *Prostria pyrifolia* climb to the tree tops, and in barer places are acres of wild Artichokes or Cardoons, whose silvery leafage and deep blue flowers are most striking.

In 1885 Miss North returned to England and devoted the next year to finishing the arrangement of her gallery of sketches at Kew. Then in 1886 she discovered and leased Alderley, a fine old Gloucestershire house and garden.

The exact place I wished for, and already my garden is becoming famous among those who love plants. . . . The recollections of my happy life will also be a help to my old age. No life is so charming as a country one in England, and no flowers are sweeter or more lovely than the Primroses, Cowslips, Bluebells and Violets which grow in abundance all around me here.

Kismet! Now to the book itself, which is indeed a pleasant one and so full of notes on various branches of natural history, that one regrets the more that a good index was not added, and route maps would also have been of interest to many. The author was a kind and gentle lady with a welcome for all who loved Nature, and she met many remarkable people during her wanderings, as also at home. Mr. and Mrs. Vernon Lushington

Chas. Darwin, Prof. Owen, Sir T. D. Hooker, Dr. B. W. Richardson, Mr. Green (the historian), A. R. Wallace and Miss Bird (Mrs. Bishop) were a few only of these, and she speaks of them sincerely with true womanly admiration. Sincerity and simplicity were the watchwords perhaps of her character. I saw her both before and after my journey to Borneo in 1877 and 1878, and had valuable letters of introduction from her to people whom she herself had found helpful during her wanderings.

To gardeners and amateurs fond of flowers, birds and insects these volumes will prove most interesting, and all those who have seen her gallery of sketches at Kew will here get lucid glimpses of the natural surroundings amongst which her subjects were found. There are at least five plants—one genus and four species—named after Miss North, viz., *Northia Seychellana*, *Nepenthes Northiana*, *Crinum Northianum*, *Areca Northiana*, and *Kniphofia (Tritoma) Northiana*, and these names and the North Gallery at Kew will long serve to keep her memory green.

F. W. BURBIDGE.

THE ELEMENTS OF AGRICULTURE.*

ONE of the results of the present move in favour of technical education is the production, in so far as agriculture is concerned, of a multitude of text-books. Being much engaged in agricultural education, we have carefully considered each publication dealing with this subject on its appearance, but to none can we give such unqualified praise as to the volume now before us. Its preparation has been undertaken by our national agricultural society, in compliance with the many demands that have been addressed to it for an elementary work on agriculture. The general scheme of the work was settled by a sub-committee appointed by the council of the society, and the preparation of the text-book was entrusted to the capable hands of Dr. W. Fream, whose long experience in agricultural education renders him especially qualified to undertake a work of this kind. Among others who have co-operated in the production of the book are Sir John Lawes, Sir John Thorold, Dr. Voelcker, Messrs. Thos. Bell, Bowen Jones, Chandos Pole-Gell, Clare Sewell Read, and Miss E. A. Ormerod—the mere mention of whose names in connection with the work are a guarantee of its excellence. The book is divided into three parts, each containing some eight to ten chapters. The first part appropriately deals with the soil, the primary source, so far as the farmer is more immediately concerned, of the food of plants and animals. The origin, composition, improvement, working, and manuring of the land are successively dealt with in a clear and easy style. The plant is the subject matter of the second part—germination, structure and functions of plants; the culture of our various farm crops, also of fruits and vegetables; the selection of seeds; the implements for securing crops; grass-lands and their management, and two very interesting and instructive chapters deal respectively with weeds and fungus pests. The third part is concerned with the study of the animal—the anatomy and physiology of our farm stock, so far as they are necessary to a proper understanding of the mode of nutrition; the composition of the animal body; foods and feeding, including a description of the various implements and machines for preparing fodder for stock; the art of breeding; the breeds, feeding, and management of horses, cattle, sheep and pigs; the fattening of stock, and a brief account of dairying. One of our most celebrated agricultural authorities once said that it was almost impossible to get farmers to read, but we do not think any farmer who has once seen "The Elements of Agriculture" will be satisfied until he has made himself acquainted with every line it contains. It is a regular encyclopædia of agricultural practice with science, and its low price will enable even the owner of three acres and a cow to become the possessor of a copy. There are plenty of illustrations, but unfortunately they are

not, on the whole, up to the high standard of the reading matter; in fact, many of those dealing with live stock are ludicrous, particularly a ghostly Guernsey cow and a corpulent Lonk ram.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

MARCH 8.

WITH the renewal of wintry weather, and that of such a severe character, it was not to be wondered at that the meeting on the above date was smaller than usual. It was somewhat surprising to find so many good exhibits as there were, particularly of Orchids, it being a rather risky proceeding to venture plants out under the prevailing conditions. The cold easterly winds with the frost considerably lowered the temperature of the building, and that in spite of two good fires. It is a pity that such a commodious structure is not warmed in a more efficient manner; this might be done, one would think, without much difficulty, taking into consideration the many improved systems of heating now so largely employed. If this were the case, it would be better undoubtedly for all concerned, but more particularly as it pertains to tender exotics.

Orchid Committee.

Awards of merit were given to—

ODONTOGLOSSUM PESCATOREI (Jackson's var.).—This dark variety is quite as beautiful as the lighter form shown at the previous meeting from The Dell collection; the groundwork of the flowers was a very delicate blush-pink, relieved with rich chocolate blotches; the lip also beautifully spotted. From Mr. Jackson, Bourne Place, Bexley.

CYPRIPEDIUM LANTHE (parentage not given).—This is another capital hybrid of compact growth, with the foliage faintly marked in the way of *C. barbatum*. The dorsal sepal is fine, having a white edge with purplish veins radiating to the same upon a greenish ground. From Messrs. Veitch and Sons.

CYPRIPEDIUM BRYZA (Sedeni candidulum × Boissierianum).—This has the habit and form of flower of Sedeni candidulum with its continuous blooming character. The flowers are a trifle larger, with a fine pouch, the colour of its other parent being faintly imparted to the offspring. It is a beautiful variety. Also from Messrs. Veitch and Sons.

Botanical certificates were awarded to—

DISA INCARNATA.—A minute species with pretty flowers of a dull orange colour; the growth slender, with spikes a foot or more in length. From Messrs. Lewis and Co., Southgate.

DENDROBIUM AMETHYSTOGLOSSUM.—This has small flowers of no particular beauty, the short spikes being densely packed with these. From Messrs. Low and Co., Clapton.

Messrs. Sander and Co. sent a collection of choice varieties of *Odontoglossums*, as *O. facetum*, with flowers of a pale brownish colour with somewhat darker markings; *O. crispum*, a first-rate light variety; *Sobralia xantholeuca rubina*, hardly sufficiently advanced; *Odontoglossum xanthinum*, a very distinct pale yellow variety; *O. Edwardi* with several spikes; *Oncidium Phalaenopsis*, in which the varieties were very distinct; *Dendrobium Phalaenopsis Schrederianum*, some light and some dark forms, but all alike beautiful; *Laelia harpophylla* and *L. cinnabarina* with richly coloured flowers; *Zygopetalum crinitum purpureum*, a variety of dwarf growth having several spikes of bloom, the flowers richly marked, and a good plant of *Angraecum sesquipedale* with eight flowers upon two spikes (silver Flora medal).

Messrs. Pitcher and Manda, Hextable, Swanley, Kent, also showed a group consisting chiefly of hybrid and other choice forms of *Cypripediums*, as *C. Pavanianum* (Boxalli × venustum) with distinct traces of each parent; *C. Dominicanum rubescens*, a very pretty form; *C. Meirax*, *C. Boxalli superbians* and

C. villosum superbians, both being first-rate types of these two well-known kinds (silver Flora medal).

Messrs. Veitch and Sons also showed *Cypripedium macrochilum* (longifolium × caudatum Lindeni) with twin flowers, having the long tail-like appendages of the latter parent, the pouch deep, somewhat compressed and beautifully spotted upon the inner margin. Mr. Bailey, The Briars, Reigate, showed a well-grown example of *Oncidium chrysomorphum* with several spikes densely packed with small flowers of an old gold colour; the pseudobulbs and leaves bore a singular resemblance to those of *Odontoglossum Pescatorei*. Mr. Cliffe sent from Shoreham Place, Kent, a very fine variety of *Cattleya Trianae* (called Shoreham Place var.), the colours very deep, the lip being of a very rich colour. From Mr. Lee, Beech Lawn, near Manchester, came a well-flowered plant of *Dendrobium Brymerianum* with the singular fringe to the lip of each flower well developed. Messrs. B. S. Williams and Son showed a fine plant of the beautiful hybrid *Phajus Cooksoni*, carrying two strong spikes of bloom with ten to twelve flowers upon each, and a pale form of *Dendrobium chrysodiscus*, a beautiful hybrid. Mr. W. H. Nixon, Stanley Street, Leek, sent a well-grown plant of *Odontoglossum maculatum* bearing four fine spikes with an average of seven flowers each. A cultural commendation was deservedly awarded. Other cut blooms were also shown by several growers.

Floral Committee.

First-class certificates were awarded to—

AMYGDALUS DAVIDIANA ALBA.—A profuse flowering variety of Almond with pure white flowers. The branches shown were from plants in the open air, examples of which were also staged at the February meeting of the present year. It is a most desirable and very promising addition to hardy early-flowering shrubs. From Messrs. Veitch and Sons.

ANTHURUM ANDREANUM SANGUTNEUM.—A very superior form of this well-known Aroid, with spathe of extra size and of a deep blood-red colour; a distinctly valuable variety. From Sir Trevor Lawrence's collection.

An award of merit was given to—

AMARYLLIS MARS.—A very fine seedling bearing a spike with two expanded blooms of great substance and first-rate shape and two buds; the colour is almost a self—a rich deep red with darker markings at the base of the petals. From Messrs. Paul and Son.

Mr. Phippen, nurseryman, Reading, had an extensive collection of very well-grown early spring-flowering bulbous plants, consisting of a good assortment of *Hyacinths*, bearing large spikes; numbers of *Tulips* in baskets and pans, amongst which *Ophir d'Or* and *Joost van Vondel* were the finest; *Lilies* of the Valley were staged in profusion and in the best of condition; *Crocuses* in variety and also *Scillas* were present, as well as the blue *Muscari botryoides* (Musk *Hyacinth*) and its white variety, the latter being particularly noteworthy by its purity of colour; these were backed up by *Palms*, &c. (silver-gilt Flora). Messrs. Wm. Paul and Son sent some twelve boxes of cut *Camellias*, which made a good display. The flowers were excellent and fresh, the best being *Mathotiana* (extra fine and of rich colour), *Donckelaari*, *Countess of Derby*, *fimbriata*, *Benneyi*, *Montironi vera* and *Reine des Fleurs* (silver-gilt Banksian).

Messrs. Hugh Low and Co. had a large group of small and medium-sized plants of early-flowering Cape and New Holland subjects. The most showy of these were *Acacia Drummondii*, *A. armata* and *A. cordata*; *Erica persoluta alba*, very pretty; *Cytisus fragrans*, *Epacris Eclipse* and *E. Diadem*, *Chorozema Lowi*, and some well-flowered *Eriostemons*. Mr. Ware, Tottenham, had an extensive group of well-grown *Daffodils* in pots, with a number of cut blooms; the best of these were bicolor *Horsfieldi*, *Empress*, *Emperor*, *Golden Plover* and *Golden Spur* (much alike), *Princess*, *Narcissus odoratus minor plenus*, *N. odoratus rugulosus*, and others, with good examples of *Iris reticulata*, still unsurpassed in its way (silver Banksian).

* "The Elements of Agriculture." A text-book prepared under the authority of the Royal Agricultural Society of England. By W. Fream, LL.D. London: John Murray.

medal). Mr. Davidson, Iwerne Minster, Blandford, exhibited some well-flowered plants of *Clivias*, which had travelled the long distance remarkably well. The best of these were Princess May, Duke of Clarence and Lord Wolverton, all three very superior forms of this popular flower (silver Bank-sian medal).

Messrs. Veitch and Sons showed several choice varieties of their superb type of *Amaryllis* and a boxful of their strain of *Cinerarias*, comprising very superior flowers of large size, rich and varied in colour, the dark sorts particularly fine. The following significant fact was noted: "These blooms are not dressed." Messrs. Cutbush and Son staged several plants in bloom of *Calla Little Gem*, a very pretty variety. Sir Trevor Lawrence showed other cut *Anthuriums* besides that to which a certificate was awarded. These were all remarkably fine spathes with vigorous foliage. The finest were *A. carneum*, spathe extra large; *A. leodense*, very fine spathes; and *A. Lawrenceanum*, after *A. Andreanum*, but lighter. Messrs. Williams and Son showed a plant of *Anthurium Scherzerianum* var. *Mme. de Smet Duvivier*, an extra dark variety of strong growth.

Fruit Committee.

An award of merit was given to—

APPLE IMPROVED ASHMEAD'S KERNEL, a medium-sized fruit with very firm flesh and of first-rate flavour. From Mr. Watkins, Pomona Farm, Withington, Hereford.

A dish of highly-coloured Annie Elizabeth Apples was sent from Sir T. Farrer's garden at Abinger Hall. Considerable interest was shown in a small collection of Oranges sent from Mr. Hopwood, Ketton Hall, Stamford. These consisted of three varieties much grown in Florida. One variety named Russet had a browner skin than usually seen, and is considered superior to any other. It is stated to possess considerable advantages over the lighter or bright-skinned kinds, as it travels better and bears more freely. It is also of large size. The one named Bright is not so richly flavoured as the one just noted. It is grown in moist places, and the trees are highly fed. The Navel is quite distinct; it is chiefly propagated from buds, the fruit rarely containing any seed. Some splendid Seakale in four large punnets containing twelve heads each, beautifully blanched and of great substance, was sent by Mr. W. Poupert, Twickenham. It was beautifully white, with scarcely any leaf growth, of great size and very solid. Mr. Leach, Albury Park Gardens, sent an Onion named Main Crop, with very firm medium-sized bulbs. Mr. Leach also sent a dish of a Tomato named Ladybird to show its free setting qualities. The fruits set freely in December, and though small are of excellent flavour. It should prove a valuable winter Tomato, and it is stated to ripen its fruit in the open early in July. Messrs. J. Veitch and Sons, Chelsea, sent two seedling Apples from the well-known Alfriston. They were much smaller than that variety, and had more colour and firmer flesh. The one named St. David is an erect grower, the fruit being dark red on the sunny side, whilst Welsh Beauty is a spreading grower, but similar to the St. David in colour and firmness of the fruit.

The paper on "Plants for House Decoration" was read by the assistant secretary, Mr. Wills being prevented reading the same through indisposition. Mr. Wills said the love of flowers of late years had increased greatly, and there never was such a lavish use of them as at the present day. Even the humbler classes grow their window plants in quantity. The strides made in decorating and furnishing of late years had been very remarkable. Mr. Wills mentioned several instances of sums of from £500 to £1500 having been spent in a single night for ball-room decorations. The great use of so much decorative material tended to promote trade, as might readily be seen, as of late years the manufactories for the plants and flowers had increased to a great extent, and now employed great numbers of men. He said Palms were certainly our most useful plants for decoration, as they were

so light and graceful. One of the best is *Cocos Weddelliana*, a most graceful and long-lasting variety. He had had plants of this variety two years in one room, and he did not know of any plant more useful in a small state. Palms could be grown in 2½-inch pots, and might be had from 6 inches to 15 inches high in such small pots. Large specimens of this variety were equally useful, as he found after much usage they were fresh and healthy. There were also many others useful for this work, such as *Geonoma gracilis*, the *Kentias* in variety, *Latania borbonica*, the *Arecas*, *Phoenix rupicola*, *Rhapis flabelliformis* and others. The Cycads were also useful for the above purpose, and some of the varieties of *Bambusa* were of great value for grouping. The *Dracenas*, *Pandanus Veitchii*, also some of the tender stove plants when grown for the purpose, *Crotons* and *Fittonias*, *Ferns* in variety, and such plants as *Hydrangeas* are alike necessary to get good effect.

In the discussion which followed Dr. Masters said the figures given of sums spent for one night's entertainment were enough to take one's breath away. He admired a cottage window or garden in the country when tended by those with a love of flowers as much as the most costly decorations. He said those plants with thick leathery leaves were the best for permanent room decoration, as they resisted gas. *Pandanads* he did not think suitable, but *Aspidistras* were our best plants, and used in enormous quantities on the Continent, as they were most useful for staircases and hotels. Mr. Bunyard said many of the *Conifers* were suitable, and, being hardy, were less expensive, also long-lasting.

United Horticultural Benefit and Provident Society.—We are asked to state that the annual meeting of this society will take place at the Caledonian Hotel, Robert Street, Strand, on Monday evening next, March 14, at eight o'clock.

Gardeners' Royal Benevolent Institution.—Mr. Ingram, secretary of this institution, writes us to say that Sir Julian Goldsmid, Bart., M.P., has consented to preside at the fifty-third anniversary festival dinner, to be held on June 29 next at the Whitehall Rooms of the Hotel Metropole, and that he will be glad to hear from any gentlemen who are willing to act as stewards on the occasion.

Rabbits destroying Beeches.—Can any reader of THE GARDEN suggest any way of saving old Beech trees from the depredations of hares, rabbits and sheep? Tar does not seem to have any effect. It is sad to see almost every tree barked near the root.—L. G. C.

Gooseberries and caterpillars.—Often at the busiest time the Gooseberry is attacked by the dreaded caterpillar. I have seen whole plantations without a leaf, and of course the fruit is worthless, as it never attains its proper size, and often shrivels on the trees. Dressing the bushes with quassia and soft soap, hellebore powder, or lime and soot to a certain extent minimises the mischief, but it is a tedious process, besides often disfiguring the fruit and making it unfit for table. The best remedy is to remove the trees into new ground and thus destroy the larvæ of the caterpillar by trenching, placing the surface soil at the bottom. Gooseberry trees would often be benefited by change of soil and situation. They often remain much too long in one place. I would advise in gardens badly infested with the grub that 2 inches or 3 inches of soil for a radius of 2 feet to 3 feet round the trees be removed and buried, replacing with fresh loam and manure. This top-dressing answers a double purpose; it nourishes the trees, encourages new roots, and at the same time destroys the larvæ of the caterpillars. If this is done now, much time will be saved in the summer months.—S. H. B.

Birds and fruit tree buds.—The birds are very troublesome during this month, and in warm situations fruit trees are often stripped of their buds if precautions are not taken against them. The severe weather of the past week or two makes them worse than would be the case if a

greater choice of food was within reach. In many gardens a gun cannot be used, so that other means have to be taken to get rid of them. Nets fixed on stakes are the best preventives, the stakes being put in clear of the trees and a few light rails placed from stake to stake. This plan is only available where the bushes are planted in rows or quarters. Of late years this system of planting has found more favour with growers; indeed it answers admirably, as the fruit of the dessert kinds can be protected when ripe. Gooseberries grown in quarters would often repay for a permanent protection in the way of wire netting placed some 6 feet high, thus allowing the fruit to be gathered comfortably. I have seen arches made of half-inch iron supports placed over the rows covered with wire netting. Those who cannot adopt the above would do well to give their trees a dressing at this date of freshly slaked lime, or lime and soot mixed with quassia water. I have used soft soap and quassia, but this must be frequently applied, as damp and wet soon destroy the bitterness of the dressing. A mixture of flowers of sulphur and slaked lime dusted over the trees when wet also answers well.—G. W.

The Kew Bulletin.—A complete list of the new garden plants of the year 1891 forms an appendix to the Kew Bulletin for February this year. A similar list has been prepared and published at Kew every year since 1887. The plants enumerated are all those of which records or descriptions have been published in botanical and horticultural publications, whether English and foreign, during the year. Besides species and botanical varieties, all hybrids, whether introduced or of garden origin, are included. Mere garden forms of such plants as *Fuchsia*, *Coleus*, *Croton*, &c., are omitted. The plant is cited under its published name, although some of the names are doubtfully correct. The name of the person in whose collection the plant was first noticed or described is given where known. The following example will show the kind of information given under each plant:—

PRIMULA IMPERIALIS, Jungh. (*Gardeners' Chronicle*, 1891, ix., p. 729; *GARDEN*, 1891, pl. 823; *Journal of Horticulture*, 1891, xliii., fig. 1; *Gardener's Magazine*, 1891, p. 729).—The true Java plant, which differs specifically from the Himalayan Primrose figured in *Botanical Magazine*, t. 6732, under *P. prolifera*. The leaves of the former are 15 inches long and 5 inches wide; the scape is erect, 3 feet to 4 feet high; the flowers are in four to six whorls, rich cowlip-yellow, tinged with orange. This plant is probably hardy in England (Kew).

The value of a reliable list of this kind must be evident to everyone interested in garden plants. Copies of it may be obtained from Eyre and Spottiswoode, Fleet Street, price 2d. each.

Names of plants.—*Wag. Trewyn*.—1, *Dendrobium nobile*, a fine coloured variety; 2, *Dendrobium Brymerianum*, a good variety, cannot say the best.—*G. Craig*.—Cannot say we have seen the case occur just as you put it, but we have similar instances.—*J. Jameson*.—1, *Pteris Kingiana*; 2, *Diplazium plantagineum*; 3, *Salpichlaena volubilis*; 4, *Gymnopteris nicotianefolia*; 5, *Drynaria quercifolia*.—*F. M.*—1, *Dendrobium heterocarpum*; 2, *Phajus Wallichii*; 3, *Restrepia elegans*.—*W. Shave*.—*Hippeastrum* (*Amaryllis*) *equestre*, double-flowered variety, not uncommon in some of the islands of the West Indies.—*J. Bishop*.—*Cypripedium Bozallii atratum*, very good form.—*J. M. B.*—*Gnaphalium ericoides*.—*T. W.*—They are all forms of *Cattleya Trianae*.—*M. C. M.*—1, *Davallia filipensis*; 2, *Diplazium brevissimum*; 3, *Aspidium Pica*; 4, *Dictyogramma japonica*; 5, *Nipholobolus Gardneri*.—*G. Hudson*.—1, *Hebenstreitia dentata*; 2, *Calycanthus præcox*.—*B. S. T.*—1, *Callipteris prolifera*; 2, *Hymenophyllum pectinatum*; 3, *Ctenopteris trichomanoides*.—*C. Currel*.—*Angræcum Leonis*.—*H. T.*—1, *Polystichum amplissimum*; 2, *Lastrea elegans*; 3, *Microlepia strigosa*.—*T. R. M.*—1, a very good variety of *Cattleya Percivaliana*; 2, a bad form of the typical *C. Trianae*; 3, *C. Trianae delicata*.—*G. Marsh*.—*Cattleya Trianae delicata*.—*J. Kenley*.—*Dinema polybulbon*.—*David Thomas*.—*Epidendrum ciliare*.—*J. McDonnell*.—*Cattleya Trianae splendissima*.—*M. R.*—*Masdevallia Roezli rubra*.—*J. D.*—*Vanda suavis*.

WOODS AND FORESTS.

THE ASPECT OF COPPICE WOOD.

NOT many weeks ago a noble lord, well known for his interest in matters pertaining to forestry, re-echoed a statement that I had long ago expressed regarding the objectionable nature of coppice woods, but more particularly when these come within the bounds of the park and policies. Personally speaking, coppice woods have at almost every season of the year a cold, dreary, and poverty-stricken appearance, they being incapable of producing that warmth and well-clad appearance for which even a deciduous forest is so remarkable. The disadvantages of a coppice wood or plantation arise mainly from the ill-kept appearance they present, being, as they are, left entirely to Nature for the twelve or sixteen years of their growth, and during which time they become a wild jungle that it is almost impossible to penetrate, and so a neglected state, and one that is anything but pleasing is brought about. But, further still, at the period of full growth, let that be twelve, fourteen, or sixteen years, the whole wood is cut over, the face of Nature being thus completely changed, the woodland presenting a monotonous repetition of pollarded stumps that rise from 2 feet to as much as 4 feet in height. Certainly if a few old standard Oaks have escaped the first onslaught of the wood-cutter, they are left alone, but the number of these must necessarily be small, else the value of the underwood is deteriorated in consequence. A traveller in Kent and some of the adjoining counties is often startled by the entire disappearance of a whole plantation that perhaps, when he did the same route a month before, was a thickened jungle through which neither light nor air could freely enter, and of perhaps from 16 feet to 20 feet high. The charms, too, that are of oft occurrence in an open woodland—the wild flowers and colossal stems of the most varied and grotesque appearance—are totally wanting in the so-called coppice woods, the rampant undergrowth, often fully half a hundred shoots from the same stool, destroying right and left every particle of the natural vegetation. It is quite surprising, however, how tenacious of life many native plants are when subjected for fully ten years to the rampant growth of the clumps of Hazel, Ash and Oak. The Butterfly *Habenaria* (*H. bifolia*), the Twayblade (*Listera ovata*), the Herb Paris (*Paris quadrifolia*) and the early purple and spotted-leaved Orchids (*Orchis mascula* and *O. maculata*) are certainly marvels in this way, for when the coppice is cut over, these appear usually in quantity and in the very heart of the wood, flowering freely the second year after the cutting down of the coppice wood, and each succeeding year for perhaps two, or at the most three, when it is all over, the thickened shoots soon ousting out their less vigorous brethren. Here, however, the tubers remain, for immediately after the crop is next removed they start again into life and flower with the greatest freedom.

Coppice wood is undoubtedly of great value in Southern England, and it is a matter for regret that it so mars the appearance of the country, but particularly so where the ground level undulates but slightly. Hop-growing, which is now much on the decline, was at one time a great incentive to the cultivation of coppice wood, thousands of poles for training the plants being wanted annually. Now, however, matters have undergone a great change, the demand, owing to the reduction of the acreage under the crop,

being small indeed. To such an extent has the sale of these fallen off, that large tracts of the coppice wood have been grubbed up to find room for the more productive Strawberry, Raspberry, &c. But not only for the Hop poles is coppicing carried on to such an extent around London, as broom-handles, plant stakes, Pea boughs, material for hurdle-making, faggots, &c., find a ready sale in and around the great metropolis. The good prices formerly realised for all these commodities gave a great impetus to the cultivation of coppice wood, and I could show hundreds of acres of good arable land under this crop at the present time. In years gone by as much as £20 per acre could be got for good coppice wood, but now there is a difficulty in getting rid of it even at say £6 the acre. Hop-growing has greatly fallen off, consequently stakes for the plants are not needed; while the little bundles of split batten ends, as now sold, are slowly, but surely ousting faggots from the market.

That coppice wood will, in consequence of its rapidly deteriorating value, be less grown in the future I feel pretty sure, and in so far as the general appearance of the country is concerned, it will be well when it is confined to outlying districts far removed from public paths and roads. A. D. W.

The Lebanon Cedar.—As a specimen tree, the Lebanon Cedar stands pre-eminent when plenty of space is given for the development of its wide-spreading boughs, which droop in a graceful curve, their green, velvety-like surface terminating in numerous spray-like points. When placed in a favourable position, it will in a hundred years attain to about 90 feet or 100 feet in height, with about the same diameter in the spread of branches. For the first twenty-five years it makes slow growth, but after that time it grows very quickly.

Picea Nordmanniana.—If *P. nobilis* be the best of the Californian Silver Firs, this is certainly the finest of the European or Asiatic species. It is likely at no distant date to supplant the common Silver Fir for ordinary planting, the timber being of better quality, and as it starts later into growth it is less apt to be injured by late frosts. Its growth is rapid and symmetrical, and the foliage of a bright grassy green, which has a very cheerful effect in mid-winter. The colour of this tree varies at different hours of the day; the leaves, which in sunshine spread out and show the green upper surface, curve upwards when the sun is off them, and show the silvery lining.

Transplanting evergreen trees.—My opinion is that the best season for moving Evergreens depends somewhat on their size, age, and the distance to which they have to be moved, but, as a rule, I am in favour of autumn planting. From the first week in August to the second in October is a much longer time during which Evergreens of all kinds can be safely moved than that available in spring, with the still further advantage that the autumn-moved plants require no after attention in watering the following summer, such as is necessary in dry weather with spring-moved plants, even if they get well over the ordeal of transplanting. When plants lifted in spring in any considerable quantities have to be moved to any distance by rail in the hot, dry weather that often prevails at that time, frequently necessitating their being out of the ground for a week, they are often checked and thrown into a stunted state, from which they do not recover for two or three years. For small ordinary nursery stock, when in a right state for lifting by sufficiently frequent transplanting, where the quantities to be got through are not too great to admit of their removal within the short time available, spring will answer well enough; but even these will succeed if moved within the much longer period in autumn, thus admitting of their making some roots after planting, when they are safe from the weather, no matter how severe. It is all very well to recom-

mend the planting of Hollies and other Evergreens just as they are breaking into growth in spring where only a limited number of small or ordinary sized plants have to be moved; but where large quantities have to be transplanted, and often conveyed considerable distances, it is impossible to get the work done in the time during which the plants are in the required state to move.—E.

Tree-planting in parks.—The fault of park-planting hitherto is the paucity of flowering shrubs, which, when they are used, are usually planted far too thinly to be effective, or they are planted in the wrong place, or under the shade of trees where they do not grow or flower freely. It is not a good plan to introduce too much of the flower garden into the park or woods. Too much dressing in such places is objectionable, but there is certainly room for a far more extensive display of flowering shrubs and trees than there is, as from many woods near mansions they are almost entirely absent. Rhododendrons have been pretty extensively planted on many estates, but their display is but short-lived, and there is no reason why such plantations should not be far more varied than they are, containing, as they do, subjects that will extend the display every season over a much longer period. It is necessary, however, that all such subjects should have room and light. They may be planted thickly at first, and with advantage in the way of shelter, but when they get crowded they should be thinned freely, and the plantations extended with those removed. A narrow line of Rhododendrons along each side of a grass drive or carriage road, with tall forest trees encroaching overhead, perhaps, is but a poor attempt at this kind of decoration, when by the simple process of expansion and throwing back the lines, a tortuous track, where nothing could be seen to advantage, might be transformed into a broad vale glowing with colour and adorned with the stateliest vegetation.

Staking newly-planted trees.—The effectual staking of trees, particularly when young and newly planted, conduces to a great extent to the after-success of the trees, as all experienced foresters have ample proof. Neglect of this particular is often the cause of the trees succumbing to even moderate gales, and even if they do not be quite overturned, they seldom grow vertically, on account of having been forced to one side before the roots had obtained a firm hold of the soil. There are various methods of staking trees, but that I have long practised has served me well. I find that strong Ash, Oak, or deal poles are the best; they should be straight, and long enough to go well up amongst the branches of the tree, as it is the head which requires supporting. A very common method of tying, and one which may be recommended for its simplicity, is using old sacking about 6 inches in width. This is bound round the tree for protection, and tied tightly to the stake with tarred cord; the stake is then made fast to the guard by tying in such a manner that the wind does not cause the tree to chafe against the iron or woodwork of the guard, as is too often the case. During the growing season the ties should be frequently examined.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols. price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which format is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are a little to be the most complete ever published. Price 1s.; by post, 1s. 3d.

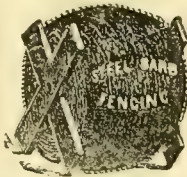
RICHARDS'S NOTED ORCHID AND OTHER SELECTED PEATS (Cut from his own grounds) SOILS MANURES, and every description of GARDEN SUNDRIES.

G. H. RICHARDS, The Horticultural Stores,
1, Belvedere Crescent, Lambeth, London, S.E.
SAMPLES AND PRICES POST FREE.
Chief Peat Depot - RINGWOOD, HANTS. Trade supplied.

Barb Wire.

Catalogues free on application

THE LONGFORD WIRE Co.,
LIMITED,
WARRINGTON.



NOW Ready.—The GARDEN ANNUAL

Almanack and Address Book for 1892. Containing the most authentic lists of (1), Nurserymen, Seedsmen, and Florists in the United Kingdom; (2), Foreign Nurserymen, Seedsmen, and Florists; (3), Horticultural Builders, Engineers, and Sundriesmen in the United Kingdom; (4), the Principal Nurserymen and Florists in the United States, and their Addresses; (5), the Principal Gardens of the United Kingdom, in the order of the counties; (6), the Principal Gardens and Country Seats in the United Kingdom; (7), the Gardeners in the United Kingdom, and their Addresses; New Plants of the past year; and other information. The most complete and accurate reference book for the use of all interested in gardens. Price 1s. post free, 1s. 3d., of all booksellers, newsagents, or from the Publishing Office, 37, Southampton Street, Strand, London, W.C.

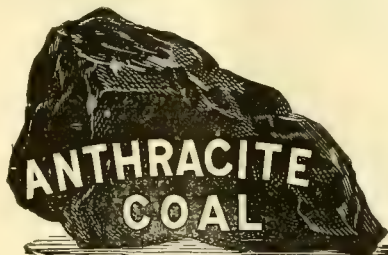
THE GARDEN.—Terms of Subscription.—

THE GARDEN is sent direct from the Office in London post free, payable in advance. For one year (52 weeks) 19s. 6d.; half year (26 weeks), 9s. 9d.; quarter of a year (13 weeks), 5s. THE GARDEN is also posted regularly to the United States, Canada, and the Continent of Europe, and all places under class "A" of Postal Union for twelve months at 24s. P.O.O. should be filled up in the name of THOMAS SPANSWICK, and should be made payable at the General Post Office, London, E.C. THE GARDEN is also published in monthly parts, price 1s. 6d., post free, 1s. 9d.; and in half-yearly volumes, price 12s. each. Cases for binding the volumes are on sale, price 2s. each. The best way to obtain the copies is to order of a bookseller or newsagent.

Readers of THE GARDEN are advised to obtain the paper in all cases where it is possible through a Newsagent, Bookseller, or Railway Bookstall, and to request that it be delivered flat or unfolded, so that injury to the coloured plate and engravings may be avoided.



And for all Glass Structures that require shading. Sold in packets 1s. each, with full directions for use, and may be obtained from all Seedsmen and Nurserymen. The public are cautioned against spurious imitations. Each packet should bear the Trade Mark as above. Sole Manufacturers: **CORRY & CO., Ltd.**, Offices and Show Rooms: 13, 15 & 16, FINSBURY ST., E.C. Sold by all Seedsmen and Florists.



The Best and Cheapest Fuel for Greenhouse Boilers, Stoves, and Heating Apparatus.

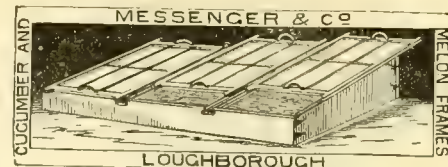
Hendreforgan Anthracite Smokeless Coal.

The UNITED ANTHRACITE COLLIERIES (Limited) supply their sized Cobble Coals, delivered in truckloads to any Railway Station. This Coal is absolutely smokeless, and requires much less attention than any other description of fuel, burning for twelve hours at least without any supervision, and giving a greater and more regular heat.

The Company are now making another and cheaper description of Anthracite Cobbles, so as to meet the demand from all quarters. Full particulars and prices on application to

The UNITED ANTHRACITE COLLIERIES (Limited)
23, LIME STREET, LONDON, E.C.

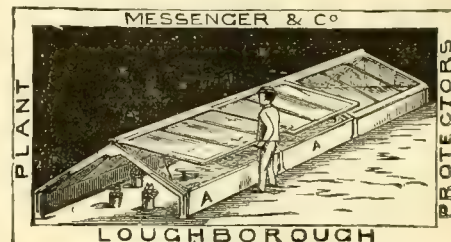
INNES' FERTILITAS.—The Vine and Plant Food. To be had of all Nursery and Seedsmen, or direct from us. In bags, 16s. per cwt., carriage paid to all Stations. Write for references and testimonials to the Sole Makers, W. INNES & Co., Sunny Hill Viney, Littleover, Derby.



GARDEN FRAMES.

1 light, 6 ft. by 4 ft., £2 2 0; 2 light, 6 ft. by 8 ft., £3 10 0
3 light, 6 ft. by 12 ft., £4 17 6

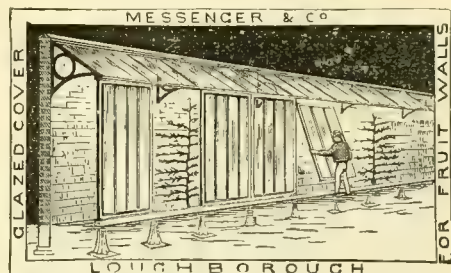
Carriage paid to any Station in England and Wales. Made of the best red deal, well-seasoned, glazed with 21-oz. English sheet glass, painted 4 coats, can be put together in a few minutes by a Gardener without screws.



PLANT PROTECTORS.

Of these we have several kinds. Our Lists should be asked for 8 ft. by 6 ft., £4 15 0; 12 ft. 6 in. by 6 ft., £7 2 6.

Made with iron ribs, the lights to turn right over. Also made with the front A of thick glass or slate slabs, the whole of the frame-work of iron, the lights of wood.



GLAZED COVERS FOR FRUIT WALLS.

For a wall 10 feet high, 12s. per foot run, glazed and painted complete; can be taken down and readily fixed without screws
LISTS ON APPLICATION.

MESSENGER & COMPANY
HORTICULTURAL BUILDERS,
LOUGHBOROUGH.
LONDON OFFICE—163, Palmerston Buildings, Old Broad St., E.C.

THE GARDEN.

A new Volume commenced January 2, 1892.

THE GARDEN is sent direct from the Office in London, post free, payable in advance; for One year, 19s. 6d.; Half a year, 9s. 9d.; Quarter of a year, 5s. THE GARDEN is also posted regularly to the United States, Canada, and the Continent of Europe, and all places under Class A of the Postal Union for twelve months at 24s.

SUBSCRIPTION FORM FOR "THE GARDEN."

(To be filled up by intending Subscribers, cut out, and returned to the Office.)

Please to send me THE GARDEN for

commencing _____ for which I enclose

Name _____

Address _____

Date _____

FORM OF ORDER TO NEWSAGENTS.

To Mr. _____

Bookseller.

Please supply me with THE GARDEN, Weekly; commencing

on _____, and continue the same till further notice.

(Signed) _____

Address _____

Date _____

[Please supply the Paper unfolded, to avoid injury to the Coloured Plate.]

POSTAL ORDERS.

[Postal and Money Orders should be filled up in the name of THOMAS SPANSWICK, payable at the Money Order Office, G.P.O. and should be crossed London and County Bank.]

THE GARDEN OFFICE, 37, Southampton Street, Covent Garden, W.C.

SUTTON'S PRIZE BEGONIA.

Saved from the richest and most varied flowers grown in our immense collection.

"One of your Begonia blossoms picked quite casually was found to be $5\frac{1}{4}$ by 5 inches across, and others larger even than this could have been cut in numbers."—Miss HEATH, Ferndale Park.

"The Begonia seed turned out splendidly. The colours were from the purest white to the darkest crimson, with twenty flowers, five inches across, on a plant, and more on some of them. The strain is perfection."—Mr. J. WILLIAMS, Gardener to Colonel Mansell.

Price of Seed, 5s. and 2s. 6d. per packet, post free.

SUTTON'S SEEDS
GENUINE ONLY FROM SUTTON & SONS, READING.

DANIELS' SEEDS

7/6 COLLECTION 7/6 CONTAINING FOUR PINTS PEAS

- | | |
|-------------------------|-------------------------|
| 1 pint—Broad Beans | 1 pkt.—Gourd |
| 2 pint—French Beans | 2 pkts.—Lettuce |
| 1 pint—Runner Beans | 1 pkt.—Lentil |
| 1 pkt.—Beet | 1 oz.—Mustard |
| 1 pkt.—Borecole | 1 oz.—Onion |
| 1 pkt.—Brussels Sprouts | 1 pkt.—Parsley |
| 1 pkt.—Broccoli | 1 oz.—Parsnip |
| 1 pkt.—Savoy | 2 o.s.—Rashish |
| 1 pkt.—Cabbage | 1 oz.—Spinach |
| 1 oz.—Carrot | 1 oz.—Turnip |
| 1 pkt.—Cauliflower | 1 pkt.—Vegetable Marrow |
| 1 pkt.—Celery | 2 p.ts.—Herbs |
| 2 ozs.—Cress | 1 pkt.—Tomato |
| 1 pkt.—Cucumber | |

All the best kinds for succession to ensure

A YEAR'S SUPPLY OF VEGETABLES

Carriage paid to any address on receipt of cheque or P.O.O. Also other collections from 2s. 9d. to £5 5s., all carriage free.

EVIDENCE OF QUALITY.

"The Vegetable Seeds I have purchased of you this last twelve years have given every satisfaction."—Mr. G. KNIGHTS, Long Newton.

"I beg to inform you that the Seeds I had from you last year were a great success. I took twenty-two prizes at our two local shows, one of the prizes being a Silver Cup for collection of vegetables."—Mr. J. WOODS, Surbiton.

"I have sent to tell you that your collection of Vegetable Seeds turned out well, taking first prize with Parsnip and Onions, six Parsnips weighing 24 lbs.; Onions measuring 14 inches round."—Mr. C. WESTALL, Mildenhall.

DANIELS BROS.
Seedsman to H.M. the Queen and H.R.H. the Prince of Wales,
NORWICH.

Williams' SHADING MATERIALS.

THE MOST SUITABLE FOR
SHADING ORCHIDS, FERNS,
Palms, and Stove and
GREENHOUSE PLANTS.

It is a strong durable Cotton Netting, woven in squares so close as to exclude the direct rays of the sun, but admitting the greatest amount of light attainable through shading.

It with-stands the weather better than any other class of shading, and may be beneficially used on account of the thickness of its texture, during cold weather, to keep the frost out. The leading Orchid and Plant Growers in the country have used this material for some years, and speak very highly of it, pronouncing it to be the very best material for plants they have ever used.

Blinds made up and Fixed Complete.

Sold in pieces 30 yards long by $1\frac{1}{2}$ yards wide, price 40s. each. Samples submitted gratis.

This new shading is in the form of a white powder, and is prepared for use by applying boiling water to the compound, and allowing it to cool, when it can be applied by means of a brush. It dries instantaneously, and can be rubbed off easily when moist. This shading may be used for GREENHOUSES, SKYLIGHTS, WINDOWS, &c.

Sold in 1-lb. packets, with directions for use, price 1s. each. 1 lb. free by parcels post for $1\frac{1}{4}$

2 lbs. free by parcels post for 2/6.

Each packet will make half a gallon of shading material when mixed. It is a great improvement on anything hitherto offered, and lasts the whole season.

B. S. WILLIAMS & SON,
Victoria and Paradise Nurseries,
Upper Holloway, London, N.



PAULS' WALTHAM CROSS

For the Best Roses.

PAULS' WALTHAM CROSS

For the Best Seeds, Bulbs, &c.

PAULS' WALTHAM CROSS

For the Best Fruit Trees and Grape Vines.

PAULS' WALTHAM CROSS

For the Best Evergreens, Park and Roadside Trees.

PAULS' WALTHAM CROSS

For the Best Camellias, Azaleas, Lapagerias, &c.

PAULS' WALTHAM CROSS

South Entrance four minutes' walk from Waltham Cross Station, G.E.R. West Entrance three minutes' walk from Theobald's Grove Station, G.E.R.

Inspection invited. Prices strictly moderate. Priced Catalogues free.

Goods packed by experienced hands for all parts of the world. Gardeners of character and experience recommended. Observe the Christian name—

WM. PAUL & SON,

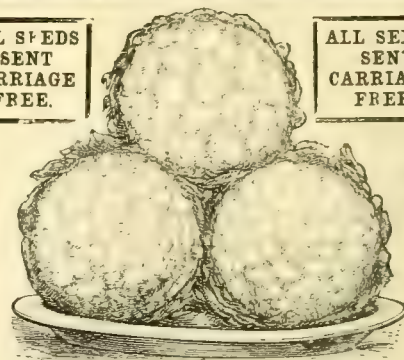
Rose Growers by Appointment to Her Majesty the Queen,

TREE, PLANT, BULB and SEED MERCHANTS,

WALTHAM CROSS, HERTS.

WEBBS'

ALL SEEDS
SENT
CARRIAGE
FREE.



ALL SEEDS
SENT
CARRIAGE
FREE.

"TOM THUMB" CAULIFLOWER

Exceedingly valuable for frames and for other purposes. It can be planted close, and will come into use earlier than any other sort.

1s. 6d. and 2s. 6d. per Packet.

From Mr. F. MERRICK, Gardener to R. A. Cockburn, Esq., Fetcham Lodge.—"I grew your Tom Thumb Cauliflower during the summer, and although the crops were planted very close, they produced heads of first-rate quality."

WEBB & SONS, WORDSLEY, STOURBRIDGE

For Pleasure and Profit.

FRUIT NOTHING so PROFITABLE and EASY to GROW.

74 ACRES in STOCK

See CATALOGUE for Simple Instructions and kinds of Trees to suit all soils.

ROSES HUNDREDS of THOUSANDS.

Packing and Carriage Free for Cash with Order.

BUSHES, 8s. per doz., 60s. 100.

ROSES in Pots, from 15s. per doz.

ORNAMENTAL TREES 91 ACRES.

4 ACRES of GLASS.

Clematis (80,000) from 15s. doz.

N.B.—Single Plants are sold at slightly increased prices.

SEEDS and } Vegetable, Flower,
BULBS and } and Farm.

DESCRIPTIVE LISTS FREE.

RICHARD SMITH & CO. Worcester.

32 ACRES OF RHODODENDRONS

AND
170 ACRES OF OTHER NURSERY STOCK.

		Per 100.	Per 1000.
		s. d.	s. d.
Rhododendron ponticum	9 to 12 inches	12 0	90 0
"	12 " 18 "	16 0	140 0
"	18 " 24 "	25 0	220 0
" catawbiense hybrids	9 " 12 "	12 0	100 0
"	12 " 18 "	18 0	160 0
"	18 " 24 "	28 0	240 0

For other Nursery Stock, see Catalogues, free.

Rhododendrons make grand cover for game. Hares and rabbits will not eat them. They will grow well under trees where many other trees perish.

Smaller or larger sizes can be supplied if required.

JAS. SMITH & SONS,
DARLEY DALE NURSERIES, near MATLOCK.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

TEA-SCENTED ROSES AND THEIR USES.

WE can claim more for these than for any other Roses, namely, that they are fit to adorn the choicest and most conspicuous parts of our gardens and make them bright for many months of the year. It is only in a half-hearted way that the article by "R." in THE GARDEN of March 12 (p. 223) sets forth this, their greatest use, and one which, moreover, is the strongest factor towards ensuring a long-continued popularity, because a flower that is adapted to our gardens and is plentiful therein, is less liable to be influenced by the whims and caprices of floral fashion and fancy. The remark that under glass is where the true beauties and charms of the Teas are most often found comes as a surprise to many. It is in the outdoor garden in our sunny beds and borders that we find Tea Roses with tints of leaf and blossom unknown to the grower under glass, because undeveloped there to anything like the extent that they are in the open air. In proof of this let me refer "R." to the plate of that gem of Tea Roses Marie van Houtte, which appeared in THE GARDEN of December 28, 1889, and ask if ever such colour was shown by flowers produced under glass. At the time of publication of the plate some thought a little artistic exaggeration was accountable for the high colour, but the flowers are there reproduced in the colours they possessed, and they were not specially selected, because a group of a dozen plants had scores of them. The same is true of and applies to many more grand Tea Roses. We shall never know the full value of Mme. Lambard till we have a bold group in the garden, and mark its many colour variations at different periods and through several summers. Tea Roses, too, possess absolute immunity from the most disfiguring of Rose pests, viz., red rust. We can enjoy their varied leafage from spring till winter, and I might almost say till pruning time, since Marie van Houtte with me at the present time has leaves as green as they were before frost set in and they have been subjected to 20° or more on several occasions. How much we gain by this immunity was forcibly brought home to me last summer. In a garden of Tea Roses where all the best kinds are grouped, three kinds only that were not true Teas had been admitted upon the strength of their great merit. These were Grace Darling, Viscountess Folkestone and Camoens. These last two kinds had done so well that their groups were enlarged, but red rust appeared last summer, quickly defoliating every plant. It did not spread to adjoining groups of true Teas. These two groups have now been removed to a less conspicuous border of Hybrid Perpetuals. Exhibitors are many and their methods are well known, but, apart from all that has to do with showing, we are concerned with the best Roses for garden decoration alone and the coincident pleasure arising from their culture. In a good soil that is not over-manured, Tea Roses are much hardier than many suppose. We do not want to mount them on legs, but to have bushes and groups, and if they are killed to the ground-line, then, like our many hardy plants, they will shoot from below. Our patience taxed for two or three

weeks longer, perhaps, waiting for the first flowers, but when they come we know a succession will follow till winter destroys the last buds. A. H.

Climbing Roses.—As a general rule, one is constrained to choose from among the very vigorous growers when selecting Roses for the above purpose. Good as these are for the work, there are many others that will be equally as serviceable, and which will be far more preferable on account of their more perpetual flowering qualities. Maréchal Niel, &c., are apt to give only one good crop of flowers, but if one plants such of the strong and free growing Teas as Marie van Houtte, Mme. des Tartas, Safrano, and Anna Olivier, he may soon cover any wall or fence of medium height—say up to 8 feet and even 10 feet, and at the same time secure a more continuous supply of blooms. These varieties, unlike the majority of the climbing Roses, will produce another crop of flowers even while the first crop is barely over. One may thus get from four to six distinct crops of bloom, besides a few stray or intermediate flowers. Such kinds as I have mentioned will bloom from the whole of their wood. This is a decided advantage, as one may cover his fence or wall with good foliage and flowers, and, provided frost does not kill the wood, it is of service year after year. The majority of the climbers are really spring and summer bloomers only, but these kinds will carry heavy crops both early and late—in fact up to the time they are cut down by frost.—P. S.

Ripening the wood of Roses.—The great advantage Roses derive from a period of complete rest was brought under my notice in a very forcible manner during the past week. Some plants that had not received so thorough a ripening as we generally accord them were started about Christmas; others were started some five or six weeks later, and although the second lot had only half as much heat as the first one, the plants are already far in advance of those started earlier. There is only one reason for this, as the general treatment has been the same in both cases. I am quite certain that the plants not having received so efficient a ripening, followed up by a short period of complete rest, is the sole reason. Unless the shoots of Roses are properly matured and allowed about a couple of months' rest, they very seldom turn out satisfactorily under early forcing. Not only are the growths more forward, but they are much stronger, stouter, and more generally set with flower-buds than when started in the dead of winter and before they have had sufficient rest. This will also point out another lesson, viz., how very much better it is for Roses to come on quickly from the time they are first started into growth; and warning should be taken from this fact, not to prune too early and so start the most useful eyes into premature growth. Later pruned plants will pass by and be very superior to those that were forced into a too early activity by being pruned too soon.—R.

Roses and the past winter.—Last year at this time the losses among my Roses were very heavy, and I am sorry to say it is the same again. Not so many plants are quite killed, but great numbers are terribly crippled. Although we had some very severe weather about Christmas, I do not think that was nearly so injurious as the sudden and very severe frosts at the middle and end of February. These, coming after a spell of open and comparatively mild weather and when the sap had already begun to make a move, have, as far as my plants are concerned, done infinitely more mischief than the rest of the winter. A large bed of Teas upon the Brier, and from which I looked with some confidence for my show blooms next summer, has suffered more than any others. Other Teas that were more exposed have not suffered to the same extent. The injured bed is on the south side of a hill and somewhat sheltered by several fruit trees, &c., while the less injured plants are on the north side of the hill and fully exposed to any north and east winds. I have frequently been puzzled to account for such cases, and in this in-

stance can give but one reason. The Teas on the dwarf hedge Brier stock being in a more sheltered situation were probably in a more forward condition than they appeared to be, and I have often noticed that Roses with their sap just on the move are unable to stand a severe frost. It seems to give them a sudden check and often causes the bark to bind and become what is styled "hide-bound." My plants that were on the northern side of the hill were naturally in a much more backward condition, and hence their greater freedom from harm.—U.

Roses for decoration.—In planting Roses due consideration should be given to the purpose they are chiefly required for. With the rage for flowers of good shape we are in danger of losing many of the older varieties; these, however, are of great value for cutting from. There are many of the old as well as the newer varieties that are well suited for general decoration. Due care must be given to the selection of kinds, as there is a vast difference in their lasting powers, especially in a cut state. As a general rule, those varieties which soon burst into a flat and full-blown state, especially if they come "quartered," are by far the best Roses to stand as cut flowers. I will name two or three varieties that will bear out my remarks. Souvenir de la Malmaison, Caroline d'Arden, Magna Charta, and Gustave Piganeau are grand Roses in every way, but particularly so when used for massive decorations. Baronne Prévost, Souvenir de la Reine d'Angleterre, Anna Alexieff, &c., are also very good growers and free flowerers. Such varieties are, unfortunately, going out of fashion, so to speak, principally because their shape and form are not up to the present ideal.—R.

PRUNING NEWLY-PLANTED ROSES.

MANY people hold the opinion that Roses in the past have been over-pruned. In many cases this opinion is probably well founded. But if Roses are to have a fair start, they must be cut hard back the first season after planting, whether planted late or early. I take it this is absolutely necessary. Afterwards cut as you like, but do give the plants a chance to get established. But it is as well not to be in a hurry about the pruning. Let the roots get hold of the soil first, and then the dormant buds at the base of the shoots will break strongly. I often think from what comes under my observation that the non-pruner would have greater success if, as he objects to cut back much, he thinned the buds and took only a bloom or two the first year. Roses which are left unpruned (and cutting 2 inches or 3 inches from the ends of the shoots can hardly be called pruning) have not the same chance of getting well established as those do which have their growing force more concentrated by harder pruning. Hundreds of Roses die prematurely through neglect of this principle of concentration the first season after planting. If leaving newly-planted Roses unpruned or not sufficiently pruned, which virtually amounts to the same thing, gave more or better blossoms, there would be some excuse for the practice; but it does nothing of the kind, for the back eyes from which the best blossoms are obtained do not break, and I contend that any system of pruning or management which leaves these back eyes dormant all through the growing season is radically wrong. Of course a distinction should be made between different varieties. Some may be left longer than others even the first season. A safe rule would be to cut far enough to break the strongest at any rate of the back eyes, but this requires a knowledge which can only be gained by experience. All the best rosarians know this, and they know also how such little cultural details as working in a little fresh, dry, loamy soil round the roots in

planting helps the speedy establishment of the roots, and gives them that much-needed early grip of the soil that will enable them to push out strong shoots that will in the future bear fine blossoms. E. H.

ROSES ON IRON AND WIRE SUPPORTS.

THERE still seems a great difference of opinion among rosarians respecting the evil effects of growing Roses upon iron or galvanised wire supports. Although many leading Rose growers do not advise this means of supporting and forming arches for Roses to grow upon, and point to the greater effect frost has upon plants grown close to and upon such materials, I still fail to see that Roses do worse upon iron than upon wooden supports. My neighbour has a screen of Roses at the bottom of his garden, designed to hide a bare wall on the adjoining premises. One part of this is composed of wood in the form of lattice-work, and the remainder of galvanised wire stretched from pole to pole. For the last four seasons I have taken especial note of this lot of Roses, and not once have the plants growing on the wires been more affected by frost than those on the lattice-work. The very brown and frosted appearance that Roses often have when growing over any supports seems to me to be quite as general when cultivated over iron as wood. I also notice it upon wall trees that had no iron or wires near them; but this is always when the plants are growing in an exposed situation—such, for instance, as where keen winds from the north or east can gain direct access to them. When Roses are trained over arches they are far more exposed to frost and wind. It is also the general rule to plant them in this form to break the flat appearance of some open piece of ground.

My experience points to frost and keen winds as being the main cause of the Roses failing upon such supports. If it was from any other cause, why are they not always affected? When plants are grown upon iron or wire supports in a sheltered situation I have not known them to be affected similarly to those growing in exposed positions, while at the same time plants upon wooden supports and in the exposed situation have been equally as much affected as their neighbours growing upon iron or any other metal. Even Roses that have no support and growing in the same position as those on iron are similarly affected. I think the real reason lies in the greater exposure to frosty winds and to the sudden thawing of the wood when the sun peeps through for an hour or two. R.

THE GARDEN AT NIGHT.

WE may now and then say, and indeed even feel, how much we enjoy flowers and gardens, but I am afraid most of us fail to appreciate our gardens and hot-houses at night half as much as they deserve. Of course I know that the professional gardener often takes his garden rounds with a lamp intent on temperatures, and dealing death to predatory slugs and snails, and cockroach or other pests, but I recommend the lamplight journey as an enjoyable one. There are in all gardens sights, sounds and perfumes only to be really seen, heard and enjoyed after the sun has gone down, and long after its last red glow has faded from the stems of the sombre-headed Pines. In tropical and sub-tropical countries the garden at night is almost more enjoyable than when the blazing sun's rays fall straight from overhead, and all Nature seems hushed into an all-overpowering siesta, when bird, and beast, and insect lie silent and secluded in densest forest shade. We are told by travellers oft and again of the delicious nights in the musky Grape-clothed pergolas of Damascus, of the attar-laden air of the Rose gardens of Persia, of the balmy warmth and delicious nightingale music of the Fig orchards at Smyrna, and of the warmly odorous air of

Orange groves as lit by fire-flies far away in the sunny south and east; and have we not ourselves often felt the mysterious forest silence in Johore, Singapore, and in "Borneo the beautiful," where Orchids of many kinds, Jasmine and Frangipani, and Champaca give to the moon-lit breeze the scent of Paradise again. It is not, however, given to all of us to go so far afield for our nocturnal experiences, but I advise all garden lovers, for once at least, to enjoy their gardens and plant houses by lamplight as well as by the light of day. To many it will prove something like a revelation, as the night effects are so different to those of the daytime. All that is wanted is a good hand-lamp, like that used by railway guards, or even a good, clear bull's-eye lantern will do almost as well. One reason for the different effect plants present at night is that the light area being limited, every object is focussed separately, as it were surrounded by dense gloom or shadow, and your picture becomes something like a Velasquez. Then while daylight illumination comes from above, the reverse is the case at night, since the light rays of the lamp proceed from below upwards. Then many leaves, such as those of most Acacias and other Leguminosae, Marantas, and Arums, are set at a different angle on their stalks or petioles at night, and so present an aspect different to that as seen by sunlight. Again, Begonias, Codæums, Gesnerads, indeed most fine-leaved stove plants, especially the great-leaved and velvety-textured Anthuria, are most lovely at night as seen under artificial illumination, and the same is also true of many exquisite Ferns and Lycopods, or Mosses.

We, unfortunately, cannot enjoy the great white blooms of the Moon Flower or *Convolvulus Bona-nox* in our northern gardens as is possible in India, but there are several species of night-blooming Cacti, and seeing how exquisite many of them really are when in flower, the wonder is that they are not more generally grown in warm greenhouses for their peculiarly tropical night effects than is at present the case. *Cereus grandiflorus*, *C. triangularis*, *C. Macdonaldie*, and others recently alluded to by Mr. W. Watson in these pages are especially desirable, as they grow freely on the back wall or up the rafters of any warm and dry plant house or conservatory. I remember an old-fashioned country garden in which one of the flue-heated Vine houses had its back wall entirely clothed with night-blooming *Cereus* of various kinds, and their flowering was the signal for a series of festivals in their honour. One splendid specimen of *C. grandiflorus* often had from twenty to fifty of its great ivory-petalled chalices open on the same night, and the old gardener prided himself in foretelling their opening accurately, so that guests might be bidden from all over the country-side. The vinery was illuminated by lamps and candles, and high festival, carnival one might truly say, was held, and the quaint old Vine house, with its tiny overlapping panes, became for the nonce a sort of shrine to Vesta, a temple of beauty illumined really by these splendid Torch Thistles of more sunny lands than our own.

In another place I remember the flowering Orchids were arranged in a special show house among Palms and Ferns, and there were waterfalls over rocks of tufa, and trickling rills edged with green wood Moss and Reeds cut from the lake, a place like fairyland, as lighted from many lamps that were themselves invisible. Here were brought *Cœlogynes* like snowdrifts, so heavily were they laden with white flowers. Great starfish-like *Angræcums*, ivory white and fragrant only at night, looked like

naiads patiently waiting for that long-nosed love god, a moth which Darwin prophesied would be found in Madagascar, but which, so far, has eluded all research. Dendrobe and *Cattleya*, *Lycaste* and *Odontoglot* were here in all their beauty, the admired of all admirers, in their cosy winter palace of delight.

But there is no need to strip the tropics for a real "Midsummer Night's Dream" in the garden, nor need we restrict ourselves to the height of the summer season in order to enjoy our lamp-lit walks therein to the full. Even in late autumn it is worth while to see the moths happy amid the Ivy blossom, just as they will be in a week or two equally busy among the Willow catkins of the spring. It is quite a delight to entomological gardeners to see the giant sphinx moths and others hovering over the snowy wide-open flowers of *Nicotiana* affinis or of *Petunias*, the white *Dahlias* or *Phloxes*, nearly all through the summer season, when owls hoot among the shadowy trees, and the downy-winged goatsucker (or nightjar) is obtaining his supper in mid-air or from among the herbage almost at our very feet. If you take your lamp to the fish-pond on a summer night you may see the trout or the great lazy carp solemnly rise and look at you dreamily, like mysterious denizens of another world.

Then there are the daytime-folded *Datura* flowers that are only to be seen at their best at night, with their bidden or unbidden insect guests around them. What a revelation your lamp induces from tree trunk and flower! How delicious and soul-inspiring the subtle whiff of incense from *Mignonette* or night-scented *Stock* or green-flowered *Daphne*, and the hundred and one other plants which by daylight seem dull and insignificant amongst more glowing flowers!

I know an old bishop's palace garden, one long wall of which is well-nigh covered from end to end with *Magnolia grandiflora*, and in late summer almost every glossy-leaved shoot is tipped by a great ivory chalice of a flower. The border in front of the wall—a narrow one—is reserved for Pinks and Carnations alone, except that *Mignonette* and Sweet *Verbena*, or *Lavender* and *Rosemary* may be there set in the interspaces. It is a border of a thousand, and from the early days of June until the frosts of late October it is at all times enjoyable, but especially so at night, when the richest of perfume is softly wafted from those upturned *Magnolia* cups, and the Carnations and *Mignonette* and *Verbena* all help to intensify the odorous charm. Here also you may get the fragrance of Pinks and Cabbage Roses earlier in the year, and in April the early nightingales sing their songs to Aphrodite, just as they did amongst the Vines and the grey Olives at Naxos and white-walled *Colonna* centuries upon centuries ago.

In a word, although a garden is never perhaps more enjoyable than early on a fresh and dewy morn in June, yet, believe me, those who have never seen their favourite flowers by lamplight have within their reach a pleasure infinitely surprising and satisfying, and one that it is in many ways desirable now and then to enjoy.

F. W. B.

Solanum Torreyi.—Is this North American *Solanum* now in cultivation? In a gardening periodical about ten years old it is described as quite hardy, having stood several severe winters at Kew. The flowers are large and variegated. It seems to me a most desirable plant, hardy, exotic, perennial *Solanums* being quite the exception. Why are not some of these fine things sprinkled in the seed catalogues instead of the wearying monotonous contents year after year?—J. M., *Charmouth, Dorset*.

ORCHARD AND FRUIT GARDEN.

THE NEWTOWN PIPPIN.

THIS most interesting Apple has been very plentiful in the past season; and although not native-grown, readers may be interested in it, considering it is the most precious of all Apples, and as possessing the highest and finest flavour; being a delicious combination of the acid and the lightly sweet, it involves no unpleasant reaction, such as sometimes attends the consumption of very sweet fruits eaten raw or cooked. The Newtown Pippin is one of those which show the weakness of the ordinary classification of Apples into cook-

be quite a mistake to suppose that it is never, as regards external form, a handsome and even beautiful Apple. We noticed many specimens during the past winter which were very beautiful in outline, and, indeed, almost perfect in shape. One of these we have had engraved and publish herewith. It is a typical specimen of what we should consider as the very highest class of Newtown Pippin. One fine quality this Apple has of always preserving its flavour, and whatever the size and form. We have recently tasted many specimens which, although small and distorted, had an excellent flavour.

Unhappily, the great demand for it in the London market has led some unscrupulous exporters on the other side to send numbers of fraudulent casks containing

the autumn, told us that they were not to be had in America. How long it is since the taste for this Apple began to grow in London we do not know, and should be glad if any of our readers could enlighten us on this point. The present demand in London and in England generally is very large. It is an Apple which gardeners in England have had nothing to do with, and it is singular that an Apple which has none of the colour and the mere external advantages which our English Apples offer to the mere observer should have become so popular with the public, by whom we mean the non-gardening public. Fruit growers will of course always stand up for their own Apples so long as they possess form and colour, although good flavour may be absent. This, however, will hardly do in the future so long as the public can obtain such good Apples as the Newtown from abroad. Gradually people will begin to take notice of this most important of all matters as regards fruit, namely, flavour. A fruit of such a flavour as that of the Newtown Pippin is in the highest degree a wholesome article of food.

The lesson to be learned from the history of this Apple is, not that the English grower should attempt to grow what he cannot grow, but should fix his mind on one or a very few standard sorts of the highest quality. It is very likely indeed that time will show the culture of this excellent Apple very much increased, and probably much finer specimens will be sent to our markets, for there is a vast area of ground of little value over which its culture may be extended. It is not at all likely that the public who buy fruit will have much to do with the old windfalls which have often in the past been thought worthy of sending to the London market. Among the many kinds we have classed into all sorts of groups there are really a great many very bad and second and third-rate Apples, none of which have the least chance of competing with a fruit like this, or even with fruits like the French Crab or the Sturmer grown in New Zealand. Therefore, what the English grower for the market should do is, fix his mind on one or two of the really first-class Apples of which his climate and soil will allow the full development and grow them as well as they can be grown, studying them in every way. He must not take the first stock he finds a tree grafted on as the best, but make experiments with it on various stocks, and even with no stock at all, and in this way eventually get the best possible development and quality of our native fruits.

Apples Norfolk Beaufin and Striped Beaufin.—There are several Apples that keep as well as the two named, but I do not know of any varieties that are better or more regular croppers. They do well as standards, and are therefore most suitable for orchard planting, and equally fertile in gardens on the Paradise stock. These varieties possess several advantages over others with a softer flesh, as when kept in a cool room they give little trouble, as very few decay if not gathered too soon. Norfolk Beaufin is above medium size—indeed, it may almost be termed a large fruit, round, with a dull



The Newtown Pippin. Engraved for THE GARDEN from a drawing by Gertrude Hamilton.

ing and dessert; while being the most perfect of eating Apples, it is also, when stewed without any addition whatever, a perfect cooking Apple, its own sugar being quite sufficient to render any addition of the manufactured article unnecessary, and this is a great gain. We know little about its culture beyond that we have heard from our American friends that it is confined to small areas, and that grown in other countries it possesses little or no quality, its flavour depending upon local conditions which mature the texture and juice of the Apple to the exact point where they are most valuable and lasting.

Although the Newtown Pippin as it comes to us is evidently, owing to the number of imperfect and spotted specimens, grown with some difficulty, it would

other kinds of Apples labelled as Newtown. One of these bought by us during the past winter was marked with the three stars and had all the external marks of the highest brand of Newtown Pippin. The fraud is a most impudent one, and it can only prejudice the growers. These substitutes are generally good Apples of their kind, resembling somewhat the Newtown, but absolutely devoid of its delicate flavour. The specimens we bought happened to be a more than usually good substitute. It was a large Apple, larger than the generality of Newtowns, and of a higher colour. American growers and editors would do well to try to check this fraudulent trade.

It is a curious fact that the popularity of the Newtown Pippin is mainly confined to England. Professor Sargent, who was over here in

bronze colour, briskly flavoured, and one of the best late-keeping cooking Apples grown. I have had it good till the end of May. As a standard it is excellent, and the fruit should be gathered as late as possible to prevent shrivelling. To get large-sized fruit with deep colour a rich loam is necessary. I have never seen finer examples than those grown in Herefordshire. Striped Beaufin, though not so valuable in some respects, as its colour is less marked, is valuable for spring consumption. The trees bear freely, and do well as pyramids or orchard trees. I never found any difficulty in disposing of any quantity of these fruits at this season, and would therefore recommend trees being largely planted.—G. WYTHES.

Green and black fly on Peach trees.—

Most Peach and Nectarine trees are always more or less troubled with aphides in early spring just as the tender foliage is bursting; indeed, they often appear on trees before the fruit is properly set, and therefore a difficulty is experienced in getting rid of them. Now is an excellent time to get rid of these pests and thus save many hours' labour when the trees are more advanced in growth. The Peach is late this season, and if the work is undertaken before the buds get too forward, no danger need be feared. I have found it a good plan to syringe with soap-suds, also to syringe with soluble petroleum oil in small quantities mixed with soft water, using a garden engine for the work. Of course if the buds are ready to open it is best to omit the petroleum. Cherries are much benefited by syringing before the buds expand, and should any doubt exist as to the strength of the oil, the trees may be syringed immediately afterwards with clear water. For green or black fly the petroleum may be used at the rate of half a pint to 6 gallons of rain water. It may also be added to soap-suds in the same proportions if the buds are dormant. If at all forward, a less quantity will be required.—S. H. B.

FRUIT PROSPECTS.

THE fruit trees and bushes promise well for a full crop in the coming season, although very much depends on the weather for the next few weeks. At present (March 8) there is every appearance of a late season for blooming, as the soil is frozen hard and a bitter east wind is blowing. The buds are very slightly advanced—in fact, only just enough to see what quantity of bloom-buds there are—and as far as I have seen on my own trees, fruit-buds are plentiful and very plump and strong. This is even more than I could have expected from the excessive crop which many of the trees carried last season. Pears, which were the heaviest crop of all, are again covered with fine, strong flower buds. Many of the dwarf trees were so weighed down by weight of crop, that they had to be supported with stakes and props to keep the limbs from breaking; yet these are just as full of promise as those that only had light crops. Plums and Damsons promise well, but I do not think the large orchard Apple trees look so full of buds as they did last year at this date.

We are so accustomed to hear about trees that crop in alternate years requiring a season, or perhaps two, to recover their vigour after a heavy crop, that it will upset some of our theories if we get two very heavy crops in following years. My opinion is that we owe the present promising condition of our fruit trees solely to the excessive rainfall and mild, genial weather that prevailed all through the latter part of the summer and right into the autumn months, the trees being almost daily drenched with rain. The foliage that looked as clean and bright as if it had been sponged remained on the trees very late, so that the trees had ample time to regain any lost strength. I have for many years advocated more abundant supplies of water for all sorts of fruit trees, for how a tree can perfect its crop and buds for another season when the soil is in a dry condition is a mystery, and I am fully persuaded that bud-dropping and the loss of crops are directly traceable to

drought in some form or other. Last season's experience will strengthen my conviction in the artificial applications of abundant supplies of liquid in some form or other to trees carrying heavy crops of fruit. We get heavy crops of Grapes year after year from the same Vines, simply because they are so well cared for, and if the same attention were given to hardy fruits, regular crops would be the result. As Grape growing is getting so overdone that little profit is left even from good crops, we may look for some of the attention being in the future bestowed on hardy fruits with certainly more profit to the growers.—J. GROOM, *Gosport*.

— There is a plentiful promise for a full Apple crop this year in the shape of plump flower-buds. Of course, much will depend upon the weather at the critical period when the trees are in bloom. The present wintry weather is very favourable for checking the swelling of the buds. The variety Lord Grosvenor, which is destined, I think, to replace Lord Suffield in time, as it will grow where the latter will not, promises wonderfully well. I notice also that those trees which have been trained on the extension system of allowing the shoots to remain almost their full length of summer growth, merely removing the tips of the shoots, at the same time keeping the branches thin in the tree, and not interfering with the roots in the way of pruning them to induce fruitfulness, are in a much more promising condition than those trees which are continually spurred in when making strong growth. Where space admits, it is becoming a recognised rule to allow the trees to extend as quickly as possible, as being the best means of obtaining a full crop with a minimum of trouble in the way of both root and branch-pruning. Trees managed in this manner are much more likely to escape the frosts at times experienced when the blooms are fully expanded, for the reason that the flowers themselves are more hardily developed than those weakened by overcrowding of the shoots.—E. M.

Unpruned Gooseberries.—At page 210 Mr. E. Molyneux gives an account of unpruned Gooseberry bushes, and I can quite believe that where the object is solely to get very early crops of Gooseberries, to be gathered directly they are large enough, the system answers well. I have a good many treated on the same principle, and I find that they are decidedly more remunerative gathered green than if left on the bushes to ripen. As a rule, the earlier the bushes are cleared the larger the profit. Like most other gardeners, I had for years followed the hard pruning system, but going into a garden in this locality a few years ago, I was surprised at the enormous crop of Gooseberries. I remarked to the gardener that he had left the wood pretty thick, and he replied that the bushes had never been touched with a knife since they were planted. Unpruned bushes do not get so thick as one would suppose from the manner in which ordinary close-pruned ones branch out; for where the branches are not cut back, it is only the terminal buds that push out shoots and the lower portions produce fruiting buds and spurs. The prices realised here are much lower than Mr. Molyneux quotes; still, I find that Gooseberries are the most profitable of bush fruits.—J. GROOM, *Gosport*.

— I am rather surprised that E. Molyneux (p. 210) asserts that non-pruned Gooseberry bushes are found more profitable than systematically pruned ones. I am a little sceptical upon the points raised—as to the superiority of totally unpruned bushes and the loss of 7s. to 8s. per tree by skilful and judicious pruning, by which I mean the removal of shoots of the current year's growth that cross over each other and cutting away the useless weak spray-wood that crowds the interior of the tree. Surely the admission of sunlight and air must produce earliness and size of berry—the objects most in view where the crop is gathered green. Even when the trees have attained the huge dimensions of 4 feet by 5 feet (giants in their way, certainly) as stated, this kind of treat-

ment seems the most rational. At the same time, it must be clearly understood I do not advocate the opposite extreme of over-pruning, which was probably the case with the grower referred to, and the cause of his tremendous loss by the fact of his having allowed his trees to grow for years unpruned and crowded, immediately followed by a heavy pruning. It would be interesting to know how this grower's crops and bushes were the following season. Of course, it is well known that when the crops of Gooseberries are gathered green the tree's energies are drawn upon less heavily than when allowed to remain to perfect their seeds; consequently heavier crops can be, and are, annually taken, whilst undoubtedly they pay the grower far better green than ripe.—W. CRUMP, *Madresfield*.

Mrs. Pearson Vine unhealthy.—Many thanks to "W. I." for his letter in reply to my query anent the above. I fear, however, he has not hit on the actual cause of my misfortune. No insecticide whatever has been used before or since the Vines in question were planted. Nor have stimulants or fertilisers so-called, however good they may be, ever been used in connection with the culture of Vines in my charge. And certain it is they have never been treated to doses of carrion. As for any excessive use of crushed bones, I have not been so fortunate as to be able to indulge the Vines thus. When the border was made some eight years ago, half a bushel only of crushed bones was mixed with each cubic yard of the soil, and in this Lady Downe's, Black Alicante, Gros Colman and Calabrian Raisin Vines flourished. But, as already noticed, the quality of the latter did not please, and so it was replaced by Mrs. Pearson, with the results I have stated. I did take out some of the old soil in planting the Mrs. Pearson. Referring to this, the note in my diary is, "Planting two Mrs. Pearson Vines in new viney, took out 'old soil to half depth of border and replaced it with good loam.'" Considering how the other Vines alongside them grew and flourished, I could not but attribute the failure of the Mrs. Pearson to some insect or disease imported with them perchance (they were purchased at a nursery). When transplanting the Mrs. Pearson last January, I did almost as "W. I." suggested, *i.e.*, I used chopped turf, old mortar rubbish, crushed bones (not in excess), and garden soil—this latter, not of choice but of necessity, there being not sufficient good loam available at the time. Of this compost I filled one small corner of the border and left an open space all round down to the drainage, so as to preclude any possibility of the roots of the other established Vines getting in and robbing them.—GEO. JOHNSTON.

Apple Royal George.—I send you a fruit of Royal George Apple that is highly valued here for its many good qualities. It is equally good for baking, boiling or dessert, and realises 5s. per peck. Those sent are not the finest example, only I thought they might interest you if perchance you did not know this good old Apple. I do not find mention of it in any recent work. McIntosh's "Practical Gardener," 1828, correctly describes it: "114, Royal George: fruit large, oval, yellow and green; flesh firm and sugary; beautiful fruit; keeps well; is in eating from January to June; tree handsome and a great bearer."—GEORGE BOLAS, *The Gardens, Hopton Hall*.

* * * A large and very handsome Apple. We should like to know more of its quality. Now it is past testing fairly.—Ed.

Apple Lane's Prince Albert.—I read "I's" notes on the above in THE GARDEN (p. 209) with much interest, as I have for years observed the excellent keeping qualities of this Apple; indeed, I consider it one of the best late cooking Apples, and have planted it largely for that purpose. I have had fruits firm and sound at the end of May with comparatively little loss. Its flavour when cooked is all that can be wished for, and, as stated by "I," it is an enormous cropper; indeed, it crops too well, as if allowed to carry all its fruit, young trees become exhausted. It well repays good cultivation and thinning the fruits, so that bushes,

cordons, and pyramids are the best forms for small gardens, as these can be readily thinned and matured. For orchard planting, tall standards are not so suitable, as the immense weight of fruit is apt to make the trees assume a drooping habit, and therefore render them more liable to be damaged by cattle and winds. I have grown it as a bush with little trouble and much profit, taking care not to overload the trees at the start with either fruit or wood, the latter being thinned out to allow free exposure.—G. W. S.

PROTECTING FRUIT BLOSSOMS.

WINTY weather intervened not a day too soon, at any rate as far as hardy fruits are concerned, and if we have it early in March instead of at the end of that month or in April, the prospect of fruit growers should be rosy enough. Pears against walls are not particularly free-flowering, but all other fruits, including Apricots, Peaches, Nectarines, Plums and Cherries, are very well furnished with fruit buds. Apples are not generally so full of fruit buds as they were last season, but on the whole there will be a good lot of bloom, while all the Pears clear of the walls are beautifully budded, and the same may be said of the Plums. If, therefore, the present cold weather (this is being written on March 4) lasts long enough to retard the fruit blossom till there is less danger from severe frosts to be feared, immense benefit will have been conferred. Whether, however, early or late flowering takes place, too much ought not to be left to chance, and the timely precaution of roughly or elaborately protecting a portion, at least, of the best fruit trees may mean the salvation of the crops. Should we, unfortunately, experience exceptionally severe late frosts, the most perfect system of copings and blinds may not save the flowers; but in very many seasons a comparatively light covering may prove just enough to prevent wholesale destruction. It may appear incredible to some, but it is perfectly correct that a covering of three-quarter-inch mesh galvanised wire netting has been the means of saving the bloom on a number of Plum trees and Gooseberry bushes twice during a period of six years, and the structure built over these has, therefore, already done good service in addition to saving both buds and ripe fruit from birds. If any further proof is needed of what such a light covering will do, I have only to point out that the Gooseberry bushes protected, though growing in the coolest part of the garden, are yet moving much earlier than those in the open—a very doubtful advantage, however.

Seeing, then, that such an unlikely substance as galvanised wire affords a certain amount of protection, it is no matter for surprise if fish netting, cotton blinds, frigi domo or other non-conducting material are still more effective. Instead, therefore, of delaying the purchase of fish netting till wanted for saving ripe fruit, the amount required ought to be procured now and put to a good use in protecting fruit blossom. If cotton, scrim canvas or frigi domo blinds—the last being the most expensive and the best that can be had—are available in fairly large numbers, let the more delicate Apricots, Peaches and Plums have the benefit of these, taking good care to so arrange and fix them as to admit of their being readily opened and closed, keeping all constantly open shading and weakening the flowers to an injurious extent. What the blinds do not cover may well be protected with fish nets, hanging all that can be spared of these over the more valuable Pear trees. Failing blinds of any kind, then ought the Apricots, Peaches, and as many of the other trees as possible to be

covered with fish nets or other temporary protective materials. A single net is scarcely enough, though better than nothing, but if doubled or trebled and hung loosely over the trees, it will make a surprising difference to the temperature underneath. Remember it is not so much what it will ward off, but rather what it will preserve, a comparatively light covering preventing rapid radiation of heat, even as a cloud acts in checking frosts. Instead, therefore, of fastening the nets or blinds down to the ground, they will be quite as effective, or more so, if this admits of doubling if brought down to within 3 feet or rather less of the ground. Care must be taken, however, to fix whatever protective material is used well clear of the trees, otherwise much damage may accrue to the flowers during windy nights. Either long poles or strong iron rods are absolutely necessary, these, reaching from the coping to the ground, being fixed in the latter at least 2 feet from the wall. Even if nets are not sufficiently plentiful, something may yet be done towards saving the fruit crop on wall trees. Thus if poles are rather freely let into the ground and fixed to the walls, to these can be nailed or tied a number of Fir branches, that of the Silver Fir perhaps being the best, but the more dense Spruce branches are also suitable, the precaution being taken of arranging these somewhat thinly, so as not to unduly shade the trees underneath. Hay-bands run across the poles 9 inches apart afford more protection than they appear to do, and strong Bracken could also be used as a substitute for Fir branches. These latter, that is to say, Fir branches, hay-bands, and Bracken, are very old-fashioned substitutes for blinds and nets, but in my younger days I have seen all of them employed most advantageously.

Protecting trees in the open is a more difficult matter and not often attempted. Strong winds are responsible for a good many failures to properly protect pyramid trees especially, and I have seen blinds, mats, and canvas all dashed to pieces, the trees also being injured more than they would have been if left to take their chance. At the same time it is very trying to the temper to see trees that one day are white with bloom badly blackened by frost on the next, and those who have the means and can afford the time may well attempt some sort of protective measures. A framework of poles arranged to meet over a tree gipsy-tent fashion, or made with a square top, would support doubled or trebled fish nets in all weathers and perhaps save the crop, and much might also be done with strips of strong cotton material, such as most garden sundriesmen and nurserymen can supply at a short notice. Merely surrounding the trees is not enough, the most effective coverings being those that are fixed well over them. Horizontally trained and cordon trees are not nearly so difficult to protect, as it is a comparatively simple proceeding to either strain strong wires or fix a line of stakes well over them, these supporting cotton blinds tent fashion, and which if strongly fastened to pegs no winds will much disturb. It must be a very severe frost that will injure the blossom of trees thus well covered in. Such coverings ought to be withdrawn on all days other than when frosty winds prevail.—FRUIT GROWER.

—The pruning and training will have been completed ere this, and the protection of the trees will be the next consideration. There are many opinions as to protecting, some people thinking it is not necessary; others protect with heavier material than is good for the bloom, so that a medium course is often the best if it can be adopted. Protection of the bloom in some gardens cannot be attempted owing to a variety of circumstances; in

others the wall possesses a good coping overhanging the trees, and this is of great value to the bloom, as often after a wet day we get a severe frost, and if there is a good width of coping it throws off the wet, and a frost on the dry blossom is less injurious. The projecting coping is of great service in warding off rain and sleet, and is valuable, as it intercepts the radiation of sun-heat, the latter being as important as the protection from severe weather. The coping may be a permanent one of slate or a temporary one of wood fixed for the purpose of keeping the bloom dry. Though trees are late this season, it is not safe to delay covering; a few buds are always in advance of others, and Apricots will soon be in full bloom. The protection of the last named is of importance, as often, owing to the want of it, the crop is lost. There have been many inventions for protecting of late years, but often one finds the most simple materials the best. The use of heavy woollen material, which shuts out air and light, did more harm than good, keeping the bloom in semi-darkness and the flowers dropped prematurely, so that more harm was done than if the trees had been left alone. I do not like glass copings when permanently fixed, as I well remember the trouble I once experienced with permanent copings 2 feet wide that had just been erected on a new wall some 300 feet long before I had the charge of it, as they are useless for the purpose. Though glass copings warded off the frosts, fly and red spider were rampant. Being very short of water in dry seasons, it was impossible to keep the trees in a healthy condition, so that I do not recommend fixed copings. Those that can be removed are more suitable and give little trouble, as the glass can be packed in a small space when not required for use. Glass copings are not so much used now, as fruit cases are more useful, and therefore of greater value for other crops, but with these the water supply should be abundant. We had large irons for fixing into staples; these latter are fixed permanently in the wall, and the irons support boards 1 foot to 18 inches wide along the top of the wall running under the last course of bricks, the latter slightly projecting, thus keeping the boards firmly fixed between the iron support and the top course of bricks. I like this plan better than a wide permanent coping, as when the bloom is set the boards are removed and the trees get the benefit of the night dews and rains, and do not get covered so soon with green and black fly as when a closer covering is used. Blinds drawn in front of the trees I do not like, as in rough weather they often blow against the trees, injuring the bloom, besides being expensive. A good protection may often be given by using the tanned fish-nets used to ward off birds in the summer, and if these are folded into two or three thicknesses, they are most serviceable. They are easily secured to the top of the wall, and some bean rods or stouter poles may be used to keep them from the trees. It is not necessary for the nets to reach the ground. The advantage of the nets is that they can remain fixed during the time the trees are in bloom, as they freely admit light and air. If a thicker covering in the way of shading is used, it should be removed daily, weather permitting, and not be placed over the trees till sunset. In mild weather the trees are best left uncovered.—G. WYTHES.

—The spell of mild weather that succeeded the break up of the January frost caused the earliest of the fruit trees to start, and had it continued, we should have chronicled an early blooming season. The frosts, however, of the week ending February 20, and the cold weather we have experienced since March 1, have put a welcome check on bud-development, and the Apricots and Peaches at the time of writing do not seem to have made any advance since the middle of last month. I having assisted in covering Peaches and Nectarines during the second week in March twice during my gardening career, but the operation will not be necessary this year at so early a date. As the time for covering is now, however, rapidly approaching, it is well to look out the material to be employed to see if there is sufficient for the purpose and to replenish the stock if necessary. A thick protection in the way

of tiffany or serim canvas may be imperative in the north and north midland counties, but for the south and west fish netting is sufficient; indeed where the latter can be employed with safety, it is preferable. Once put in position, it can remain until the fruit is safe. There is just enough shelter at the same time, allowing plenty of light and air to play about the trees. I consider half-inch mesh netting made with stout tarred twine the very best for the purpose, as when this hangs loosely and is not stretched in any way, the greater portion of the net is as it were drawn together, the size of mesh reduced, and the cold-resisting power proportionately increased. This netting, however, is rather expensive, and the covering of a long stretch of wall is a matter of considerable expense; sufficient therefore for moderate lengths can be purchased annually, and it will last with care for several years. It comes in very handy late in the season for protecting choice Pears from the attacks of birds.

Where we have to fall back on old inch-mesh netting, this is put on double, and, as I have said, advantage is taken of some wet day to overhaul the stock and repair any damages with stout twine. I have no fancy for such makeshift coverings as the branches of Yew, Spruce, and other Evergreens if put on without any arrangement to keep them from the wall; while if elaborate preparations are made with poles and cross-poles, the amount of work and time spent in such preparations would more than balance the cost of a supply of netting. If walls are furnished with a brick or tile coping, the netting can be fastened to this and will swing clear of the trees, but if no such coping exists, or the trees are projecting beyond its downward level, it is a good plan to fix a piece of stout board on the top of the wall and hinge to this another 9-inch board, that may be brought over to project from the wall or pushed back on to the top as required. A few pieces of wood must be fastened at intervals to the second board to come flush with the wall and keep it in its place. We cover up our wall fruit in the order in which it is appreciated: Peaches and Nectarines, dessert Cherries, Pears, Apricots, Plums, Morello Cherries, and if there is not sufficient netting to go round, the two last-named have to take their chance. Really good dessert Cherries, like high-class Gooseberries, seem increasing in favour, and if one has to supply them for a considerable time, they must have the benefit of a wall, especially if birds are troublesome. The Cherries, indeed, take their share of netting for some time. It remains until the fruit is fairly set, and then, as soon as the first sign of colour is to be seen, it must go on again. Most of the fruits named, including Apples, are showing a goodly quantity of bloom-buds. Apricots and Pears are rather thin.—E. BURRELL, *Claremont*.

Peach trees and ants.—When recently looking through Mr. J. Walker's remarkably fine series of Peach houses at Ham Common, I noticed that the stems of the trees somewhere about 2 feet from the ground had round them a mark some 4 inches deep as if washed with lime. Inquiring what it was for, Mr. Walker told me it was made with chalk, and was placed there to prevent the ants ascending into the trees. The insects, it would seem, refuse to cross the chalk; indeed, held it in such abhorrence, that any insect which had by any other way got into the trees would, in returning to the soil, rather drop from the stems to the ground than run over the chalked surface. At Ham Common, although the soil is deep, it is yet very sandy, and is favourable to the working of ants. The Peach trees, however, whether planted out or in pots, do wonderfully well. Those permanently planted, and there are several hundreds of such, without being at all coarse or unduly robust, are full of health and vigour, and seem to like the soil amazingly well. Beyond the varieties planted out, of which there seem to be many, there are several hundreds of trees in pots also of many varieties, and as a plentiful crop of fruit later seems assured, a fine opportunity will presently be afforded for the study of Peaches and

Nectarines. These fine houses are each 180 feet long and 24 feet wide. With respect to the ants, there is an opinion that they simply ascend the trees to prey upon aphides.—A. D.

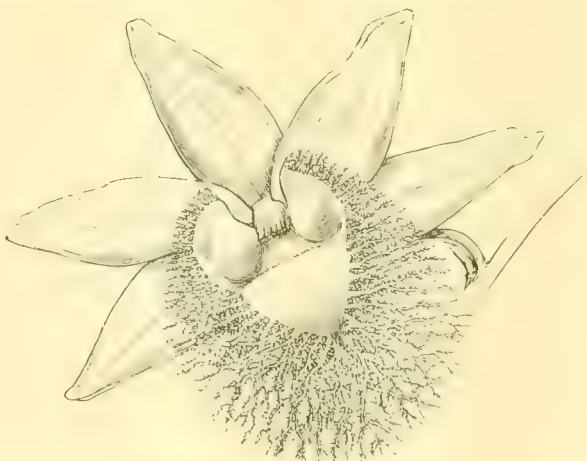
Peach Violette Hative dropping its buds.

—I have yearly a difficulty with this variety in a similar manner to that described by Mr. Crump (p. 229). Is bud-dropping common with this sort as in the case of Alexander? The tree in question occupies a part of the back wall of a Peach house which joins on to a plant stove. The warmth generated from this house along the wall may have something in my case to do with the defect, as I know the border is all right for moisture. Although I have to complain of the partial loss of buds, I always have enough to ensure a crop. Still I do not like to see them drop to such an extent. The tree is in a comparatively cool house, frost only being kept out.—E.

ORCHIDS.

DENDROBIUMS.

How beautiful these flowers are at this season of the year, and from now we have some two or three months to enjoy them as the species come on in succession. I have received flowers



Flower of *Dendrobium Brymerianum*.

from several readers of THE GARDEN asking for an opinion, and now refer to them in the order in which they came. A very fine flower of *D. Wardianum*, always welcome in the month of March, was sent from the Rev. E. Handley's collection, the Royal Crescent, Bath. In size and shape it is very good, but rather deficient in colour on the tips of the sepals and petals. The next was a flower called *Dendrobium Venus*, which appears to be a very fine form of nobile, with broad sepals and petals, light at the base, tipped with purple, the lip large and full, having a large deep maroon-purple blotch at the base, above which is a very conspicuous zone of pure white tipped with purple. I have never heard of this variety of nobile before, but it appears to be very handsome and I should like to see it again. From "T. B. W." I also have some flowers of *D. Brymerianum* well packed. These flowers are very fine, measuring fully 4 inches from the top of the dorsal sepal to the tip of its much-bearded lip, the colour a rich golden yellow. The plant, I am told, is a long-bulbed one. The same grower sends me a flower of the rare and beautiful *D. Harveyanum*. The bloom of this is, however, only about half the size of that of the other and of a much paler yellow; the beard on the lip is also

much smaller. The chief point of interest about this flower is that its petals are fringed in a similar manner to its lip. "T. W. B." also sends a pure white form of *D. Findlayanum*. This *Dendrobium* deserves the attention of amateurs, and the pure white variety, saving the yellow blotch on the lip, is also worthy of cultivation. I saw some nearly white a short time ago in Messrs. Veitch's establishment. Mr. James Cypher, of Cheltenham, sends me beautiful forms of the two hybrids *D. Ainsworthi* and *D. Leechianum* and *D. Ainsworthi roseum*, all being very beautiful, the last certainly very distinct. These are, however, surpassed by the fine Veitchian hybrid *splendidissimum grandiflorum*, which is by far the grandest of this cross. *D. Cooksoni* is a grand flower, the petals being blotched with exactly the same colour as the lip, running out at the sides, too, in the same feathery streaks. This variety originated with a Mr. Lange, of Gateshead, passing into the hands of Mr. Cookson. With these two comes a pure white form of *Wardianum*, known as *D. W. candidum*. This is another of Messrs. Low's importations from Burmah. It is very beautiful, the flower before me being smaller than that of the typical plant; sepals and petals broad and of the purest white; the tip of the lip white, stained with orange-yellow at the base, having two feathery blotches of somewhat rusty-brown at the base. Amongst other flowers are *D. nobile Cypheri*, *D. nobile pulcherrimum*, and some others, and a fine flower of *D. rhodostomum*, a hybrid raised at Messrs. Veitch's nursery between *D. Huttoni* and *D. sanguinolentum*, having flowers much in the way of the last-named plant; the sepals and petals white, tipped with crimson; lip three-lobed, side lobes erect, white; the disc bright yellow, the front broadly marked with deep crimson.

From "M. C. B." come flowers for a name of a very pretty and nice-coloured form of the plant which has for so long doubtfully held the name of *D. pulchellum* of Roxburgh, and by which it would seem to be best known in English gardens. This was under the supposition that the plant came from India, but Mr. Ford, of the Botanic Gardens at Hong-Kong, sent some plants home which he gathered on a neighbouring island, thus proving its Chinese origin. This plant has been since named *Sidelianum* by Reichenbach, and *Loddigesii* by Rolfe, of Kew; the latter name seems to me to be the more just, it having been introduced and flowered by that famous firm at Hackney about sixty years since. We now want the right plant to be introduced. The plant in question is a handsome specimen, its little stems being covered with large prettily fringed flowers, which are rosy purple and white, the lip having an additional bit of colour, stained with orange-yellow in the centre and fringed at the margin. With these come some very fine flowers of *D. infundibulum*, they being pure white, saving the blotch on the lip. Some of them have a deep red mark, whilst others are plain yellow. The former are marked *D. Jamesianum*. The first *D. Jamesianum* had a deep cinnabar-red blotch, and so every similarly coloured plant is dubbed *Jamesianum*, but both "M. C. B.'s" flowers are the same. *Jamesianum* has rough side lobes to the lip, by which it can never be mistaken, and *D. infundibulum* has them

smooth. In *D. infundibulum* the funnel-shaped spur is curved, whilst in *Jamesianum* it is straight. "T. J." sends me a batch of *D. nobile* for my opinion. They are very pretty, but there is nothing remarkable in any of them. Flowers of *D. luteolum*, also from "T. J.," are very fine, and the sender informs me this kind withstands the fog better than any of the other forms. From J. O'Shea come three flowers all for name. No. 1 is *D. chrysocrepis*, the flowers of which are golden yellow, produced, I think, singly on much swollen stems; the dorsal sepal and the petals are about equal, the lateral sepals being larger. All are of a rich golden yellow, whilst the lip is quite slipper-shaped, and coloured like the sepals and petals. This comes from Moulmein, another of the Rev. C. Parish's discoveries about twenty years ago; the only previous time I had seen this plant was in Messrs. Low's nursery some two years ago. No. 2 is *D. lasioglossum*. The sepals and petals of this are white, the lip also white, the side lobes being profusely streaked with

low than the petals, side lobes of the lip streaked and the inside with reddish veins, the middle lobe yellow blotched with deep red, with a few veins of the same colour. On the spike from which the flowers sent was cut were seven similar ones.—W. H. G.

Cypripedium Chamberlainianum (Vulcan).

—This I should certainly give the heat of the East Indian house at first. After you get it to grow and it becomes established you may try experiments with, but at present it is so rare that everyone will endeavour to preserve it. We are at present in the dark as to the altitude at which it grows, but as all these Eastern plants require good heat during the time of making their growth, you will not be wrong if you give plenty of air and keep a moist atmosphere.—W. H. G.

Barkeria elegans.—I have received a spike of bloom of this lovely little gem from J. Workington. *Barkerias* like a good deal of sun-heat when growing and an abundance of air and moisture, and some few years ago I used to have charge of great numbers of plants of this genus. I used to grow them well upon upright rafts of wood, having



Dendrobium Wardianum.

reddish purple, and on the middle lobe is a tuft of golden yellow hairs. I have not seen this species for a long time. No. 3 is *D. ciliatum*. The sender says that it bears an upright spike, carrying from twelve to eighteen flowers, each about an inch across. The sepals and petals are greenish yellow, nearly equal, the lip being rich yellow streaked with reddish brown; the margin of the lip fringed with extended veins which run out from the side of the lip.

WILLIAM HUGH GOWER.

Lælia flammea.—"C. J. T." sends me a flower of this beautiful Veitchian hybrid. This plant is not seen in collections much, and I believe it is rare. It is a cross between *L. cinnabarina* and *L. Pilcheri*, the latter itself a hybrid raised by Mr. Dominy. *L. flammea* raised by Seden appears to take after *L. cinnabarina* in the style of its flowers and after *L. Pilcheri* in its style of growth. The flower now before measures some 4 inches or more across, the sepals and petals of a pure rich orange-yellow; the lip long, of a lighter and brighter yellow

no soil or Moss upon them. The plants were hung up near the glass where the sun could shine well upon them, and they were sprinkled with water about once every two hours of the day and never shaded; air was left upon the house day and night. The sepals and petals are soft rosy blush; lip large, white, blotched in front with the finest purple-magenta, behind which are a number of spots and dots, the front border being white.—W. H. G.

Dendrobium crystallinum.—This is a beautiful species from the Arracan Mountains, in Burmah. It was sent by Colonel Benson to the Messrs. Veitch and Sons, of Chelsea, and first flowered there in 1868. It is found growing in the company of *D. Bensoniæ*. The plant was figured from a plant in the collection of Major-General Berkeley, of Bitterne, Southampton, where it is well grown by Mr. Godfrey, who finds that it does not require a great quantity of soil about its roots.—*Orchid Album*, t. 441.

Calanthe Veitchi and vestita.—Preparatory to potting these I cut the old bulbs away and all the roots off the newly-made bulbs, which, if left upon the bulbs, cause the young roots to rot off.

When the bulbs are all gone over and the roots taken off, I get some boxes and put a thin layer of Sphagnum Moss in the bottom, then place the bulbs in them 2 inches apart. I put them back into the stove, which I keep at 65° to 70° at night, allowing the temperature to run up to 90° with sun, keeping the Sphagnum moist. When the roots get about 2 inches long I pot the bulbs. I grow them in half loam and peat with a little cow manure, sprinkling over the roots as potting proceeds. The pot should be half filled with clean crocks with a few pieces of charcoal placed upon the top. After potting is completed I place them back into the same temperature as before, but I do not water for four days after potting. I syringe between the pots and slightly dew overhead, but not enough to run down the bulb. In a fortnight the roots will begin to come through the soil, when the watering must be attended to regularly. By the first or second week in June the pots will be filled with roots, when I water with manure from the cowsheds. I begin by applying manure water twice a week, but it must be weak or it will kill the young roots. When the bulbs begin to show the flower-spike about August, then the plants will require more water than at any time in their growth. By keeping the plants well supplied with water the flower-spikes will attain a good length and the bulbs will be good and strong for another season. I do not withhold water until the spikes are cut from the bulbs.—JAS. B. SMITH, *Holmwood, Streatham Hill, S.W.*

* * With the above came two photographs showing remarkably well-grown plants of *Calanthe*.—ED.

CATASETUMS.

FORTY or fifty years ago, when the Orchids of South America were first becoming generally known in the gardens of this country, no class appears to have been more highly valued than the *Catasetums*. This, however, was before the *Cattleyas* and *Odontoglossums* were become plentiful, and the increasing popularity of these and similarly showy genera quickly pushed *Catasetums*, *Cynoches*, and such like Orchids into the background. Latterly the genus has considerably revived in public favour, this being due in some measure probably to the introduction of *C. Bungerothi*, a species which undoubtedly ranks as one of the most beautiful of all Orchids, but to a certain extent also to the increasing interest that is being taken in the curious and grotesque in plant life, and of which the Orchid family, and *Catasetums* in particular, provide so many striking examples. The genus is entirely a New World one, occurring both north and south of the Isthmus of Panama, some species, indeed, existing as far north as Mexico, whilst others are found as much to the south as Brazil; a few species also belong to the West Indian Islands. Owing to the doubtful authenticity of many species as described, it is impossible to define exactly the number the genus contains. Adding the three or four species described since the publication of Bentham and Hooker's "*Genera Plantarum*" to the number given in that work, the total would be about forty-five. Of these a large proportion are not now known in cultivation, some species having been lost sight of for many years. They are purely epiphytal or sometimes semi-terrestrial, and have large, fleshy pseudo-bulbs. In most instances the latter are fusiform—tapering from the base upwards—although sometimes so short and thick as to be almost Onion-shaped. They are generally easily distinguished by being covered almost entirely by the dried membranous bases of fallen leaves, which give them a greyish colour. In most of the species the leaves are closely alike in shape and structure, being lanceolate and pointed and strengthened by three

or five stout ribs running lengthwise; frequently they have a semi-glaucous tint.

Although there are many genera in this order of plants whose beauty of flower place them considerably ahead of *Catasetum*, there is not one which shows in so striking a manner those peculiarities of structure and arrangement which, in order to bring about cross-fertilisation by insect agency, are found in some form or other in almost every Orchid known. This genus is one of the few in which what may be termed mechanical means are made use of to bring about this end; it is one of the few also in which the sexes are found in different flowers, hermaphrodite flowers being comparatively rare. In the majority of the dioecious species, the male flowers, or those carrying pollen masses, have two "horns" or antennæ, one on each side of the column, proceeding downwards towards the cavity of the lip, and one or both of these are sensitive. When the flower is mature the pollen masses are ejected with considerable force if these horns are touched ever so lightly, so that an insect (as has been occasionally witnessed even in Orchid houses at home) on passing over the flower touches the sensitive horns and thereby releases the pollen masses; these, adhering to its body by their glutinous surface, are thus brought in contact with the female flowers afterwards visited. It may be mentioned incidentally that after the pollen masses are removed the flowers almost immediately fade. A great difference in structure and appearance is usually to be found between the male and female flowers, the former being, without any exception of which I am aware, considerably the more attractive. Frequently a plant will continue to produce one kind of flower for several years, a character which led the older botanists to divide what we now know as *Catasetum* into three genera. It was when a plant which had previously been known to bear male flowers only changed to the other sex that the real state of affairs became apparent, and still more conclusively was it shown when a spike was produced bearing both male and female flowers. It is curious that in some species only one of the antennæ is sensitive, whilst in others both have this character.

On account of their long absence from most Orchid collections, the cultivation of these plants is not so generally understood as that of better-known genera. Success, however, is easily attained provided they receive their proper share of attention and a few essential matters in their treatment are not neglected. The following method of culture is one which has been successfully pursued for several years in a collection of over a score species. So far as temperature and atmospheric conditions are concerned, *Catasetums* may be said to be identical in their requirements with the tropical *Dendrobiums*. During active growth they like the same tropical heat, the same atmosphere highly charged with moisture, the same abundant light. There is, however, one important exception: they will not bear the copious syringings that *Dendrobiums* thrive under; especially is this the case during the early stages of growth. It is our practice to stand all the species of *Catasetum* together, keeping water from the foliage at all times, inattention to this matter frequently setting up decay in the centre of the growth. In regard to watering at the root, too, it is very necessary to exercise considerable care until the plants are well rooted. It is the same with them as with *Calanthes*; an over-watering just as the young growths are pushing will frequently destroy any chance of their developing into fine pseudo-bulbs for that

season. It is better in the early stages of growth to almost entirely withhold water, allowing them rather to obtain what is needed from the old pseudo-bulbs. When once fairly rooted, they enjoy copious supplies, implying thereby the importance of abundant and careful drainage. As soon in autumn as the leaves begin to change colour, water should be gradually reduced until in winter little or none is needed except for those pushing flower-spikes. The compost I have found best suited for the majority of these plants consists of peat and loam fibre. The proportion of loam should not be more than one-fourth, whilst for weaker-growing kinds and plants not in good health, peat alone may be used. Chopped Sphagnum and potsherds broken up into small chips should be added to keep the compost open. Pots or baskets are used in preference to blocks of wood, and they are nearly half filled with drainage. The plants should be repotted in March or sooner if they give evidence of activity. It is usually advisable to repot every year, shaking off the old compost and removing the dead roots.

Whilst the following selection of species by no means exhausts the number deserving of cultivation, it includes some of the most attractive as well as represents the different types to be found in the genus.

C. ATRATUM.—A remarkable and handsome species, first introduced by Loddiges from Brazil about 1837. The scape takes a downward direction from the base of the pseudo-bulb, and bears from twelve to twenty flowers. Each of these is about 2 inches across, with spreading, although somewhat concave sepals and petals, the ground colour of which is a vivid green thickly blotched with transverse purple-brown spots. The lip is hood-shaped, with a prettily dentated margin; it is of a pale yellowish-green, almost white in front.

C. BARBATUM.—A curious and distinct species, introduced to England by Henchman, who discovered it in British Guiana near the Wapokeai Falls on the Massarony River. It was figured as a *Myanthus* by Lindley in 1836. The narrow pointed sepals are deep green spotted with purple; whilst the lip, which is by far the most conspicuous feature of the flower, is rosy-red and ornamented with numerous bristle-like segments, into which the margin is divided. A variety named *proboscideum* has a flat greenish lip with a longer marginal fringe. The finest form of this *Catasetum* is the variety *spinosum*. It is distinguished by the blotches of purple on the sepals and petals, taking the form of transverse bars, and by the spine-like apex of the lip. It carries occasionally thirty flowers on the spike, which is semi-erect and arching.

C. BUNGEROTHI.—Not only is this species the finest of *Catasetums*, but, as already stated, is also one of the most beautiful of all Orchids. The first plant of it sold in London (about six years ago) realised fifty guineas. It seems to have been named *C. pileatum* by Reichenbach about ten years ago, but not being recognised from his description was given the above name, by which it is now generally known. The flowers on first opening are of a greenish white, afterwards changing to a beautiful ivory-white. They measure fully 4 inches across. The sepals and petals are lanceolate, the three upper ones closing together and making a hood above the column. It is the lip, however, which gives such character and beauty to the flower. It is usually somewhat concave, with a circular depression in the centre, and measures 3 inches across; the margin is sometimes toothed. Female flowers have been produced several times in cultivation. They differ remarkably in having a deeply pouched lip, contrasting with the comparatively flat one of the males. On first opening they are green, changing ultimately to yellow and white. They are far behind the male flowers in attractiveness. The species is a native of Venezuela, and we owe its introduction to M. Linden.

Variety *aureum* has golden yellow flowers, and variety *Pottianum* white, flushed and spotted with carmine; both are very rare.

C. CHRISTYANUM.—In this species the spike is six to twelve-flowered, each flower measuring 4 inches across. The sepals are of a dull purplish red, the petals being of the same colour, but paler; the lip is green, with the margin cut into narrow, brown teeth. This species, which is a strikingly handsome one, is a native of Brazil. It flowers in autumn.

C. FIMBRIATUM.—Messrs. Low have lately re-imported this species and exhibited it at the Drill Hall. It has, however, been known in Europe since 1848, during which year a flowering plant obtained a gold medal at the Brussels exhibition, and was, according to contemporary records, one of the most noticed of all the exhibits. It carries a spike of upwards of twenty flowers, the sepals and petals being over an inch long, pale green, spotted with purple. The lip is shaped like an old-fashioned bonnet and is green, spotted with dark purple, the margin being fringed. It is a native of Brazil.

C. GARNETTIANUM.—This species, both in habit and inflorescence, resembles to a considerable degree *C. barbatum*, both these, in fact, being considered by Sir Joseph Hooker to represent forms of one species. It is one of the latest additions to the genus, having been sent from Northern Brazil to a garden at Liverpool in 1888. The sepals and petals are pale greenish yellow, marked with broad bands of brown-purple; the lip is rose-tinted white, the apex and part of the sides being cut up into narrow teeth. The flowers individually are from 1½ inches to 2 inches in diameter, and upwards of a dozen have up to the present been borne on the spike; when fully established, many more will doubtless be produced. It is one of the prettiest of the *Catasetums*.

C. LONGIFOLIUM.—Differing very much in habit from all the others here mentioned, this species is perhaps more noticeable as a singular plant than for any beauty it possesses. The pseudo-bulbs have the curious habit of growing with the apex downwards (like *Cattleya citrina*), the leaves they produce being narrow and frequently a yard long. The sepals and petals are of a dull red colour, whilst the helmet-shaped lip is of a brownish lake, thickly dotted with yellow. The species was discovered in British Guiana by Schomburgk in 1836, growing as an epiphyte on the Ita Palm. It is one of the most difficult to grow, requiring very hot and moist conditions when in growth.

C. MACROCARPUM.—This is the proper name for what is also known as *C. tridentatum* and *C. Claveringi*. The spikes bear comparatively few flowers, but these are exceptionally large, being of great substance and occasionally 4½ inches in diameter. The ground colour of the sepals and petals is pale greenish yellow, but is almost covered with small chocolate-coloured spots; the colouring has been aptly compared to that of a *Paphinia*. The lip makes a striking contrast to the other parts of the flower. It is 1½ inches across, thick and fleshy, helmet-shaped, and of a rich orange-yellow, spotted with brown-crimson. The species was brought from Brazil to the Horticultural Society's garden in 1822. It is one of the most easily grown and desirable of the genus.

C. NASO.—The flowers of this species are 3 inches in diameter, with incurved sepals and petals of a pale green, tinged inside with pink and also spotted profusely with dull reddish purple. The lip is of remarkable shape. Lindley likens it to "a solid hemisphere pierced by a large heart-shaped hole." This structure is owing to a thick fleshy rim rising from each side of the lip and meeting beneath the column. The colour at first is dull crimson, which afterwards changes to chocolate-brown. It was first collected by Linden in Caraccas about 1840.

C. RODIGASIANUM.—A species near *C. cernuum*, and lately given this name by Mr. Rolfe. It is a large growing plant, producing a raceme of over twenty flowers. The petals and the outside of the sepals are green blotched with brown-purple; the

inside of the latter is entirely brown-purple. The lip is yellowish green covered with numerous brown-purple spots. The flowers, which measure about 3 inches in diameter, are, if somewhat sombre-coloured, still most striking. It is a native of the province of Santa Caterina, Brazil. It first flowered in Europe about two years ago.

C. RUSSELLIANUM.—In this species the flowers occur fifteen or twenty together in a drooping raceme. They are of a pale green netted with veins of a deeper shade. The lip is pouch-shaped, with the lower part projecting forward like a chin; it is the same colour as the petals. Whilst this species is far from being the best of *Catasetums*, its inflorescence is handsomer than a mere description of the colour suggests. It is, moreover, one of the most easily cultivated. It was introduced from Guatemala by Skinner in 1838. W. J. B.

CYMBIDIUMS.

ALTHOUGH there are several species of *Cymbidiums*, there are some of them not worthy of cultivation, and where retained it is generally as botanical curiosities. What could be more beautiful than *C. eburneum*? This chaste Orchid is now unfolding its deliciously scented flowers. Not only the flowers, but the beautiful arching leaves with their pleasing shade of green show up well amongst other plants. It is not long since *C. eburneum* was considered a very rare Orchid, and even now it is far from being plentiful, and it is rare to find it in good condition. A large, well-grown plant capable of producing three or four dozen flowers is a splendid object. I have a vivid recollection of such a plant, its foliage without blemish. Blooming, as it does, at this season of the year makes it doubly valuable, although exhibitors would perhaps prefer that it bloomed two months later, or remained in good condition like the large and vigorous-growing *C. Lowianum*. The flowers of this variety keep a long time, for the blooms now expanding will last until May. Some people, I know, do not care for this plant, but this probably is from having seen only inferior varieties, as in the case of all other Orchids there is a great range of variety in the same species, some not hardly worth cultivating as compared to others. I have three large plants, and each is a superior variety, the lip being very dark and highly coloured. Being a vigorous growing Orchid, it is not adapted for a small house, but where head room can be provided it is well worth cultivating. Neither does it take long to grow into a large plant, as three years since my plants were in 6-inch pots, and now they are in 14-inch ones. They might have been a deal larger if I had potted them on. As it is, the largest plant has eight or nine spikes 4 feet long, and three others were cut off, so it will be readily understood by those who are unacquainted with this Orchid how quickly it will grow into a large example.

Before entering upon cultural notes I will refer to that other sterling winter-flowering species, *C. Mastersi*. This variety, except in the foliage, is quite distinct from the other kinds, the flowers appearing in bunches on erect stems of about 15 inches in height. This is quite unlike the aforementioned species, being of comparatively small growth, resembling in this respect *C. eburneum*. Blooming, however, as it does at midwinter makes it very valuable. This species is also very sweet-scented. Out of half-a-dozen plants each is distinct, the lip in some cases being very prettily spotted and in others almost pure white. The growth, although in general appearance partaking of that of *C. eburneum*, is a little more vigorous and also more arching. The above three species are all I grow.

In the cultivation of *Cymbidiums*, the mistake that used to be formerly made was in treating them as if they were epiphytes, whilst it must be borne in mind they are terrestrial. Such being the case, it is obvious that something more substantial is necessary for them to grow in than the usual peat and Sphagnum. Another mistaken idea was the belief that a high temperature was needed for them. This has, however, been proved to be very erroneous. I well remember the first plant of *C.*

eburneum I had under my charge; it was placed in the hottest structure, but it failed to grow thus treated. That plant, however, by a change of culture grew into one of the finest and healthiest plants I have ever seen. I have heard it stated that the leaves of even *C. eburneum* are sometimes bent down with snow. I suspect this is only on rare occasions, but it shows the variations of temperature the plants must be subjected to in their own country. Such sudden transitions of temperature, however, would not suit the plants under artificial conditions, and instead of treating the plants as cool-house subjects, they thrive the best when subjected to more of an intermediate temperature. I grow the *Cymbidiums* at the cool end of the Cattleya house, where the night temperature during the winter averages about 53°, and under these conditions I find them thrive well.

The soil used for potting is equal parts of fibrous loam, peat, leaf-soil and well-pulverised cow manure, with a few pieces of charcoal and coarse sand. The pots are well drained, so that when the plants are potted, the crown of the plant may be placed beneath the rim of the pot. Elevating above the rim is not at all necessary; in fact, an evil in one sense, as during the growing season plentiful supplies of water are needed. Potting should take place after blooming, disturbing the roots as little as possible, merely pulling away any inert soil. The plants I also find like a rather shady part of the house. Anyone possessing an intermediate house should be able to grow the *Cymbidiums* well, a little fresh air being also what they delight in. *C. Lowianum* is also partial to weak supplies of liquid manure during the growing season when the pots are full of roots. Some people, I know, are of the opinion that too frequent potting checks the blooming, but this I have not noticed. A. W.

Phalænopsis speciosa.—“H. R.” sends flowers of this species, which are of extra size and of a very rich deep magenta colour. The white brush on the lip and the white column give this plant a distinct and beautiful appearance. “H. R.” may rest assured that he has a very superior variety of this plant, which I hope he will take care of.—W. H. G.

Cattleya flowers (B. J. B.).—These flowers are somewhat of a surprise, containing, as they do, such a beautiful form of *C. Trianae*. Nos. 3 and 4 are ordinary forms of *C. Trianae*, but No. 1 is a splendid flower, very near to the variety named *splendidissima*, which received a first-class certificate from the Royal Horticultural Society a few years ago. The sepals and petals are pure white, the lip deep crimson-magenta, the throat pale lemon-yellow. No. 2 is *C. speciosissima*. This is of good shape and size; the colour of the lip, however, is poor; the lip is small, too, and much freckled with white. The sepals and petals are of a deep, rich rose.—W. H. G.

Dendrobium atro-violaceum.—This is a distinct species of *Dendrobium*, but we think it belongs to the *D. macrophyllum* section. It was introduced from New Guinea by Messrs. Veitch and Sons, and the plant here figured flowered with Mr. Cypher when in charge of the fine collection of plants gathered together by Mrs. Studd, of the Royal Crescent, Bath. The plant grows in a hot moist atmosphere, and one would imagine from the size of its pseudo-bulbs that it would withstand a severe dry season; but this does not appear to be the case, for the moisture which arises, even in the dry season, enables this plant to perfect its leaves and bulbs.—*Orchid Album*, t. 444.

Orchid flowers from The Dell.—Mr. Ballantine kindly sends me from The Dell a few flowers. Amongst them is a fine flower of *Cattleya Trianae* *Leeana*, one of the largest of the *Trianae* forms. The flower before me measures quite 8 inches across the petals, which are very broad and of good substance and of a soft rosy-mauve, the sepals being of the same colour; the lip very large, the margin nicely fringed, the entire front lobe being deep velvety crimson-purple; this colour extends back into the throat, quite concealing the usual mark of

yellow which is to be found in this species and its varieties. Another choice flower is *Cymbidium eburneo-Lowianum*. The spike, I am told, resembles that of *Lowianum*, and the individual flowers resemble those of that species, too, in shape, but not in colour. The sepals and petals are spreading, all of a soft creamy-white, measuring over 5 inches across; the lip is thick and fleshy in texture, the side lobes erect, pure ivory white. A spike of the rare *Cælogyne hololeuca* is very conspicuous, and is, I am told, now very showy at The Dell; there is also a flower of *Vanda Denisoniana hebraica*, a rare form. *Lycaste Youngiana* is another remarkably pretty plant and very free flowering. The sepals are of a greenish yellow, the petals large, rich clear golden yellow, the lip being of the same colour. With the above came flowers of that interesting hybrid *Phajus Cooksoni*, the sepals and petals being rosy lilac tinged with light brown; the lip rose colour spotted with purple in front, yellowish brown at the base. There was also a spike of the superb hybrid *Epidendrum dellense*, a charming flower in the way of *E. rhizophorum*, which, I believe, is one of its parents.—WM. HUGH GOWER.

KITCHEN GARDEN.

FRENCH BEANS IN PITS AND FRAMES.

THE usual way of growing and forcing French Beans is in pots, and very good crops are often obtained from the plants, but they bear no comparison to such as may be got from those planted out in pits or frames, as they have a much more extended root-run. Pits with hot-water pipes under, so as to afford bottom-heat, are of course best, inasmuch as they are less trouble; but heat derived from fermenting material is always genial, and plants of all descriptions like it and do well when it is afforded. To prepare beds for French Beans, fresh stable manure and leaves should be put together in about equal proportions, and, as soon as the body gets hot, turned over, and in doing this the sides ought to be thrown into the middle, that the whole may be subjected to a sweating and sweetening process, and the fermentation thereby moderated, when the heap will be ready for going into the pit. In placing it there, it should be shaken in regularly and trodden down to make it firm, and then left for a couple of days or so till the heat gets up, when it will be in a fit state for levelling and having the soil put on. Before this is done, however, it is always advisable to give a dressing of half-rotten leaves and then 6 inches of good loamy soil on them, when all will be ready for planting the Beans. It is better to raise these in pots, so as to get them forward and save time, and then plant out two in a patch, having the rows 15 inches or so apart, according to the sorts of Beans grown. The distance mentioned will be enough for such kinds as *Ne Plus Ultra*, *Osborn's* or *Fulmer's*, or any of that class, but the Canadian Wonder, which is the best to have at this season, requires more room, and it is necessary to give this a space of 2 feet. As soon as the plants begin to grow, or directly they are put out, they should have some brushy Birch or Hazel twigs placed alongside of the rows, as they will need support when they get into bearing. Before they reach this stage it will be advisable to nip off the seed leaves and slightly reduce the others if they have much foliage, so as to let light and air amongst the plants, which will help the flowers to set and assist materially in securing a good crop of Beans. If the bottom-heat is ample, very little at top will be necessary at this late season, but a pipe along the front of the pit will be of great use; but if there is no means of affording warmth, air must be given cautiously for a time, and every advantage taken of sunny days to close early and so raise the temperature, which will then carry them through. A little later on, French Beans may be grown under the protection of any ordinary garden frame, and plants should be raised for that purpose in pots in the manner

referred to above, and the frame placed on some warm sunny border or spot and the Beans put in, when, after a time, the lights may be taken off, or the frame removed and used for Cucumbers or any other purpose for which it is wanted. S. D.

Seed Potatoes.—The remarks ancient these in THE GARDEN for Feb. 27, from Mr. Iggulden, are well timed. I believe that the yield would be very much larger in many places were more thought and attention given to the seed supply. Nothing is more detrimental to seed Potatoes than allowing them to remain in large heaps and to make long sprouts, and then to pull these off just before they are wanted for planting. I have to provide accommodation for enough to plant an acre and a quarter, and none of them have been allowed to grow so as to necessitate rubbing the shoots off. They are now spread out thinly on shelves, allowing them all the light and air possible till they are wanted for planting.—J. CROOK, *Forde Abbey*.

Snowball Cauliflower.—At pages 217-18 of THE GARDEN there are some notes respecting this now very popular Cauliflower which seem rather contradictory, and which I beg leave to correct. "Grower and Exhibitor" very correctly states that Snowball and Extra Early Forcing are identical, and as he puts the name of Snowball first, doubtless he understands that it was under that name first put into commerce, the other appellation, and at least half a dozen others, following some two or three years later. Now Snowball was put into commerce at least eighteen years ago—I am not sure whether it is not twenty years since. The stock first came here from Denmark, for it was not then grown in Germany, where later it became known as the Extra Dwarf Early Erfurt, and not to be confounded with the Dwarf Early Erfurt, which is neither so early nor so dwarf a stock. Another writer states that Extra Early Forcing is of recent introduction, thus doubtless in ignorance assuming that it is new, but even that name has been known for twelve or fourteen years, whilst, as I have said, under the original term of Snowball, the very best appellation, it has been with us several years longer. The term Early Forcing is misleading, as this or any other Cauliflower will not in the true sense of the term force. Then it is, as "Grower" has shown, a first-class garden and field variety. I have no interest whatever in it now, but I feel it is but just to say that having grown Snowball for seed purposes from the introduction from Denmark and greatly improved the stock by constant selection, I know more about it perhaps than anyone else.—A. DEAN.

Potato Sharpe's Victor.—The earliest dishes of Potatoes are always appreciated, and to get these an early kind should be grown. The best Potato for first early that I have grown is the above. For frame cultivation it is most suitable. It may be had fit for table in two months from the time of planting if the seed is in condition, that is, sprouted at planting time. It is a roundish oval tuber, somewhat flattened, with clear skin and very shallow eyes, very dry and mealy when cooked, especially when grown under favourable conditions. It was raised from the Alma, a good kind in its day, and now seldom seen, the other parent being an early round, short-topped Potato. I have grown Alma, Early May, and Victor side by side, the last-named beating Early May by about a fortnight. Those who prefer the Ashleaf type would perhaps like the old Early May for the table. To grow this variety well, a warm sloping south border in good condition just suits it, and if planted at an early date and given protection by mounding and some litter or Bracken to protect the top, there will be no difficulty in securing a nice supply of early tubers at the end of May.—G. WYTHES.

Vegetable Marrow Pen-y-byd in frames.—A frame on a warm bed of leaves and litter will grow early Marrows well. I say leaves and litter because manure alone causes too much heat at the start, and does not retain the heat sufficiently long to form the fruit. When leaves are employed seed should be sown as soon as possible. I prefer to

sow in 3-inch pots two seeds in a pot, removing the weakest when up, growing on near the light in a warm house and planting out in a month from the time of sowing the seed. For a few early fruits in frames I prefer Pen-y-byd. It is excellent in every way, extremely prolific, and setting fruit at every joint. The plants do not run away to wood under frame culture like some of the older kinds. The fruits if cut down when the size of a cricket-ball are delicious. The beds should be prepared at the time of sowing the seed, so as to get them into condition for planting. A bed that has grown early vegetables and still retains some heat may be utilised, planting in good loam and stopping once or twice as growth is made.—G. WYTHES.

CAULIFLOWERS AND CABBAGES.

FOR an uninterrupted summer supply of Cauliflowers, I each year grow half a dozen sorts—viz., Early London, King of the Cauliflowers, Pearl, Walcheren, Eclipse and Autumn Giant, which come into use in the order named. Seldom now do I practise autumn sowing, for unless adequately protected from the general excessive wet of the winter seasons here they are inevitably destroyed, so preference is given to early spring sowing in heat, followed by another later out of doors of Walcheren and Autumn Giant only, to supplement the earlier sowings, in case, owing to the nature of the season or other causes, the supply may not be maintained from them alone until frost sets in, but which, however, seldom occurs. As is well known, all the above are first-class varieties and excellent in quality.

Some may find fault with the length of the list. However, I find it better to grow the six, the one naturally succeeding the other, and practically have but one sowing and one planting, than to be dabbling with say a couple of sorts, continually sowing and planting, with a probable risk of a blank or two in the supply during the season, owing to the unsuitability of the weather during some of the later plantings or other causes. For this crop I endeavour to reserve a quarter which root crops have previously occupied, and for which a deep and thorough tilth has been given. This is bastard-dug, at the same time working in a good dressing of a suitable and reliable fertiliser (I use none but artificial manures for all crops indoors and out). When dug, fairly deep drills are drawn at distances according to the requirements of the several varieties. I may here remark that this planting in drills of all the Brassica tribe has several advantages (at any rate on our light soil and exposed position), for it affords shade from the sun, shelter from cutting winds, and conserves the moisture about the roots. Long ere the crop is full grown and matured, the ground is left level from the frequent hoeings, and is thus better suited to absorb water applied artificially, or even rain, than when ridged. In wind-swept positions such as ours, the plants thus treated have a firmer hold in the ground, so are better prepared to withstand the hurricanes than when planted on the level surface, and soil drawn up to them as growth advances, as is often practised. I have seen here before now, fully grown, fine autumn Cauliflowers blown clean out of the ground.

The same cultural remarks apply to Cabbages, but of them we make one summer, one autumn, and one spring sowing in heat. The first is made about the middle of July—Ellam's Dwarf Spring being the only variety sown thus early, and planted out in its permanent quarters as soon as ready, and as early in autumn as possible. This provides us with the earliest spring cutting, and excellent it proves for the purpose. The autumn sowing takes place about the middle of September to stand the winter in the seed-bed. In this district if sown earlier, owing to the humidity and mildness of the climate, they grow too large before planting out can be done in the spring. The spring sowing is made at the latter end of February or early in March, and treated in all ways similar to the Cauliflowers in pricking out in frames, hardening off, and the ultimate planting out. The varieties used in these two sowings are Mein's No. 1,

Perfection, and Winningstadt, all reliable varieties I can strongly recommend, No. 1 forming a close succession to Ellam's. The others follow in the order named, and keep up the supply until Cabbages come again, or nearly so. J. R.

Tan-y-bwlch.

SHORT NOTES.—KITCHEN.

Cucumber Allan's Favourite.—This is a decided acquisition to a somewhat large list. It was raised by Mr. Allan, of Ginton, and received an award of merit in 1890. It is the result of a cross between Telegraph and Blue Gown, partaking of the good quality of the first-named with the length of the latter. It is an excellent variety for exhibition and also for spring and summer sowing.—S. H. B.

Ashleaf Potatoes.—"A. D." gives a piece of information which is not only worth noting, but putting into practice. To plant these Potatoes in February is simply to invite all the ills Potatoes are subject to. I have now a quantity of Ashleaf Potatoes laid singly on shelves sprouting beautifully. They will not be planted before the third week in April. My system of planting is to draw shallow drills and lay the sets in. When up, the soil is drawn over the tops for protection.—R. GILBERT.

Cucumber Matchless.—This is a beautifully shaped variety of a nice green colour, not ribbed, with only a few black spines, and scarcely any neck. It is stated to be a cross between Purley Park Hero and Tender and True—both sterling varieties. Matchless combines both the good qualities of its parents, having the handsome appearance of the former and the length of the latter. It will no doubt be largely grown as it becomes more known. Its handsome appearance and free-bearing qualities should make it a general favourite.—G. W.

GARDEN FLORA.

PLATE 849.

STREPTOCARPUS GALPINI.

(WITH A COLOURED PLATE.*)

This is a new species of *Streptocarpus* which was discovered in the Transvaal near Barberton by Mr. E. E. Galpin, who sent seeds of it to Kew in 1890, where it flowered in October of last year. Mr. Galpin wrote:—

I am sure you will like the two species of *Streptocarpus* of which I send seeds if you can succeed in raising them. They both grow in crevices in the cliffs and under rocks, and only on the very tops of the mountains just below the brows of the highest peaks. The red-flowered species (*S. Dunni*) I found growing in profusion on the granite mountains in Upper Swaziland; whereas here it grows in metamorphic sandstone. Those I send you came from the Bearded Man, a peak forming one of the boundaries of Swaziland, thirty miles off, where the plants are much finer than here.

S. Dunni had been previously sent to Kew by Mr. Dunn, after whom it was named by Sir Joseph Hooker, when it flowered in 1885. It is remarkable for the exceptionally large size of its single sprawling Rhubarb-like leaf, which sometimes attains a length of 3 feet and a breadth of 16 inches. Its flowers, which are brick-red, are borne in erect racemes, several springing together from the base of the leaf; as many as from sixty to a hundred flowers have been borne by one plant. The hybrids and seedlings now in cultivation are the progeny of this species crossed with others.

* Drawn for THE GARDEN in the Royal Gardens, Kew, by Champion Jones. Lithographed and printed by Guillaume Severeys.



STREPTOCARPUS CALPINI

S. Galpini belongs to the same group as *S. Dunni*, having but one leaf and a many-flowered raceme, but it differs from all other species in the form of its corolla. In the common *S. Rexi* and its allies the flowers have long tubes, and in *S. polyanthus* and *S. Saundersi* the corolla is narrow and tube-like at the base, spreading above as in a common *Achimenes*. But in *S. Galpini* the tube is short and broad and the limb spreading, and almost regular. The colour is a rich blue tinged with purple, the throat being pure white. The fruit also differs from that of other cultivated kinds in being short and thick. Although attempts were made to cross it with other species and varieties of *Streptocarpus* no good seeds were obtained. Only one plant of *S. Galpini* flowered at Kew last year, but there are more which look promising for this year. The largest leaf so far is 8 inches long by 5 inches wide, its texture is soft and succulent, the surface is covered with silky hairs, and the underside is tinged with purple. The flowers are produced in slow succession and they continue to expand for about five weeks. Altogether about fifty flowers were produced by the one plant; it blossomed a second time in December. It would be premature to speak of the value of this plant for the garden, but at any rate so far it promises well, being good and free flowering, and its flowers are in my opinion the prettiest of all the species of *Streptocarpus*. We shall know more about it this summer. The species of this genus now known in cultivation are as follows: *Monophyllous*: *S. Galpini*, *S. Dunni*, *S. polyanthus*, *S. Saundersi*; many-leaved: *S. Rexi*, *S. lutea*, *S. pauciflorus*; caulescent: *S. Kirki*, *S. caulescens*. There are other beautiful species known to botanists, and which would be worth introducing. No doubt, too, there are more to be discovered in the as yet almost unknown regions of South Africa.

W. W.

The weather and the crops.—It remains to be seen whether the old adage regarding March will be falsified or not, but if so, it must be at the end of the month, for its beginning has been lion-like and rough in the extreme, as we have had cold biting winds, severe frosts, frequent and almost continuous snowstorms, and little or no sun up to the present. Outdoor vegetables are in consequence much cut up and things in general very backward, which is fortunate, for if Apricots and other things had been as early as usual, they must have suffered severely or been destroyed by the cold. Broccoli and green stuff generally have stood the weather badly. Even the hardy Kales, Brussels Sprouts, and old Cabbage stumps are much sere and browned, and many of the first and last-mentioned are entirely killed. This destruction, if general, will cause great scarcity for some time to come. Field crops, however, usually stand better than those in walled-in gardens, and growers for market, especially such as are in favoured localities, will reap the benefit of the high prices that must rule during the spring, and yet foreign competition will help to keep them down and thus favour the consumer somewhat, as supplies will be rushed in from abroad. Although the vegetables have suffered so much, we have some cause for congratulation, as what has been adverse to them has acted beneficially to the fruit trees and bushes, which have had a most salutary check, as the buds in many cases seem hardly to have moved yet. Even

Apricots, which are always first to venture open, are as yet tightly closed and only just showing colour, and when they do expand it is to be hoped that we shall have done with bad weather. Pears are beginning to show that the time has come for them to start, as the buds are lengthening and swelling, which is evidenced by their scales, but Apples, Plums, and Cherries are in a state of quiescence, which promises well for a crop. Although all bore so well last year, fruit-buds are again plentiful. Plums in country districts will need close watching, as bullfinches are sure to be at them, and they work sad havoc in a very few days. Sparrows, too, are sometimes almost as troublesome, but their attention is more usually given to Gooseberry and Currant bushes, which, if left to their tender mercies, they soon strip. Fortunately, syringing with lime-wash will keep them at bay, and is an easily applied method that does good besides, as it kills all Moss on the branches, and is worth doing for that purpose alone. I am of opinion, too, that it prevents the caterpillar attacking Gooseberries, as much of it goes on the ground.—S. D.

THE WEEK'S WORK.

HARDY FRUITS.

STRAWBERRIES.—The plants generally were never in a worse plight than at present. Not a green leaf is to be seen, all being completely shrivelled and having the appearance of being burnt up. Apparently the crowns are uninjured, and the growth from these may be stronger and better than anticipated. It was the frosty winds, which lasted for several days, that did the mischief, strawy mulchings not saving the plants in the least. All that can be done now is to well clean the ground between unmulched plants, at the same time stirring in a liberal dressing of guano, soot, or some kind of special manure. Care should be taken when applying any kind of strong manure to keep this away from the crowns or off any young leaves that may be forming, or harm will result. After rains have washed in these dressings of artificial manures, a mulching of strawy manure may well be given. If this is applied rather freely, it will prevent the loss of moisture so much needed by Strawberries, and also serve to keep the fruit clean. At any rate, this single mulching is all that market growers can afford to give, but private gardeners usually manage to surface over the mulching of manure given now with cleaner litter or straw before the fruit is far advanced in size. Established beds pay well for being given liberal supplies of sewage water or diluted farmyard liquid manure, commencing now and following it up till the fruiting period arrives, this obviating the use of artificial manures. There ought never to be any digging among Strawberries; but, on the contrary, everything should be done to preserve a firm root-run and to promote the formation of abundance of surface roots.

STRAWBERRIES NEWLY PLANTED.—Plants put out late last season, in addition to being too small to be serviceable this season, are in many cases much loosened by frosts. These must be well fixed again either with the foot or a heavy rammer, and this being done when the ground is in a fairly dry state, surface-hoeing may well follow. Supposing the site was properly prepared for the plants, a good dressing of solid manure being dug or trenched in, no surface-manuring ought now to be given, but a light mulching of strawy manure applied before dry, hot weather sets in will act beneficially. These late-planted Strawberries ought not to be allowed to form either fruit or many runners, and the foundation of strong and very productive plants will then be laid. A row of Onions, Lettuces, Spinach, Turnips, or even kidney Beans, disposed midway between the rows of Strawberries put out either late last season or now, will not harm these to any appreciable extent. Strawberries just commencing active growth transplant well, and if small young plants can be bought in or moved from nursery beds, they

would have a long season's growth before them, developing into extra strong plants by the autumn. The less vigorous growers and all that form runners late in the season—two good examples of these failings being found in Loxford Hall Seedling and Waterloo—succeed best when finally planted out in the spring and prevented from bearing fruit the same season. It does not pay to keep early Strawberries on warm borders to fruit a second time, and these must therefore be planted now or else not later than the first week in August in order to have them extra strong before the growing season is over. Any to fruit once only and then be rooted out may be put out 18 inches apart in rows 2 feet asunder. In the open more space should be allowed, especially if high culture, that is to say, a free use of manure and trenching, is resorted to. Sir J. Paxton requires the most room, and on rich ground may well be put out 30 inches apart in rows 3 feet apart, but on ordinarily dug and not particularly rich ground the distances may be respectively 2 feet and 30 inches. Nothing is gained and much may be lost by crowding; therefore allow all the other varieties good room, or nearly or quite as much as recommended for Sir Joseph. There ought to be no running into each other, especially between the rows. Crop lightly between newly-planted Strawberries, as previously advised, and pinch out the flower-trusses as fast as they show.

PREPARING GROUND FOR STRAWBERRIES.—As before hinted, Strawberries thrive well on deeply-dug, rich and firm ground, but it must be borne in mind that if the two first conditions only are observed, this will result in the production of a superabundance of strong leaves and not much fruit. Instead, therefore, of deferring the trenching, as too often happens, till the ground is wanted for the plants, it ought to be done either in the winter or spring previous, this allowing time for it to settle. Manure should not be mixed with or added to the bottom spit only, but ought rather to be freely forked into the top spit, poverty of top soil being likely to end in a feeble start of plants and subsequent too deep root action. Bastard-trenching is preferable in most instances to the ordinary double digging, too much poor soil in the latter case being brought to the surface at one time. Well separate the soil throughout, as if lumps of heavy ground are left now they will long remain, and such are not good for Strawberry roots. Newly trenched ground suits Potatoes better than any other quick-growing crop that can be mentioned, and that prepared in advance for Strawberries should be cropped with Ashleaves or some other early maturing variety of Potato. They can be cleared off and the ground levelled over in good time for Strawberries, which can be planted with every prospect of their doing well.

W. IGGULDEN.

ORCHIDS.

LAST week I wrote about the treatment required for a few of the South African comparatively hardy Orchids. Besides the Disas and other beautiful Orchids from Table Mountain there are the *Cypripediums* of a hardy character, particularly the truly handsome *C. spectabile* from North America; it is one of the loveliest of *Cypripediums* and very easily cultivated. The yellow and purple *C. pubescens* is quite as easily grown and is a very good companion to it. The last-named species generally produces its flowers first and will last rather longer in good condition. They pass through the winter well in a cold frame or pit if covered well over the rims of the pots with partly decayed leaves. The shoots are now starting into growth, and the covering ought to be removed to prevent their being drawn up weakly. The plants will do very well in frames or pits now, and will come on slowly and sturdily, but it is easy to put a few plants in a greenhouse heated to keep forced flowers in good condition where they will come on a little faster than those in the frame or pit, and a succession may be kept up during the months of May and June. The best and brightest coloured flowers are those grown in the pits and frames. When the roots are pushing freely a little weak manure water is beneficial.

Another easily grown and useful early summer flowering plant is *Orchis foliosa*, a native of Madeira. I am not sure that it is so hardy as the above-named *Cypripediums*; probably it is not. I have never grown it in a frame during winter, but have done so very successfully in a greenhouse sufficiently heated to keep out the frost. Fifteen years ago I used to exhibit handsome flowered specimens of it at the metropolitan exhibitions in May and June, and Mr. B. S. Williams, of Holloway, used to exhibit much larger and better ones. It has long spikes of purple-spotted flowers, and is an excellent greenhouse Orchid; it is now starting into growth. See that it does not suffer for want of water at the roots and place in a light position in the house. It grows freely in a compost of good fibrous loam and peat. The hardy *Orchis maculata superba* is almost equal in beauty to this species from Madeira. It is a variety of the ordinary *O. maculata* of our meadows, but the true variety *superba* is a very beautiful thing, far superior to the specific form. Since the late Mr. Parker, of Tooting, used to grow it so well and exhibit it in London I have not seen the true variety. The plant grows $1\frac{1}{2}$ feet high, the leaves are beautifully spotted with purple, the flowers are very striking, and are deeply spotted with maroon-purple. It is an excellent frame plant. There are many beautiful and quaint Orchids that may be grown in the greenhouse or frame. Many of them are comparatively hardy, but most of them are more difficult to manage than the tropical Orchids. I wrote of potting the *Thunias* and *Calanthes* two or three weeks ago. We potted ours at that time, and as they are now making growths freely from the base of the old bulbs, it is easy to injure the plants in this early stage by giving them too much water. This should be applied very sparingly at first and freely when a mass of roots has been formed. The plants ought now to be in quite the warmest house. We have been repotting and surface-dressing many plants in the warmest house, such as *Phalenopsis*, *Saccolabium*, *Miltonia Roezli*, &c. I do not care to water too freely while this cutting east wind blows so keen and the thermometer is seldom above the freezing point night or day. Many of these plants should have the *Sphagnum* Moss growing green and healthily on the surface of the compost, and it must be sprinkled with water almost daily to be kept alive.

The pipes during the last week or two have had to be kept excessively warm to maintain the temperature in this house, as the frost has been severe— 16° and 15° of frost on successive nights. Cultivators must learn to adapt themselves and their plants to the constantly changing conditions of the weather and see that the temperature of the houses is fairly uniform. The state of the weather when the nights have been excessively cold has been in our favour, as I have been able to shut up the houses early with sunshine, which has kept up the temperature well into the night. By shutting in the warmth caused by the sun we had the temperature at shutting-up time 80° to 85° , which fell about 20° before morning. The same condition of things took place in the *Cattleya* house, but the temperature has been about 53° to 55° as a minimum, with a maximum which has been 80° by sun-heat. On dull cold days the temperature rises about 5° to 7° above the minimum figures. The cool house has fallen on these cold nights with wind on some nights a degree or two below 45° , but in ordinary weather we will try to keep the minimum about 50° . That cool Orchids will succeed admirably with a much lower temperature there is no doubt, for one of the most healthy and vigorous collections I have ever seen was cultivated in a house where the temperature in winter fell to 35° Fahr. The *Odontoglossums* were admirable, but I observed that the *Masdevallias* did not pass through the winter so well. Owing to the excessive cold, we did not care to push forward any repotting of choice varieties or species of Orchids, although such things as *Calanthes*, *Thunias*, &c., if they had not been repotted, could easily have been done, as they do not receive any check from changes of the weather. We repotted some plants of *Lælia*

anceps, the ordinary forms and the white varieties. They are all of easy culture, and if there is any difference, it is that the white forms grow the most vigorously. We had a capital lot of bloom on the white varieties this year. Some of the spikes had four flowers upon them. They have been treated for many years as I have advised in these calendars. That is, the white varieties are placed at the very lightest end of the *Cattleya* house, and are either suspended from the roof in baskets or placed close to the glass roof on the side stages by being raised on inverted flower-pots. What they do most require is to have the air blowing freely around them, so far as it is admitted to the house, and also to have the benefit of sunlight when the blinds are drawn up in the afternoon. The white varieties have a much greater tendency to form roots outside of the flower-pots than the other forms. We use for repotting these *Lælias* about two thirds good fibrous peat to one-third of *Sphagnum*. Repot them when they have passed out of bloom. J. DOUGLAS.

THE KITCHEN GARDEN.

THE present cold weather we are now passing through is having a very serious effect upon vegetation, and in the end probably, if the weather does not quickly change, green vegetables will be very scarce before the earlier kinds come in. The advantage of forwarding the earliest crops by the aid of a little glass protection is now plainly evident. Such important crops as Lettuce, Brussels Sprouts, and also the late summer and autumn Cauliflowers and Broccoli should be encouraged as much as possible. The least that can be done by those who have delayed sowing under glass in the hope that we might have an early spring, and so do away with the necessity and also labour of the work attendant upon sowing under glass, is to make sowings on a gentle hotbed. A two-light frame will afford space for raising sufficient plants for any ordinary sized garden. A depth of 18 inches or 2 feet of well-worked fermenting material, beaten very firmly and surfaced over with 6 inches of fine and fertile soil, will be ample, the heat declining as the seedlings appear through the soil. By careful ventilation as circumstances permit, healthy young plants will be forthcoming and an early supply of plants provided.

MAIN-CROP CELERY.—To secure Celery of the highest quality, it is very essential that the plants have the closest attention from the time the seed is sown, premature bolting being often traced to the seed-box. The plants again are more predisposed to suckering and so forth. Sufficient plants may be raised in boxes or pans if the plants are attended to well afterwards. A gentle heat being necessary to ensure a regular and early germination, a vinery or Peach house starting into growth or even a gentle hotbed will do admirably. The box or pan should be efficiently drained, and also be filled up rather firmly with fine soil, preferably fine loam and leaf-soil in equal parts. The seeds should be sown very thinly. The seedlings as they appear should stand clear of each other, so that the little plants will grow sturdily, and if they should appear at all too thickly, do not neglect early thinning. Directly the young seedlings appear through the surface, expose them well to the light, and whenever water is needed, apply it through a roset pot. As soon as the rough leaf shows, it will be advisable to remove the seedlings to a cool brick pit or frame, where, if not exposed to cutting draughts through indiscriminate ventilation, and also kept carefully watered, nice sturdy plants will be forthcoming for pricking out. Where sowing on a gentle hotbed is adopted, care must be taken not to have too great a body of fermenting material so as to prolong the heat more than is necessary. A depth of 2 feet will be ample, but this must be packed firmly and surfaced with 5 inches or 6 inches of light soil. This must be made fairly firm and the seeds sown thinly. A gentle watering should now be given, and the glass be covered with a mat to exclude light until the seeds germinate. Leaving the soil exposed

up to this stage only causes the surface to lose moisture through rapid evaporation.

PRICKING OFF CELERY.—It is early yet certainly to speak of pricking off the plants, but a few words of advice may be better now than later on, when perhaps it is too late to rectify the evil. Instead of pricking out into boxes, which plan need only be adopted with the very earliest, I much prefer pricking out into a prepared frame. When in boxes the plants are apt to get starved, especially if circumstances should occur to prevent them being planted out directly they are ready. The best course is to spread a layer of rotten manure over a hard surface of ashes in a low frame, or, failing a frame, boards on edge to be covered with a shelter until established, and over this the same depth of soil of sufficient holding nature to keep together when the time comes for lifting. The seedlings, if pricked out into this 4 inches apart, will form capital plants. It is also a good plan to commence to prepare the manure for placing in the trenches. Crude manure not being good for the purpose, select that which is fairly rotten.

GLOBE ARTICHOKE.—Our plants are quite unlike those mentioned by a correspondent a week or two ago, and which he says are totally destroyed. The plants in this garden were covered with light litter upon the first sharp frost occurring, not merely placing the litter about the surface, but lightly over the whole plant. Luckily, we had not removed this before the cold March winds, but directly the change to warmer weather occurs the litter will be removed, and the plants receive a dressing of rotten manure, which will be afterwards forked in. Where the Chinese Artichoke is appreciated, this should be planted on the first opportunity. Quite 2 feet should be allowed between the rows and the little tubers be 1 foot apart in the rows. Any ordinary fertile soil will do, placing the tubers about 3 inches beneath the surface.

SEED POTATOES.—The Ashleaf Potato sets will, of course, have been suitably prepared ere this by laying them out thinly in a light and cool structure. If the sprouts are an inch in length and sturdy in proportion, they will be in capital condition when the time comes for planting. The mistake must not be made of placing the boxes in heat; thinking the sets will be made forwarder still. Very likely they will become too forward by appearing through the soil when planted quicker than bargained for, and if means are not at hand for adequately protecting them, a sudden frost might spoil them. The cooler the sets are kept the better. If by any chance the earlier or primary sprout has been lost and the sets comparatively dormant, then a little assistance may be an advantage, but not otherwise. A. YOUNG.

PLANT HOUSES.

BULBS.—Those bulbous plants such as Hyacinths, Tulips and Narcissi, which are in bulk still in cold pits or houses, will be considerably retarded by the continuation of frosty weather. This altogether is an advantage, for it often happens that there are more in flower towards the end of March than are actually required. By still selecting those kinds that are the forwardest of each of the above named, it is possible to prolong the season considerably. When we have a return to more genial weather, the later ones should be removed to a cold frame facing north, so as to keep them back as much as possible. Amongst such as these will be the yellow Hyacinths, the Pottbakker and Keizer Kroon Tulips, and many of the Narcissi, including the Daffodils where grown in pots. Many of these latter are splendid subjects for pot culture; their utility in this direction is being more and more appreciated. Where now grown in hundreds they will in many instances be seen in the future in thousands. The double yellow and Poet's Narcissus or Pheasant's-eye are within the reach of all lovers of bulbous plants, being admirably suited to pots. Of scarcer kinds, bicolor Horsfieldi (the king of Daffodils) is one of the very finest for this purpose. The mistake which is often made with all of the Daffodils when in pots is that of forcing too rapidly

or attempting to force before they are thoroughly well established and well rooted. Early potting is most desirable to further facilitate their flowering in good form. Bulbs now in flower will require a little shade when the sun is very bright, particularly Tulips and Crocuses, upon which the effects of bright sunshine always have the effect of producing greater expansion of the blossoms, the Tulips fading sooner.

Gladiolus culture in pots well repays for the trouble expended upon the bulbs. *G. brenchleyensis* is still one of the most reliable of the vigorous growing section for this work. The bulbs should now be potted up for autumn blooming. Three bulbs of moderate size will do well in 6-inch pots; if extra strong, one size larger will be better. A loamy soil with some well-rotted manure next the crocks will suit them well. Room should be left for a good top-dressing when the roots push forth later on from the base of the stem. When potted, place in a cold frame or pit, and for the present cover with cocoa fibre just over the tops of the pots; this covering will prevent the soil from becoming dry, and also guard against fluctuations in temperature. The latest of Gladiolus The Bride should now be potted up; if left any longer the bulbs will shrivel, and hence become weakened. Six or eight bulbs in a 6-inch pot will make a good show.

Liliums for autumn flowering, such as the lancifolium section, should now be looked over, if not already done, for repotting. Where they have been grown in pots for one or two years and have gained strength, it is not desirable to reduce the balls too severely, provided they are in good health at the roots. Annually shaking out is not, in my opinion, desirable, for there will always be found some roots fairly active when the bulb is apparently dormant. Now and again it is desirable to do it thoroughly, as when the bulbs are too much crowded together or when the soil is become sour. In the case of all of these Liliums and others grown in pots, the selection of good soil is an important point to observe. This will pave the way to future success in no small measure. Good fibrous peat and turfy loam (not heavy) in about equal parts with a good supply of silver sand or road scrapings will suit these Lilies well. Moderately firm potting is most desirable, some sand being placed at the base of each bulb when all fresh soil is being used. Newly imported bulbs of these Lilies are now coming over from Japan in first-rate condition; these if potted up before they in any way shrivel will make a fine late batch that will prove useful late in September and in October. For these fresh bulbs or when any are potted singly, it is never a good plan to allow any excess of soil for the roots to feed upon. A proportionately small pot will give much better results, the roots having the maximum amount of soil in the pot upon which to depend for their sustenance. There is not the same degree of danger of injury from over-watering when there is not an excessive amount of soil for the roots to ramble in. This over-watering of Liliums is a frequent source of evil, and one to which may be attributed many a failure. When potted up, keep cool and treat as advised above for Gladioli. *Lilium auratum* and other kinds now started into growth should have all the light possible, being kept moderately dry still at the roots and not unduly hurried in making their growth. *Lilium Harrisii*, or the Bermuda Lily, where potted up in good time, will now be well advanced in growth if in a fairly warm house. Green-fly I have found to be troublesome to this variety; this needs to be looked after and checked in good time.

Tritonia aurea and the *Montbretias*, where grown in pots, should have attention now before any active signs of growth appear. For August and September they are most desirable in the conservatory. The tuberous *Begonias* that are intended for pot culture should be repotted without delay. The bulbs may probably have been shaken out in the late autumn and placed in sand; if so, and they appear exceedingly dry, it will be better to hold them in tepid water for a little time before potting; this will be better than immediately soaking the soil when the potting

is finished. Where there is an opportunity of growing any in baskets, those that are suited to this method of culture should most certainly be grown. The *Nerines* will now soon be showing signs of going to rest. When this is seen much less water will be required; even now with the growth completed, not nearly so much should be given them. A cool house will suit them well, with plenty of exposure to the light and air.

JAS. HUDSON.

STOVE AND GREENHOUSE.

FREESIAS AND THEIR CULTURE.

THE great popularity which these most deliciously fragrant and quaint-looking flowers has acquired leads most people who have a greenhouse to attempt to grow them, while whole fields of them are now cultivated in the Riviera and the Channel Islands for the purpose of supplying cut flowers and bulbs for the English market. They have been represented by some as difficult to grow, while others say their culture is of the easiest character. Someone who is in the former class wants to know what is the cause of his failure, and forthwith makes his woes known to the gardening papers. For years I have grown *Freesias* with success, so that perhaps my experience and advice may be of use to others. The *Freesias* are natives of that paradise of bulbs, South Africa, where, as the manner of the country is, after they have done flowering a period of long-continued drought and heat sets in for months together. During this time the bulbs are thoroughly baked and ripened, and I am sure that this, at any rate, must be imitated in our culture as far as we can possibly do so. I have never tried it in the open, but I daresay in the warmer parts of our island it would do with a little protection in winter. It is quite at home in any cool greenhouse from which frost is excluded, not but what I think they will do better with more heat—at least the plants will be taller, although I do not think they will be more free-flowering; at least such is the experience of some I have seen about here, and, after all, I am not quite sure that I do not like the dwarfier growth better.

I adopt the plan of successive pottings, beginning early in August for the first flowers; these come in about the end of February or beginning of March, and about every three weeks repeat it. I do not pot more than half a dozen pots at a time. The compost that I use is the same that I employ for most of my bulbs—leaf-mould, loam, sand and a little well-rotted manure. I generally use 6-inch pots, but the size of the pot is immaterial, as one can proportion the number of bulbs accordingly. In a 6-inch pot I generally place eight bulbs. After they are potted, I place them in a cold frame, giving water occasionally, and leave them there until October, when it is better, for fear of frost, to remove them into the house. I find that it is well as the shoots lengthen to tie them up with small thin twigs, for as the bulbs are small and the shoots tolerably stout, they become top-heavy, and so lie about on the pots, making them look untidy. If small twigs are used, they will not in the least interfere with their appearance. Those that I want to flower early are placed on an upper shelf near the glass. As to the number of flowers on a spike, I have had as many as nine. I need say nothing of their beauty or their exquisite perfume, unlike any flower that I know, for on both of these points there is a general consensus of opinion, and the fact that almost everyone who has a greenhouse tries to grow them is sufficient proof of this, while the large quantities of blooms imported from the Riviera and the Channel Islands confirm the fact.

I now come to their treatment after their blooming season is over, and this, I think, is the most important one in their culture. Bearing in mind what I have already said as to the nature of their habitat, I would most strongly advise a thorough drying and baking of the bulbs. I place them on the top shelf of the greenhouse close to the glass; there they are left for several weeks

until they are thoroughly dry. I then take them out and put them away in bags or boxes until potting time comes round again. *Freesias* increase very rapidly, and when the larger bulbs are repotted, the smaller ones may be potted very closely together in the same kind of compost, and will most of them make flowering bulbs by the following year. I have said nothing on the subject of watering, because I do not think that they require anything but ordinary care in this respect. Of course after being repotted, they do not require more than a watering just to settle the soil, and when they begin to grow they will require more attention in this respect, and, provided the drainage is good (an essential in all pot culture, and especially with bulbs), there is no reason why they should not succeed. It will be seen from what I have written that my system of culture is very simple. I have given away heaps of the bulbs, and where the recipients have followed my directions, they have succeeded with them. These directions have been given with regard to the ordinary form, *Freesia refracta alba*; the other form, *F. Leichtlini*, which differs only by the yellow in the throat, admits of the same treatment. I often wonder whether there is any chance of getting colour into *Freesias*. We have seen such curious freaks of nature and such wonderful results by hybridisation, that we need not despair.

DELTA.

Sarracenias in flower.—Everyone, I think, will agree with your correspondent (p. 211) as to the attractiveness of the *Sarracenia* flowers, and a very marked feature in connection with them is the great difference that exists in their odour. Thus the deep blood-red-coloured blossoms of *S. rubra* emit a delicious Violet-like perfume, which during sunshine is especially pronounced. *S. flava*, whose blossoms are more of a primrose tint, possesses, on the other hand, a disagreeable smell, and the deep red blossoms of *S. Drummondii* are almost, if not quite, scentless. As flowering plants, they are certainly entitled to more notice than has hitherto been bestowed upon them, for in that stage the singular flowers and quaint pitcher-like leaves together form a most uncommon and striking feature.—H. P.

Pittosporum Tobira.—This *Pittosporum* is a neat-growing evergreen bush, hardy in some parts of England, and in others needing the protection of a greenhouse or conservatory. The whitish-coloured blossoms, in clusters at the points of the shoots, are not particularly showy, but are so sweetly scented as to at once attract attention in any structure where they are present. It usually blooms during the spring months. While the above-named species is a native of Japan, most members of the genus are found in Australia and New Zealand, so, as might be supposed, none of them are thoroughly hardy. Very distinct in flowers from the above-named is *P. crassifolium*, the blooms of which are borne in little drooping clusters. They are of a kind of chocolate-purple hue. Any ordinary treatment will suit the *Pittosporums*, some of which are occasionally to be seen treated as wall plants.—T.

Azalea Deutsche Perle.—Very few hard-wooded plants have advanced so rapidly in popular favour as this *Azalea*, which first attracted attention in this country in 1883, when a certificate was awarded it by the Royal Horticultural Society, and at the present day it is doubtless grown in larger quantities than any other variety of the Indian *Azalea*. This is owing to several circumstances, as the blossoms are pure white, and flowers of that tint are always in demand; next, being double, and almost resembling a *Gardenia*, they may especially when partially opened (in which stage they resemble miniature *Rose-buds*), be used for button-holes and similar purposes; while being a vigorous and somewhat loose grower, a greater length of stem can be cut with the flowers than would be possible with most of the other varieties. In addition to all this, it is very easily forced; in fact, if kept in a greenhouse with a collection of different kinds, and the same treatment is given to the whole of them, *Deutsche Perle* will, as a rule, be the

first to open its blossoms. Having more substance than most of the white-flowered Azaleas, the blooms of this will last longer in a cut state than the others, while the somewhat looser habit of the plant renders a specimen in full flower more pleasing than the stiff, dense-growing kinds. Before the advent of *Deutsche Perle* the double white most largely grown was *Bernhard André alba*, but this is a plant of hard outline, and does not grow so freely, while the individual blooms are less pleasing, as the petals do not reflex in the same charming manner as do those of *Deutsche Perle*. H. P.

Asparagus scandens.—During the last twelve years *Asparagus plumosus* and its variety *nanus* as well as *A. tenuissimus* have attracted a considerable amount of attention, and are now grown by many in large numbers. Still, the three forms above mentioned by no means include all the South African species whose ornamental features entitle them to a place in our gardens, and of them may be particularly mentioned *A. scandens*, a free-growing climber, especially valuable for furnishing a pillar in the greenhouse up to 10 feet or 12 feet in height, or for training as a screen plant, which is often done in the case of *A. plumosus*. *A. scandens* is certainly not so light and elegant in appearance as the better-known kinds, the leaves being broader, but their colour is a rich bright green, very noticeable in a mass. The leaves are arranged nearly on one plane, so that the branchlets have a flattened frond-like appearance. The climbing stems are numerous and well furnished with foliage; consequently if trained to a pillar they form quite a dense mass. This *Asparagus* was introduced from South Africa towards the close of the last century, so that it is one of the oldest members of the genus. Like the others, it is of easy culture, and will thrive in an ordinary greenhouse. H. P.

EPACRISES.

AMONG hard-wooded greenhouse plants there are few, if any, more useful than *Epacris*, as they are easily grown, and come in at a time when flowers are scarce, and that naturally or without any forcing; indeed, they do not like fire or artificial heat, as when subjected to its influence the blossom is sure to be poor. Although this is so at the period when they are in bloom, or nearing that stage, a little warmth does good when they are making their growth, but they must not be kept close for long, as fresh air and full light are very essential towards getting strong shoots. The way to treat *Epacris* after flowering is to prune all of the wood made the previous year back to within an inch or so of its base, and if the plants are a little old and have become stubby or thick-headed, they should be carefully thinned out by removing or shortening the parts and leaving only the single shoots, and doing the work in such a way as to leave the plant shapely and afford room for the young growth that will follow. The pruning in the manner mentioned of course only refers to the ordinary kinds, as all those of the miniata type require quite different treatment, and should have very little of the knife, but all, or nearly all shoots loosely trained and tied so as to bring the plants into an easy or shapely pyramidal form, as that is how they show off best, but no more stakes than is absolutely required ought to be used, as their appearance is very objectionable.

As soon as the cut-back plants have fairly broken and made just a little growth, they should be knocked out of their pots and have all loose particles of the ball removed, or such soil as will come away without disturbing the roots shaken from them, and then repotted in fresh fibry peat mixed with a little sharp silver sand to keep the whole porous. In potting *Epacris* it is almost impossible to make the soil too firm, and much care is necessary to see that all space is filled in between the ball and pot, which can only be done properly by the aid of a thick, flat stick to thrust or ram the soil down, and if this is not carried out water escapes without doing much good. For growing

Epacris in after potting, there is no place better than a pit where the plants can be stood on a hard coal-ash floor, and have their heads up near the glass. The way to treat them while there is to syringe in the afternoon at about 3 o'clock and then close the lights, and this course should be pursued till growth is complete, and then it will benefit the plants if they are fully exposed to the air, which will ripen the shoots. In watering, soft water should always be used, and enough given to soak the ball thoroughly, and so make sure that it does not become dry in the middle. S. D.

A new hybrid Begonia, Gloire de Lorraine.—At the meeting of the National Horticultural Society of France on the 11th of last month, as announced in the last issue of the *Revue Horticole*, a most interesting new *Begonia* under the above name was exhibited in full flower by the well-known hybridisers, Messrs. Victor Lemoine and Son, of Nancy. This new variety has for parents *B. socotrana*, fertilised with the pollen of either *B. Dregei* or *B. weltoniensis* (the raisers are not sure which), and has the strange peculiarity of as yet, at all events, showing no signs of tubers, though both its parents are tuberous varieties. The flowers are of a bright rose colour and remarkable for the length of time they remain in perfection, those showing having opened on November 25, and showing no signs of fading on February 12.—W. E. GUMBLETON.

Chorozema Lowi.—We first made the acquaintance of this desirable *Chorozema* last spring, when Messrs. Low exhibited it in quantity at the Royal Horticultural Society's meeting on Feb. 14, and an award of merit was then bestowed upon it. The *Chorozema* in question is one of the brightest of this class of plants, the blooms being deeper in colour than those of *C. Chandleri*, while it is of a neat bushy style of growth. The leaves are more spiny and of a darker green than most of the others, and it is certainly well worthy of a place in any collection. In common with the other members of the genus, the flowering season of this *Chorozema* extends over a considerable time, as not only are the individual blooms fairly lasting, but a succession is often kept up for months. As there are so many forms, it is necessary to propagate them by means of cuttings; but they can be raised from seed more readily than most hard-wooded plants, and do not take so long a time as many of them to attain flowering size. The progeny are, however, as a rule very variable, which fact really causes the raising of seedlings to be so interesting.—H. P.

Hybrid Streptocarpus.—No doubt many packets of seed of these new hybrids were sown in 1891, so that it is somewhat surprising that no notes have appeared in your pages from some who successfully grew and flowered them last year. Perhaps it may be that others with myself have been misled by their being described as purely greenhouse plants and treated them accordingly, with the result of a slow and healthy growth and no flowers. I sowed seed on February 27 last year and put it in ainery which was then at work. On March 7 the tiny seedlings began to show themselves freely, but they remained very small for a long while, though when looked at through a magnifying glass they seemed quite healthy; their one enlarged cotyledon, however, gave them rather a curious appearance. As soon as big enough to handle, they were pricked off into pans and afterwards potted into 3-inch pots, remaining in these up to the present time. When established in these pots they were removed to a greenhouse. The plants have now from two to four leaves each and seem moving nicely, so I hope we shall get a good display even if it be twelve months after date. Some of the plants look rather one-sided and ungainly, as the leaves are large and not produced in pairs or more than one at a time. That I am not alone in failing to get the plants to flowering size last year I know, but probably the cause of failure was in not giving them a higher temperature throughout. If circumstances had allowed of my following the advice for their treatment given by

Mr. Baines in *THE GARDEN* for August 18, 1888, no doubt I should at least have had sufficient bloom to prove the quality of the seedlings and to get rid of the poor ones (if any). In that article he advises a night temperature of from 50° to 55° even for winter, but says they will do with greenhouse treatment, though he makes the significant remark that they will "make more progress in heat." Apparently these *Streptocarpus* are not liable to become drawn, for when at Kew last year I noticed that they were being used as edgings to the large centre beds in, I believe, the Palm house, certainly in one of the large houses; consequently they were a long way from the glass. It appeared to me that they were being propagated in the way named *Gloxinias* are done, i.e., by leaves, which were inserted in prepared soil, where it seemed they were to remain. A very few were in bloom in pots, but I saw nothing very striking amongst them at that time, most of them being past their best and partaking too much of the old *Streptocarpus* or, as I used to know it, *Didymocarpus Rexi*. These were seen during a very hurried visit, and probably I missed the best of them.—J. C. TALLACK.

MARGUERITES.

THE varieties of *Chrysanthemum frutescens* which are popularly known as Paris Daisies or Marguerites have now been grown for a considerable time, and are recognised as belonging to the most popular of market plants; yet when they were first grown for market it was generally anticipated that they would have a very short run. Anyone not acquainted with Covent Garden Flower Market would be astonished at the immense quantities to be seen there throughout the spring months. It is chiefly the white varieties that are grown; the yellow forms are equally if not more desirable, but they are not so easily managed. It is not only for pots that the Marguerites are useful, as they are equally valuable as bedding plants, and for window boxes there are few things that will keep up a good display of bloom so long.

For winter flowering or early flowering, plants propagated late the previous spring are best. These may be cut back about midsummer, and after they have well started again they may be potted on into 5-inch pots. They may require stopping once or twice, but where four or five shoots start evenly together they will make good plants, as they branch out naturally when they begin to flower. For flowering later in the spring, autumn-struck plants are best. These should now be ready for potting into 5-inch pots. They may require stopping once or twice, and the tops will be useful for cuttings, which will make good plants in time for bedding out. There is very little difficulty in the culture of Marguerites, as the cuttings will root freely on a hotbed. If there should be a scarcity of good cuttings, a few old plants may be cut back, and these will soon break out and give a good supply. Marguerites may be potted in any ordinary garden soil; rich compost should be avoided, or the plants will make too much growth. After the plants are well set with bloom they may be fed with liquid manure. One great drawback to their culture is that they are much subject to a small maggot, which is difficult to deal with on account of its being under the surface of the leaves. The only means of keeping this enemy in check is by using paraffin as an insecticide. There are several distinct white varieties, but they are not now often seen under names. That which I have seen named *Halleri maximum* is the best; the flowers are large and the habit of the plant good. *Pinnatifidum*, a small-flowered variety, with very pretty, finely-cut leaves of a pale glaucous green, used to be grown a good deal, but I have not seen much of it lately. There is also a good large-flowered variety with pale green, rather finely-cut leaves of dwarf habit, but this, though it flowers well early in the spring, does not keep up a succession of bloom so well as *Halleri maximum*. Of yellow varieties, *Etoile d'Or* is the best known, but it is a little difficult to manage; cut-back plants do not break freely, and even young plants when stopped do not branch out

regularly. Feu d'Or is a free-growing variety which may be recommended, the flowers being similar to those of Etoile d'Or. It must not be treated too liberally, or the plants will be apt to run up tall. Comte de Chambord is sometimes met with, but it is not a very desirable variety, the flowers being pale yellow and smaller than those of the above; its only recommendation is that it is of a dwarfer and more branching habit. F.

Lilium candidum.—An enormous quantity of bulbs of this fine old Lily are now being gently forced at Ham. They are all singly in 6-inch pots, and none seem to have failed. After being potted in the autumn, they are stood thickly outdoors and covered with ashes or cocoa fibre refuse to induce rooting, then taken into the houses in large batches, passing through gradations of temperature, so that there is no undue growth. The earlier batch have

second year. Except when thus pushed on early the flowers have no great market value.—A. D.

Streptosolen Jamesoni.—Eight years ago, or nearly so, when the Streptosolen was illustrated in THE GARDEN by a coloured plate, it had already become popular, though put into commerce by M. Lemoine, of Nancy, only during the previous year (1883). For some time after it was to be seen in most gardens, but lately its merits do not seem to be so much appreciated, though it possesses many desirable features. In the first place, the yellow flowers, changing as they do to deep orange-red, supply a colour but little represented among greenhouse plants at any time; next, the blooming season lasts for a long time, while the plant is of easy propagation and culture. As above mentioned, it was sent out in 1883, but at that time it could only be regarded in the light of a re-introduction, for it was first found by Hartweg in Ecuador about

deliciously fragrant. It is far superior to T. Thunbergii, which was introduced from the Cape the previous year. To have this in bloom at this season it should be grown in the intermediate house.

FLOWER GARDEN.

GARDEN CINQUEFOILS.

COMARUMS, Horkelias, and Sibbaldias are all included in the genus *Potentilla* as it is now known in gardens, and although containing a very large number of species, comparatively few of the stronger sorts are good enough to be included in mixed collections. One species, however, *P. argyrophylla*, from the Himalayas, figured in the *Botanical Register*, 1841, tab. 37, under the name of insignis, has given rise to a strain or race of most beautiful border flowers, single and double, and of the most lovely form and brilliant colours. These varieties are the result of hybridisation and careful selection, and some few of the earlier forms have been grown in Indian gardens for a great number of years. Even from seed collected far away from the influence of cultivation we often get curious forms of this *P. argyrophylla*, the colours in many cases as brilliant as those of our cultivated ones, though the flowers are invariably single and not so large or well formed. The only fault of these Cinquefoils for trim mixed borders is their apparently untidy habit, but if grown near the front and allowed to form groups in their own way, no more beautiful effect can be had during the summer and early autumn months. They should never be staked or tied in any way. It spoils the effect entirely, and no more distressing sight can be seen in a garden than bunches of these exquisite flowers treated in this manner. They require a strong rich soil and should always be allowed plenty of room to develop. They are excellent for beds either alone or in mixed colours, and are perhaps on the whole



A group of Cinquefoils (*Potentillas*).

stems about 18 inches in height. The bulk, it is hoped, will be in bloom about Easter, as then they will be in large demand for church decoration. In one pot is an undoubted curiosity; a bulb has broken into two stems—both fully robust—and whilst one has the normal green top, the other is singularly variegated. This is a genuine sport. All the bulbs are in wonderfully good condition. Whether or no it is possible to produce similar well-matured buds in this country has to be proved, but there seems to be no reason why they should not be produced. In any case a trial of the bulbs will be made in the sandy, but still deep soil of Ham, which suits *Narcissi* well, and may equally well suit *Liliums*. The plants are not sent to market—only the flowers. As the forcing heat to which the bulbs are subjected is of a moderate order—indeed, just what is given to the Peach trees—there is no undue exhaustion and the bulbs should not suffer, but turned out into the open ground, speedily recover, and be in fine form for repotting at least the

fifty years ago, and introduced by Messrs. Veitch through their collector, William Lobb, a few years after. It had, however, been lost to European gardens a long time previous to 1882, when it was re-introduced by M. André. The flowers usually make their appearance about February, during which month I saw some specimens beautifully in bloom, and often continue till summer is well advanced. It succeeds best with fairly liberal treatment, for if starved in any way a good many of the leaves quickly drop. Though usually known under the generic name of *Streptosolen*, it is by the latest authorities included with the *Browallias*. —T.

SHORT NOTE.—STOVE AND GREENHOUSE.

Toxicophlœa spectabilis.—This was introduced to commerce by the late Mr. B. S. Williams. It is a compact plant with opposite leaves; the flowers are tubular, produced in a large terminal corymb and

better treated in this way. They might also be planted with good results in the wilder parts where they would require little or no attention, and where they could form attractive masses without being hampered by other stronger growing plants. The double varieties, especially as cut flowers, are very showy and easily arranged, and possess the additional advantage of lasting a much longer time in perfection than the single sorts. The number of varieties of *P. argyrophylla*, now very great, is being added to annually chiefly from Continental sources, and all, or at least the best of them, may be had from any hardy plant nursery. They are propagated readily by division, seeds not being resorted to except in the hope of raising new varieties, a process requiring a little trouble and plenty of space. Our woodcut gives an idea of the form of the double

sorts, which now represent almost every type of colour and size. A few of the alpine forms are indispensable rock plants, such species as *P. alba*, *anibigua*, *tridentata*, and *nitida* being very beautiful when well done. K.

FLOWER GARDEN NOTES.

ALL propagating in connection with this department is now well advanced. Those things required for early planting or for special purposes as mentioned in previous notes are fairly on the move, and attention is steadily directed to the general stock. We have for the last few years gradually dispensed with *Pelargoniums* for general bedding as much as possible, only a few of the stronger sorts that are wanted for special purposes or to supply a particular colour being grown. The dwarf varieties are, however, useful for small formal beds, and varieties still grown for this purpose are *West Brighton Gem*, *Surprise*, *Golden Harry Hieover*, *Manglesi* and *Verona*. As cuttings of these are taken the old stock is headed back to the lowest breaks, and by this means short stocky plants are secured. I should like to add a good word for the fine and cut-leaved scented varieties. They are very acceptable through the summer for cutting, and a really pretty bed can be made with such sorts as *Lady Plymouth*, *quercifolium*, *tomentosum*, *Lady Scarborough*, *Fair Ellen*, the old Pheasant's-foot, with an occasional plant of *Eucalyptus citriodora* and a dark, free-flowering *Heliotrope*. If *Verbenas* are to be a special feature, it is always well to give the preference to sorts of sturdy, robust habit, and if there be a sort in any colour specially required that does not come up to the desired standard in these particulars, a seedling may be selected in the required colour that will do so, although it will, I think, be generally admitted that really good new varieties are not often met with. A great many packets of seed may be sown and nothing secured from the seedlings so good as sorts already in cultivation. To secure good plants, the cuttings may be pinched as soon as they are fairly on the move, and when well rooted they should be shaken out and transferred to shallow boxes. If a fairly good open compost is used, the plants pinched once or twice, and care taken with the hardening off, they will be capital stuff at planting-out time and will quickly cover the ground. *Ageratums*, both the tall and dwarf varieties, may be treated in a similar manner. In propagating all things that are likely to stand some time in box, pan, or pot, as, for instance, *Lobelias*, *Mesembryanthemums*, *Iresines*, &c., care should be taken to allow a fair space from the rim of the pot to the soil, say half an inch, to allow for a plentiful supply of water, and if there is any sign of deterioration of foliage before they can be turned out, weak liquid manure water every day will be found essential. This may seem a small affair, but in this, as in all other gardening matters, the old adage as to what is worth doing at all, &c., holds good, and nice bushy plants of every description are preferable at bedding-out time to a lot of weedy rubbish that will be a long time in covering the ground and give a proportionately short display.

Work indirectly connected with the flower garden performed this week has been the cutting back and top-dressing all the winter-flowering *Pelargoniums*, which having served their end for cutting during the dull months will now be grown on to furnish a grand display of bloom in any position in the flower garden or immediate neighbourhood of the mansion where they may be required. We mix up a bit of good loam and incorporate therein a small portion of a staying (as opposed to a purely forcing) artificial manure. This and liberal supplies of liquid manure during the hottest of the weather will keep these plants in good health and flower until autumn is well advanced. The varieties grown are *Swanley Gem*, *Clytie*, *Zelia*, *Colonel Seeley*, *W. H. Williams*, *Mme. Colson*, *Constance*, *Daphne*, and *Queen of Whites*, besides the indispensable *Raspail*, *Swanley Double White*, and *Beauty of Ramsgate*.

In the recent notes on *Starworts* touching annual or biennial lifting, I did not notice the writers made any distinction between varieties; this, how-

ever, is an important point if time and labour are a consideration, and no more of such work is advisable than is absolutely necessary, for whereas some, as *spectabilis*, will require attention in this matter, others, as *diffusus* or *pendulus*, seem all the better if left alone. We have clumps of this variety that have been in the same position six years; it throws up strong and well every season and keeps well at home. With a view to make sure of a late supply of these useful flowers, I shall plant some out with *Chrysanthemums*, so that they can be sheltered with these when the autumn frosts make their appearance. *Grandiflorus*, *turbineus*, *ericoides*, and the crimson *Novæ-Angliæ* will be the sorts tried.

With respect to the new plantation of outdoor *Chrysanthemums*, old stools of reliable sorts were saved, and after removing all breaks, except some four or five of the strongest, will be planted some time during the present month. *Maiden's Blush*, *Fleur de Marie*, *Hiver Fleuri*, *La Nympe*, *Bouquet Fait*, *Val d'Andorre*, *La Triomphante*, *L'Adorable*, *James Salter*, *Tokio*, *William Holmes*, and *Source d'Or* will be the varieties used. Other varieties may be equally good, but I can guarantee the above-named dozen as first-class for this special purpose. I am, fortunately, able to spare a small portion of an 8-foot wide south border for them this year, and this will mean a row along the wall and two rows on the border itself a yard apart each way. Some time during the summer I shall fasten a strip of deal 3 inches by 2 inches along the wall at a height of 7 feet from the ground, and insert Fir poles along the front of the border 6 feet high, making them secure with a top piece of deal. Other pieces of deal fastened back and front at intervals of 6 feet will complete the extempore roof and be strong enough to carry the dressed coverings that are used to protect from frost. It will be noticed that with one exception the sorts enumerated belong to the Japanese section. Some of the incurved varieties do equally well, but they are not in such request for cut bloom, and as a consequence are not included in the list. E. BURRELL.

Claremont.

Saxifraga Burseriana.—There are at least four marked varieties of this excellent winter-flowering species. Besides major, two or more gems raised by Mr. Boyd, his yellow kind is becoming pretty well known and appreciated; the most lovely of all, a white variety with very red stems and buds very much more so than in the type and with a less setose form of foliage, is not yet generally known. On looking again at my specimen, perhaps the leaves are not less prickly than those of other forms, but at a glance they have that effect from their incurved habit. This group is without doubt the most charming of the early blooming Saxifragas, and it is therefore all the more to be regretted that they do not succeed for long together in every garden. Indeed, under some modes of treatment they "go off" totally in a sudden manner and in patches very often. On one point of treatment I have become pretty well convinced, and that is, all the incurved and prickly species are the better for being grown in pure loam, that is, without either artificial mixtures or humus in any degree. Vegetable matter should remain on the surface, as in Nature, until quite pulverised. Anyone can prove this who cares to try it. In gritty soil or pure loam, and preferably with bits of natural limestone mixed, you may succeed, but if you sour the soil with decomposing vegetable refuse, the roots do not hold with sufficient tenacity, and besides these chemical and mechanical drawbacks there will be present the Saxifrage fungus trouble. These plants naturally root from the stems as they spread, and if they are bare about the young stems they may be so scorched in hot sunshine as to die piece by piece; hence some have thought the plants love shade, and doubtless they are better in shade if not provided for in this respect, but if you wash a gritty loam well into the collar of the plants, or, in other words, keep them deeply set, they will not only do better in sunshine, but make more progress.

This section of Saxifragas is known in its wild state to be sun-loving, and many of the species are to be found nearly covered up by sand and grit that have been washed over and into them; this natural mulch fortifies them for a summer's growth and sunshine.

J. Wood, Woodville, Kirkstall.

FLORA OF THE ITALIAN LAKES.

HAVING been about the lakes of Como and Lugano in the last days of February and the first of March, I send a few notes of what I noticed. The white Christmas Rose was abundantly in flower in copses and woods. In one place I noticed it growing freely and flowering well under the shadow of evergreen Firs. Possibly the sunny climate of Northern Italy allows more light to penetrate into dark spots than would be the case here, but it is evident that the Hellebore naturally likes shade. The flowers varied very much in form, and many were quite as good as varieties for which we pay our nurserymen 2s. 6d. a plant. In the woods the common Primrose was freely out, as well as the blue Hepatica. In one moist wood the banks were covered with the Spring Snowflake, which had a lovely effect. I fancied I saw a good deal of this flower growing in moist meadows in passing along by the train. On dry rocks and banks a Heath, which I took to be *Erica carnea*, was in full flower. In copses the Butcher's Broom, bearing its pretty berry, was abundant.

In the gardens the splendid hardy bulbous and other spring flora, that might be so readily enjoyed in such a climate, was almost completely absent, possibly because there are hardly any visitors, and because the native residents appear to have no gardens to speak of, leaving them to the owners of the handsome villas about, who are not there at this time of year. It is a curious experience to cross by the Gothard railway for the first time and to arrive through the deep snow of the high Alps at Lugano, twenty-eight hours from London, and to find there in the open, Palms, Oleanders, huge Magnolias, thickets of various Bamboos, groves of Camellias and shrubberies of *Azalea indica*. It is true that most of the plants will grow to a certain extent in the milder parts of England, but though they exist, our summers are not hot enough to develop them properly. The commonest Palm is *Chamærops excelsa*, of which there are large specimens, perhaps 15 feet or 20 feet high, in fruit. The smaller plants of this Palm, and most of the other sub-tropical plants are protected with rather funny-looking conical straw hats mounted on sticks. About Bellagio and Cadenabbia, *Chamærops humilis*, a Phoenix, *Jubal spectabilis*, and *Cycas revoluta* were observed in the open. Aloes, mostly the green forms, were common on the rocks and walls near the lake. The Bamboos also were more varied and taller than at Lugano. The Banksian Rose grows in the utmost profusion, and is used to graft *Maréchal Niel* and other varieties upon. Roses appear to flower about May, but the China Roses, which are very common, are no doubt earlier. At Bellagio, *Cinerarias* were being bedded out as I left, but as a snowstorm came on shortly after, I do not know how they would fare. Oranges are mostly covered in the winter in unheated structures with wooden roofs and glass fronts, and as frosts and snow are not uncommon even as late as this, it would appear that a very little difference in our climate would enable us to grow many more plants than we can now manage. It struck me that what is lacking is dry summer-heat to make plants tough and strong, instead of soft and sappy. Probably *Chamærops excelsa* would thrive much better

here if the leaves were tied tightly together and a covering suspended over the top of the plant. Some plants that want no protection here, such as our common Aloes and Pampas Grass, are carefully tied up, and sometimes covered as well at the Italian lakes. This in a climate where (in the garden of the Grand Hotel, Bellagio) a large Orange tree is in full fruit with only the protection of a mat on the windy side. The Loquat is rather prominent in gardens, and ripens its fruit. In April and May the Italian lakes must be floral paradises. Tritomas seem little known on the lakes of Como and Lugano.

R.

NOTES ON HARDY PLANTS.

Tropæolum speciosum.—Why should this be so seriously injured at its roots by frost, when it is known to grow perennially and so vigorously in the colder parts of Scotland? Just so; these are facts that may seem contradictory, and unless the character and habit of the roots are understood, perhaps not so easy of comprehension. First of all set alongside the above fact another, and that is that a well-matured plant established in the open ground does not have its roots killed even to the extent that may be reached by frost. The form of roots is something like a bunch of whip-lashes with the thicker ends downwards; these are from a quarter of an inch to half an inch thick in the strongest parts, and they taper to thread-like strings at the herbaceous points which are close to the surface. The thick parts go down to a depth of 2 feet, and they, of course, are beyond the reach of frosts. Now the matured deep roots with their protected reserves of vigour are capable of sustaining the crowns even when the latter are frosted, and I believe do so. A younger plant that may not have developed its normal extent of roots, either as regards depth or strength, would not have such staying power. In common garden language, the plant is safe when established and it must have time, because the plant cannot be said to be safe or thoroughly established until there is a good spread and deep run of roots. You may not plant the roots very deeply at first; the best help you can afford to a new lot of young plants is to cover or mulch the surface thickly with stable litter for the first and second winters. After that my experience is that you can hardly kill the roots, which, however, have a preference for light, deep loam.

Aquilegia pyrenaica.—If this alpine gem is disappointing and untrue when raised from seed under cultivation, it is nevertheless a plant easily otherwise procurable, and always interesting even from seed. It is curious to see the certain and wide disparity of its progeny when got from seed in cultivation, even when grown where, as I have thought, no other Columbines in flower were near. That it comes true from seed in its habitat in the Pyrenees I know beyond doubt, and yet it there gives a sort of hint as to its inclination to variability, which, if in but slight degree, is sometimes shown over the whole plant. Size and hue of foliage, tints and size of flowers, strength and stature of stems, with other slight variations over all these parts are to be traced in the wild plants, and yet all may be clearly identified by a novice as of the same species. This is where the interesting part comes in when we contrast the behaviour of the plant in its wild home and in cultivated quarters. Doubtless the isolation from other species under the former conditions may be accountable for this, and though the species *A. vulgaris* occurs a little lower, the higher plant of course may sometimes escape the pollen of vulgaris by its (*pyrenaica*) lateness. Neither would foreign pollen perhaps be essential for the variable character, but I think he would be a bold man who would state that the greater degree of variability as seen resulting from garden seed is not due to the practically unpreventable pollenisation from other species. One more interesting fact I have noticed; some of the wild plants show a decided tendency to increase in a way very unusual with Columbines, namely, by a

spreading root, which can scarcely be called by the ordinary name of a root-stem, and yet from a strong limb of the root in the horizontal position I have seen sent up independent crowns at almost regular distances from and around the parent crown in a similar way as the perennial Lupine sometimes spreads in light land, only the offset plant is not so decided (as in that case) a root-stem, as it ends not with a crown, but an attenuated fibrous tap.

Goodyera repens.—The fact of one rarely meeting with this in a flourishing state otherwise than wild is very suggestive to those who study the culture and requirements of plants. Like many other native orchidaceous species, this has puzzled the most expert. It is hardly enough, we know, and the climate of many of our gardens could hardly alone be supposed to totally bar its chances in all cases where it has been tried. It is an interesting native plant, because, taken from its wild home, it evidently misses something or gets something that is fatal of which we have yet to learn. It may be that the atmosphere, not approximately pure (like that of its wild habitats), may choke or poison its delicate foliage. But we do not know this, and what I wish to point out, by instancing this humble native Orchid, is, that if we cannot succeed in growing some of the exotic alpine, we need not be more surprised if so much so as when dealing with a native plant. As a possibly useful hint, I may mention the fact that though the atmosphere here is very impure, I have succeeded in growing this plant vigorously in a cool greenhouse; whereas I never could make it thrive in the open air. Shade from strong sunshine and partially-decayed leaf-mould with very little in the way of sand or loam are, I believe, what it requires.

Saxifraga Burseriana major.—This is quite three weeks earlier in flowering than the type. It came into flower here in the middle of January in bad weather. I am not of the opinion that with those who examine closely this fine variety and compare it with the type, that the latter is in danger of being neglected, because if but mere varieties, the distinction is wider in regard merely to flowers than between many species of the same genus. The name major justly asserts superiority in the feature of size, and it may lead many to prefer it on that score alone; but if you closely observe the flowers, you will find them minus the charming ruddy stems of the typical plant. So pretty a feature is this in the old plant that one can almost feel pleased that the flowers are not quite so big, as in that case they might shut out this bit of rich colour. Besides, the type is much more vigorous and a better plant to keep going. The variety major is apt to die off in patches, and sometimes totally. Some people say it is because it wants lime; others have said that it cannot endure full sunshine. As a matter of fact it does better in some gardens without than with lime; in others in sun than in shade. I am just as ready to admit that those who have suggested shade and lime have proved those conditions helpful in their respective gardens. We have much to learn about the requirements of plants, but the most important thing of all is, that under varying local conditions hundreds of plants may be grown well. I have long believed that some of the Saxifrages, especially the very dwarf tufted and rosetted and prickly foliaged section to which this species belongs, and also such species as *aretioides*, *squarrosa*, *cæsia*, and *Tombeana* die of surfeit, from the soil being too dense, rich, and moist. I think so because I have so often proved these types to be longer-lived, if slower growing, when set in practically mere grit, and receiving no further supply of root medium than that which is either blown over them or washed into them by the rains from higher ground. These groups certainly are safer without humus about the roots.

Hyacinths.—Once again the question crops up as to whether the bulbs of the common Dutch Hyacinth are totally useless, or they are capable of serving a useful purpose in the spring garden. I am very glad to be able to adduce a strong case in the affirmative of the latter. I have growing

bulbs that must have been in their present position without disturbance in any way for at least eight years. They increase but moderately, but their flowers are very pleasing and useful. Something, of course, has to be said as to what a person should or should not expect. Certainly not the massive dumpy spikes like those produced by the bulbs specially fed up for a special form of culture, but, viewed as we look upon Scillas, Snowdrops, and similar things generally, they are really useful and effective flowers, thoroughly reliable for their hardiness and perennial appearance.

Lithospermum graminifolium.—I quite agree with the writer (p. 123) who makes some reference to what I said (p. 87), that it would be a very silly thing for anyone to divide this plant in the autumn and then complain that the divisions did not live; but I think I was careful to leave no room for anyone to imagine that the tests had not been fair ones on which I based my remarks when I said that I had grown the plant well many a summer. The one and only point of such remark being intended was to convey the idea that the plant was well grown and established before winter set in. But it is not a question of what one person may do or not do here and there, but of what is general, and many, I know, could bear me out in what I stated, that the plant is of more than doubtful hardiness. The writer gives evident well experienced directions as to the way to grow this plant, and though they are very special, I agree the great beauty of the plant is worthy of all the care. But when we are asked to make up a special 2 feet deep bed with extra drainage, to be formed of loam, white sand and stones, and when we are told to set the plant between stones erected perpendicularly, as on stilts, we may be grateful for the information, and may not think it too much trouble to act on it if it ends in success. But I fancy that I shall not be alone if I decline to believe a plant that may have required such artificial conditions a "quite hardy" one. Anyhow, those who may feel enamoured by the beauties of this plant have just the right season before them to plant it safely and establish it during summer. They may possibly see its flowers, and whether the plant lives or dies in the winter, they will have seen and enjoyed a floral gem. It might, under more ordinary conditions, live through a mild winter in some parts more favoured than here. But though I have grown it many years, it has never yet come through a winter with me, though, as I said before, I had picked for it favoured spots, which at least had (until winter) suited it, so as to have caused it to grow into fine tufts during the summer. My contention is, that to be a genuine hardy plant, it should live under ordinary conditions as to climate and soil, the latter being duly drained and of the character adapted for the respective species, as, say, peat for natural peat lovers, and so on. In this case the plant has died in scores of instances under the management and care of experts, and I do not, therefore, consider the plant "quite hardy."

J. Wood.

Woodville, Kirkstall.

Gentiana acaulis.—Where this Gentian succeeds few things are more delightful. One often sees this growing in gardens, but not always blooming satisfactorily. According to my experience, I cannot agree with "E. J.'s" remarks about this Gentian at page 184. When living in North Hants it grew well enough, but I could not induce it to bloom satisfactorily. At Didlington Hall, Norfolk, where the soil is of a sandy nature, but moist, the water being not far below the surface, I have seen large masses covered with flowers for many weeks together.—J. C. F.

Wild gardening at Abinger Hall.—Sir Thomas Farrer finds such pleasure in seeing all sorts of pleasing effects produced on Grass or beneath trees in his grounds at Abinger, that Snowdrops, Squills, Narcissi, Anemone apennina, and any similar suitable plants are found in considerable quantities in all directions. Beneath some trees there are very large clumps of Anemones breaking

up now in profusion, and soon they will be exceedingly beautiful. The Snowdrops are already blooming profusely, and Daffodils coming through in all directions indicate what beauty these will furnish a little later. In some spots, amidst what may be termed the wilder aspect of the grounds, considerable areas were two years since dug and cleared, then sown with varieties of Papaver, Sweet Williams, Foxgloves, &c., and last year the effect was singularly beautiful. The patches look rough enough now because no effort has been made to touch them up or destroy their natural aspects. Presently, however, when growth again commences, the roughness will be lost in the new vegetation. Should the breadths become at all choked with weeds or Couch, they will be cleared, re-manured and dug, then sown again. Hardy Heaths in good variety also do well here, some of the clumps being fully 3 feet in diameter.—A. D.

MICHAELMAS DAISIES.

A NOTE on these may sound unseasonable at present, but not, perhaps, on a special point which I would like to call attention to. I venture to say that no more interesting matter in connection with these is more to the front than their identity, and it is also well known that the vast variety at present cultivated gives a deal of trouble, and even difficulty, to both florists and botanists. In several instances it is hard to say to what species the hybrids have the nearest affinity, or even which are the types. The suggestion I have to make is, that the roots, in some case in connection with the root habit, but more strictly the character of the actual roots, and apart from the root-stems, might often help to guide especially those who are used to seeing the bare roots in a somewhat crude, but, I imagine, generally safe classification of types. And as this is perhaps the best and most general time for transplanting Michaelmas Daisies, the hint may now be a fitting and seasonable one for those who care to observe the distinct characters of the roots. I venture to think that even those who are not chiefly concerned as to the correct classification of these flowers would find the study of the roots both entertaining and instructive; and in many cases the root study alone might prove ample aid for those who merely sought or could be satisfied with a general classification. For instance, *Novi-Belgii*, which has perhaps as many varieties as all the other types combined, has one general root feature and underground stem habit. I do not suggest that the varieties in such a case could be even approximately distinguished by root feature, that is, from each other. But generally this species and its varieties may be pretty well known from other species after a little experience, even though they (such as *lanceolatus* and *dumosus*) have similar root features. There are differences which an expert can more easily see than describe. Instancing other types, and keeping in view *Novi-Belgii* for comparison or contrast, *spectabilis* runs away with spare fibre on comparatively fewer, but much longer root-stems. The three or four varieties of *Novæ-Angliæ* have a uniform and most distinct root habit from that of *Novi-Belgii*; the new crowns are compactly set around the old stems, and, in the case of dormant roots, densely surrounded and overtopped by a massive wig of stringy fibre, remarkable for its succulency and brittleness. The experienced cultivator could almost class these varieties to their type with his eyes shut. *Pyrenæus* at this season has another distinct form of root, though in many respects the roots resemble *Novæ-Angliæ*; the round buds nestling amongst the fibre and old wood are of almost pearl-like

whiteness, and the tendency of the root-stem is here very short; both the living and decaying parts of old roots are extremely brittle.

Punctatus and *acris* represent another distinct type of root. The new growths in these cases can hardly be called root-stems. They issue close and erect from the old growths, and the stringy roots radiate from about the base of the new growths in their own peculiar way. The individual roots or strings are fibreless, comparatively thick, very long, and going almost straight down; they are also of a very tough character. Versicolor, if it may be termed a species, of which I grow at least four or five varieties, is characterised throughout by a sort of root habit not easily described. Though the plant is naturally vigorous compared with *Novi-Belgii*, the increase is not so rapid, the offset root-stems are short and delicate, with a brittle connection, and the roots or fibre are also more sparse. The old wood of the root-stock is also very hard. These distinctions may seem somewhat narrow, but, viewing a root generally, the experienced eye can easily distinguish it from *Novi-Belgii*, perhaps the only type with which it could be confounded. *Amellus* is another distinct type, which in root as well as top is perhaps the easiest of all to identify. The plant has the arborescent habit, and if you severed the whole of the tops and examined the roots, they would be seen to be unlike all other Aster roots, and, if I may be allowed to make another comparison, would more nearly resemble the roots of the old Southernwood shrub. Of course, this feature exists throughout all its varieties, of which there are at least four, and I believe there are more forthcoming. Next we may glance at the peculiar root habit of *ericoides*. The sprouts somewhat resemble those of the *acris* group, but the roots are totally different, thinner, and more delicate, and in most gardens the increase of this species is anything but rapid. The *cordifolius* group has roots which for size are quite disproportionate to their big tops; the sprouts are closely compacted and erect. Practically there is no root-stem, and the attachment of the root-stocks is so slack, that when the clumps are lifted they almost fall asunder—at least in cases where they have been grown in light soil, so that it would not be the soil that could hold them together. The mouse-grey roots are very thin and almost silky. I imagine that I have observed the peculiar property of the roots of this group shrinking in the ground during the winter, and leaving themselves somewhat loose in the soil; if so, this contraction may account for the root-stocks coming asunder in their peculiar way. One more instance might be glanced at. Take the not very commonly grown species of *amygdaloides*. The roots of this plant have two distinct characters; there is a strong root (not a root-stem), round, thick, and almost yellow, whose fibre dies completely away in the winter, but it (the rosy root) remains, unlike most other Aster roots, not a mere string and not of a woody character, but a beautiful long liquorice-like root, only of even more uniform thickness. I do not grow any other Aster with a root to compare with this. It is precisely because these root features are sustained in the varieties of species that it becomes valuable as a guide in identifying the respective groups.

J. Wood

Pentstemons from seed.—Whilst it is an excellent plan to raise Pentstemons from seed sown in the autumn and to keep the plants in a frame or cool house all the winter, planting out in the spring for summer blooming, it is equally well to

sow seed in March under glass and get up a good batch of seedling plants to dibble out at the end of May for autumn blooming. During what may be classed as ordinary winters, the old plants will exist very well and break up in the spring strongly, producing remarkably fine spikes of bloom. In such cases the second year's bloom is always the finest. Such bloom, too, always gives the best seed crop, because the seed-pods require a long season to ripen, and therefore the earliest blooming plants always give the best results. It is when we have hard winters and the old plants are killed wholesale, that the value of an autumn-sown stock of young plants in the spring becomes evident. Failing these, then a sowing should be made at once to get a good supply to plant out in May. Any ordinarily good strain of *Pentstemon* will always give a very satisfactory result in seedling plants. It is one of the merits of *Pentstemons* that the seedlings invariably are as good as the parents and sometimes better; hence, it is hardly worth while to propagate by cuttings, except in the case of some exceptionally fine variety. However, young tops put in as cuttings in the autumn and permitted to remain in the pots all the winter, very easily develop into good blooming plants the following summer; therefore, in either way it is easy enough to secure a good stock of *Pentstemons*.—A. D.

FLOWER BEDS ON LAWNS.

A FLOWERLESS terrace, such as that alluded to by "H. A." in an article on the above named subject in THE GARDEN of February 27, marks the opposite extreme to that of a terrace disfigured by some geometric design. It is not surprising, therefore, that some prefer a smooth green turf, but in the majority of cases something more is desirable. Places vary so much and surroundings have to be considered, that it is impossible to say what is actually the best thing to do, and then, given a certain place, opinions will differ as to the best method of treating it. A garden, however, that is annually bedded out is best placed where it is not unduly prominent. The things that occupy such a garden wear one aspect, and their only charm is colour effect.

As a matter of fact, setting aside fancy, we need no tender plants at all. The less we use them and the more we turn our attention to things that are hardy, the better will our flower gardening be. If the terrace is necessary at all, I think it is better adorned in some simple way. I find Tea Roses in a terrace garden uninjured by 25° of frost, and although grown in association with Carnations and other plants, there is variety enough among good Tea Roses to justify using them alone.

They would never grow too high and they are lovely from the time the first buds break in spring till the last flowers are cut off by the boisterous winds of late autumn. The purple-leaved Filbert or Plum or coloured Maples such as "H. A." recommends for beds are not prettier in leaf-tint than such Tea Roses as Sunset, Mme. Charles, Perle de Lyon, or Etoile de Lyon when starting into growth, to say nothing of the hosts of flowers that follow later on. Such shrubs as those "H. A." has noted would be better upon the outskirts of the lawn, enlivening and breaking the usually all too formal margins of most plantations of shrubs. The guiding principle throughout should be intelligent selection. If we must have a low type of vegetation upon our terraces, then it can be supplied through the medium of things that are hardy. A terrace garden might be the most beautiful garden of alpine plants with flowers the whole year through, and this without making it a miniature of the Alps. When we have no terraces, but a simple lawn of gentle undulations, easily accessible in all its parts, it is then often advisable to let the green Grass be the foreground of the house. Upon the outskirts of such a lawn may be bold beds and borders of hardy plants of a more or less permanent character. Here, too, might be grouped those hardy plants of noble proportions. By using these we may entirely dispense with the tender subtropical things, that only reach the ornamental stage when summer is far advanced and are often

cut down by frost in the early autumn. Yuccas, Funkias, Rheums, Gunneras, Ferulas, Polygonums, Bocconias, Arundos, Gynieriums, and Bamboos are things that can be most effectively planted upon lawns. If we experience any difficulty at all, it is in finding room for the many fine hardy things, that is, provided we try to develop the most ornamental aspects. A. H.

NOTES OF THE WEEK.

Narcissi in the open air are beginning now in earnest. *N. maximus*, *N. pallidus præcox*, and now *N. minor* and *N. Bulboecodium* are almost in full bloom. It is best, however, to plant all the above-named in sheltered spots, as they are liable if exposed to be touched by the cold east winds so prevalent at this season.

Galanthus Elwesi.—We have been very much interested in Elwes' Giant Snowdrop lately in watching the size to which flowers grow after opening. The flowers, which when opening were not much larger than those of the common *G. nivalis*, have certainly more than doubled in size in a fortnight. This is unmistakable, and we believe it is confined to this species; at any rate, it is not so marked in any of the others.

Iris reticulata var. cyanea is much later in flowering this year than the other varieties of this species. It is, however, a gem worthy of a place in every garden, and is, perhaps, one of the easiest to manage. At any rate, we have no difficulty at all with *cyanea*, while the type almost baffles us. It differs from *I. reticulata* chiefly in having pale sky-blue instead of violet colouring and in being a little dwarfer.

Scilla bifolia in its many forms is a much rarer bulb in gardens than it ought to be. It is one of the few flowers that does not seem to mind the cutting east winds, they being as fresh and bright now as they were ten days ago. Christmas and Lenten Roses and even Daffodils and Crocuses have suffered considerably. The pink and rose forms, as well as the white one, are very fine, but the best is that called *taurica*, with larger and deeper blue flowers. All should be planted about the rockery in quantity.

Lithospermum prostratum.—In most works on gardening, *Lithospermum prostratum* and *L. fruticosum* are given as synonyms. This, however, is far from being the case. The fact of one being a small bush or shrub, and the other an evergreen with prostrate spreading branches ought surely to keep them from being confounded with each other. One of the finest of this genus in my opinion is *L. Gastoni*. The flowers, as large again as those of *L. prostratum*, are of a bright purple-blue. It is a herbaceous perennial, perfectly hardy, but rare, and is a native of the Western Pyrenees.—K.

The Siberian Squill from Mount Taurus is a very different plant from the old form so well known in the spring garden. It is much earlier, at any rate it has proved so after three years' cultivation, but the colour is paler and the flowers are fewer. In weak bulbs the stems are single-flowered, hence the name *uniflora* given to this form, but as the bulbs become stronger the number of flowers increases. We doubt, however, its ever having so many flowers as the old *Scilla sibirica*, and the pale tints will be against its becoming popular. Briefly, it is not to be compared with the form we already possess.—K.

Sweet Peas.—I notice Mr. Gumbleton in his notes on the Sweet Peas figured in your issue of the 12th inst. says that only Orange Prince is at present in commerce. Seeds, however, both of Mrs. Eckford and Dorothy Tennant can (or could a short time back) be procured direct from the raiser, Mr. H. Eckford, Wem, Salop. H. M. Stanley does not appear in his catalogue as yet. I never found any difficulty in getting Sweet Peas to travel well. If picked when the lowest flower only is open and packed rather tightly they will last days in water, even after a twenty-four hours' journey.—H. W. B. SCHOLFIELD, Warncombe, Tiverton.

Cerithe aspera.—In Dr. Deakin's "Flora of the Colosseum of Rome" I have a coloured plate of this species. It is there described as a very handsome plant with drooping flowers on rather long stems, and, if it is not flattered in the plate, I should think it was the most attractive of this

pleasing family. The tube of the flower is crimson half way, the rest and the mouth yellow. I have never but once known seed of it offered, and that was in a Continental catalogue. I sent for it, but the produce I could not distinguish from *C. major*. I suspect, therefore, it was not the true species. As the plant is not rare in South Europe, there ought to be no difficulty in obtaining good seed.—J. M.

Vanda Cathcarti.—Herewith I send you a small spike of the above. I find it succeeds admirably if planted in a basket with a mixture of Sphagnum Moss, potsherds, and some sharp silver sand. The position I afford it is about the centre of a span-roofed East India house, where it gets a fair amount of air and light, with an abundance of water at the roots in the growing season. It is subject to a small white scale, but I find that by sponging the leaves with soft soap and rain-water it can be easily got rid of. I think such a lovely Orchid ought to be in every collection. The flowers are very useful for cutting, as they last in good condition a long time.—HERBERT MAY, Markree Gardens, Collooney, Ireland.

The Crocuses have been suffering somewhat from the cold east winds so prevalent of late, but the birds have also been waging war against them, and in some parts the grounds are literally strewn with torn segments. Whatever may be the reason, the fact remains that orange yellows and yellows suffer most, while purples and whites are almost untouched. This has been proved over and over again in a bed of mixed Crocuses we have been watching. We do not doubt, however, that birds destroy purple and white varieties, but while yellows and oranges are in season they confine their attention almost exclusively to them. We do not know of any cure for this unless the often untidy sticks and cotton, and which deprive one of much of the pleasure a spring garden ought to give.

Management of plants in cold pits.—Undoubtedly more errors are made in the management of plants in cold pits in early spring than at any other season. It is not uncommon to see people who have preserved their plants during winter get them much injured during March. This often arises from a desire to make their plants start into growth, with a few fine days in February, by keeping the pits close or shutting them up with sun-heat in the afternoon, thereby exciting the plants and making them soft and tender. All frames, &c., containing hardy plants—*Calceolarias*, autumn Cauliflowers and things of this nature—should be kept as cold as possible. Some two years ago I had in a cold pit a fine batch of *Lilium Harris* which had made several inches of growth. Unfortunately, one of the young men pulled off the light on a cold day in March and injured the plants past recovery.—DORSET.

Masdevallia leontoglossa.—This handsome and curious *Masdevallia* belongs to the same section of the genus as *M. coriacea*. It is, however, superior as a garden plant to that species in every way. The leaves are about 6 inches long, and have the same leathery consistency that marks those of *M. coriacea*, but they differ in having a deep, dull purple tinge. The tube of the flower, which is formed by the united bases of the sepals, is cylindrical, the free portion of the sepals being triangular and measuring $1\frac{1}{2}$ inches in length. The two lower sepals, which are the largest, are pale yellowish-green spotted with black-purple warts; the upper one is also pale green with three purple lines running lengthwise. The petals are small and striped with purple on a white ground. The lip is tongue-shaped, a character to which the specific name refers. The species was first introduced to Europe by Wagener, who discovered it in Venezuela and sent it to Brussels about twenty-five years ago. We have noticed it in flower in several gardens near London during the last few weeks.

Montbretias.—I do not yet know how the *Montbretias* will come through this most unfavourable winter—they look sickly enough at present—for the young growths that push through the ground early are entirely withered up. How-

ever, I trust they are not permanently injured, and that the corms are safe and will throw up strongly later on. Should they be crippled, it will be a great loss, for they are such lovely and useful plants, both for borders (large strong clumps being very effective) and for cutting. For house decoration they are well adapted, their elegant spikes making pretty arrangements either alone or in combination with other flowers. They have also good lasting qualities when cut, so that, taken altogether, we can ill afford to lose them. The numerous varieties lately introduced are very fine and vast improvements on older sorts, but the price of many of these is as yet too high for many of us to adopt extensive planting. Their culture is easy. Given fairly good soil, they thrive apace, give little trouble, and bloom profusely. They ought to be grown in quantity in every herbaceous border.—J. R.

Monochaetum sericeum.—This plant belongs to the Melastomads, a family which supplies a large number of most beautiful indoor subjects both as regards foliage and bloom. *Monochaetum* is a genus found in central and tropical South America, and is but little known under cultivation. The species under notice, however, and especially the form known as *multiflorum*, is one of the most charming of warm greenhouse plants, flowering during winter and spring. It is a dwarf plant, not attaining a greater height than 6 inches, with oval acuminate leaves covered with short soft hairs. The flowers are 2 inches across and of a rich mauve, contrasting brightly with which are the yellow stamens in the centre. The species flowers with great freedom. Cuttings should be taken in spring and grown on in an intermediate temperature, keeping the plants near the glass. This species was first discovered by Schlim on the Eastern Cordillera of New Grenada. It was afterwards shown to be widely spread, occurring in Peru, Venezuela, and at the foot of the famous Roraima Mountain, in British Guiana.

Rhododendron grande.—Both as regards the beauty of its foliage and the size of its flower-heads, this is undoubtedly one of the finest of the Himalayan *Rhododendrons*. Its flowers are densely packed in a rounded truss 9 inches or more across; before opening, they have a beautiful tinge of rose, but afterwards become almost pure white, with the exception of a ring of purple spots at the base of the corolla. Each flower is bell-shaped, and measures from $1\frac{1}{2}$ inches to 2 inches across. The leaves are deep green above and silvery white beneath. In allusion to the last-named character, Sir J. Hooker named it *R. argenteum*; the above, however, is the correct and older name. It is described by this botanist as forming a tree 30 feet high, having been found by him towards the tops of the Sinchul and Tonglo Mountains. The higher parts of the former of these mountains are almost clothed with it, but on the Tonglo, after reaching an elevation of nearly 10,000 feet, it is suddenly displaced by *R. Falconeri*, a species which has proved hardy in many parts of England as far north even as Leicestershire. *R. grande* is, however, of more tender constitution, although it, too, may be grown outside in specially favoured localities in the south and west. It is now flowering in the temperate house at Kew.

Turnip Extra Early Milan.—At p. 241 I am taken to task for recommending the above variety. I may not have made my note at p. 218 sufficiently clear to Mr. Markham. I did not intend to convey that this Turnip was the best for keeping a long time; what my note was intended for was to point out its value as an early kind, and one that did not bolt so soon as some of the so-called early varieties. It comes to maturity earlier than Snowball, and, considering its quick growth, it remains good longer than that variety. For a Turnip to succeed it Snowball is excellent, but in our light soil it bolts so much in the spring that I grew Early Milan for a first crop. I am obliged to have early vegetables, and a few days is an advantage. I have never found it become bitter or dark or watery when cooked. I do not allow my early Turnips to remain on the ground a day after they

are full-sized; the bulbs are cleared, placed in a north border, and covered with the damp soil, the flavour being thus retained till the last is used. If the early Turnips remain on the ground and the weather is dry, they certainly deteriorate. I fail to see why the Royal Horticultural Society gave Early Milan a first class certificate if it is so inferior. For frame work it is invaluable, but of course for first sowing in the open it will differ on various soils.—S. H.

Notes from Ryde.—I should admit that *Galanthus Fosteri* is variable about the size of the flower, but when you get hold of a good specimen, it is very large and beautiful. As to its being called a late Snowdrop, in any sense of those words I am completely at sea. I sent to the professor from whom it takes its name a blossom at Christmas. Is that not early enough for anyone, unless he insists on calling it late in the year, and then we mean the same thing, though we express ourselves differently? But speaking of Snowdrops, I may perhaps just say that twenty-eight varieties of Mr. Allen's most beautiful seedlings have lately blossomed here. They are, alas! fast going over, but nothing could exceed the admiration they met with when they were at their best. I enclose two specimens which are still lingering on, but they will not compare with what I could have sent you a fortnight ago. *Muscari azureum robustum* is a very delightful and new bulb which I had last year from Herr Max Leichtlin. The azure-blue is most captivating. *Iris histrioides* has been over some time. *Iris reticulata*, *I. persica purpurea*, *I. caucasica*, *I. stylosa*, *Narcissus cyclamineus*, *N. minimus*, &c., are at their best just now.—H. E., Ryde.

Angræcum fastuosum.—This species promises to be one of the most charming of all the smaller *Angræcums*, and considering that it has amongst others such rivals as *A. citratum* and *A. modestum*, this is saying no little in its favour. Like several other beautiful Orchids recently obtained from Madagascar, it was discovered by M. Leon Humbolt. For its introduction to Britain we are indebted to Messrs. Sander. It was first brought over in 1881, but in such small quantity, that it was for some years scarcely known in cultivation. Sir Trevor Lawrence was the first to exhibit it in flower about eight years ago. Lately, however, it has been imported in larger quantities. The plant is about 3 inches high, of delightfully compact habit, and carries a few stout oval-oblong leaves about 3 inches in length. The racemes, three or four of which are produced every season, are stout and each bears three or four flowers. These are each $1\frac{1}{2}$ inches in diameter and pure white. The spur is greenish, very slender, and 3 inches long. In describing this *Angræcum*, Reichenbach remarked that it showed some variation in the shape of the lip. This character would appear also to exist in regard to the colour of the flowers, for whilst he gives it as ivory-white, a plant at Kew has them of snow-white purity. The beauty, fragrance, and free-flowering character of this plant should obtain for it a wide appreciation.—B.

Epidendrum bicornutum.—Perhaps no Orchid has proved more intractable under cultivation than this has; the consequence of which is that although one of the most beautiful of spring flowering species, it is rarely seen well in flower. There are a few plants in the Orchid house at Kew which are probably finer than have been seen in the neighbourhood of London for a long time. The average number of flowers on a spike is given by Messrs. Veitch in their "Manual" as three to five, but on the Kew plants they number into the teens. Individually the flower is $2\frac{1}{2}$ inches in diameter, the oval sepals and petals being pure white. The lip is smaller than the other parts of the flower, and is also white, but with a few crimson dots and a raised yellow crest; it is divided into three lobes, the centre one much the longest and sharply pointed. The stems are about 9 inches high, cylindrical, bearing a few very leathery leaves towards the top, whence also the long erect scape is produced. The species was first introduced from the island of Trinidad in 1835; it was afterwards found by Schomburgk in British Guiana. In the former

habitat it is described as growing on rocks so near the sea, that its foliage is frequently washed by the spray. The best method of growing this plant is to place it in the warmest and moistest position available—if possible, close above a water tank. Teak baskets may be used to grow it in, the compost consisting of pure peat fibre and Sphagnum; the greater part of the basket should, however, be filled with drainage.

Greyia Sutherlandi.—First raised by Mr. Moore at Glasnevin in 1859 from seeds sent from South Africa, this remarkable plant was not seen in bloom in this country until 1873, when a plant flowered at the Chelsea Botanic Garden. Its proper position in the vegetable kingdom has been a question of some uncertainty. Harvey, one of the greatest authorities on the South African flora, placed it along with the Saxifragæ; Hooker and Bentham have, however, removed it to Sapindaceæ. For several years it has flowered annually at Kew, and a plant in the Cactus house there may now be seen in bloom. Fully-developed specimens in their natural state attain almost the dimensions of small trees, distinguished by their light porous wood and grey bark. Cultivated plants, however, are better described as rather straggling shrubs. The leaves, which are 3 inches in diameter and confined to the ends of the branches, are in shape like those of a *Pelargonium*, but thicker and harder in texture. The flowers are borne in great numbers (one hundred or more) on a terminal raceme. There are five petals, each broad, oblong and of a shining crimson-scarlet. The native home of this plant is Natal, where it inhabits rocky, exposed mountain places, rising to an altitude of 6000 feet. To induce it to flower, it requires a thorough ripening off in autumn and scarcely any water in winter (when it is destitute of foliage). At Kew it receives no shade at any season and grows in a comparatively dry and cool atmosphere throughout the year.

FERNS.

CHOICE SHIELD FERNS.

(POLYSTICHUMS.)

The plants comprised in this genus are of a robust and hardy constitution. Many of them make handsome specimens when grown in small pots for table decoration, and also for decoration in the stove; others are useful for a cool fernery, whilst others thrive in the open-air rockwork. There are many bold-growing handsome plants amongst them. I do not know of a single species or variety that is at all delicate. Their fronds are firm and stand well when cut. In preparing the fronds for the vases, the cut should be made in a long slanting direction, as in this way they can absorb more water than if cut straight across. Ample drainage must be provided, for these Ferns take up a lot of water during the growing season, and even in winter they should not be dried off. They should be planted in about an equal mixture of peat, loam, and sharp sand.

P. AMPLISSIMUM is a bold, handsome stove species with fronds some 2 feet or 30 inches in length; the stems are all straw-coloured, and the finely-cut fronds are dark green.

P. AMABILE is a widely distributed and a beautiful plant, with large bipinnate fronds which are 1 foot or 18 inches high, and from 6 inches to 10 inches broad. This plant comes from various parts of India and the Indian Islands.

P. ACROSTICHOIDES is a beautiful species for the hardy fernery, producing fronds from 1 foot to 2 feet or more in length.

P. ATRICULATUM is a somewhat similar plant, having a scaly rachis and very long pinnae, which are eared at the base and toothed on the edges.

P. CAPENSE is a widely spread plant. This is a bold, handsome grower with fronds from 2 feet to 6 feet or more long, beautifully arched, and deep

green in colour. The creeping rhizome is large and densely scaly; it makes a splendid specimen in the stove or temperate fernery.

P. CONCAVUM is a native of Japan, and forms one of the handsomest specimens in the open-air rockwork. It used to be grown in our gardens under the name of *Lastrea Standishi*, the present name having been given it by the late Mr. Moore, of Chelsea.

P. CORIFOLIUM is a very handsome and beautiful plant, having an erect caudex and fine leafy fronds, which maintain their beauty for a very long time.

P. DENTICULATUM is one of the handsomest of the genus. It comes from Jamaica, and therefore requires stove heat.

P. FLEXUM is a somewhat smaller growing plant than *P. capense*, and its fronds are more finely cut; the rachis and underside are clothed with down; the colour is deep green; it thrives well in the cool house, and comes from Juan Fernandez.

P. FALCINELLUM is a pretty pinnate species which thrives in the cool fernery, as it comes from the island of Madeira. The fronds are each about 18 inches in length. It forms a beautiful object in the cool fernery.

P. MUCRONATUM is a beautiful species not much seen in cultivation; its fronds extend from 1 foot to upwards of 2 feet in length.

P. LEPIDOCAULON has always been rare in cultivation; it comes from Japan, and was, I think, sent home in the first place by Mr. Hoey in 1862. It makes an excellent plant for a Fern case; the fronds grow to some 18 inches in length. The frond roots from the point, so that soon quite a colony springs up.

P. RHIZOPHYLLUM makes fronds some 6 inches long. It comes from Jamaica and Cuba, and requires a stove temperature.

P. TRIANGULARE is a handsome Fern which I introduced to cultivation nearly forty years ago. It is a lovely variety for a Wardian case, making erect pinnate fronds each 1 foot or 15 inches long. The variety *laxum* has the pinnae divided.

P. VENUSTUM, from New Zealand, is a singularly beautiful plant, having fronds upwards of 18 inches long and about 4 inches broad. This plant thrives well in a cool house.

WM. HUGH GOWER.

Hemidictyum marginatum (J. Howe, Leeds).

—This, as I understand the genus, is the only species. It is a distinct and handsome Fern. Your plant is no doubt suffering from rather too low a temperature, but as the days lengthen and get warmer it will improve. It should now be repotted, and the roots not damaged more than is absolutely necessary, using for soil the greater part loam mixed with a little peat and sharp sand. It requires an abundant supply of water during the summer; therefore the pots should be well drained.

—W. H. G.

Odontosoria aculeata (Filices).—I well remember the plant which "Filices" speaks of being shown at Liverpool. Those were the days when Ferns received as much attention as do the best Orchid collections now-a-days. At the Liverpool Botanic Gardens, too, there was a large plant of *O. aculeata* which Mr. Tyerman, the curator, had trained up the glass, its fronds being used as a shade for smaller plants. The species is not lost, however, since I observe it in the catalogue of the Messrs. Birkenhead, of Sale; also in Messrs. Williams' and Veitch's lists. It is a native of the West Indian Islands. Another similar plant called *Davallia* (*Odontosoria*) *fumarioides*, with the same prickly stems and with the segments of the fronds more finely divided, has never, I believe, been introduced to cultivation, but surely it would be a great acquisition. There are several of these *Odontosorias* which deserve the attention of Fern lovers.—W. H. G.

SHORT NOTE.—FERNS.

Didymochlæna lunulata (C. M.).—This Fern loves the shade, and it also likes an abundant

supply of water. The pinules are set in a little socket, and if the plant becomes dry they will fall away, leaving bare stems. It should be potted in peat and fibrous loam made sandy, and the pots must be well drained.—W. H. G.

SOCIETIES AND EXHIBITIONS.

NATIONAL CHRYSANTHEMUM SOCIETY.

ANNUAL MEETING.

THE annual meeting of this society, which was largely attended, was held at Anderton's Hotel on Tuesday last, Mr. R. Ballantine occupying the chair. After the secretary had read the minutes of the previous annual meeting, the report for the past year was submitted and contained the following principal items of interest: The membership for the year numbered 656, and the affiliated societies (inclusive of colonial ones) 87. The society had good ground for congratulating itself on the work of the year 1891, for the excellence of the exhibitions had been fully maintained; there had been no sign of a decrease of public interest in the Chrysanthemum, as had been predicted during the centenary year, when it will be remembered a special effort was made by the society. The competition for the society's challenge trophy had once more proved to be a spirited one, and in the present year the committee proposed to hold an October show in lieu of the one held last season in December, which was merely an experiment. The conference on sports, held at the society's November exhibition, had proved of considerable interest, and the papers read on that occasion by the Rev. Mr. Henslow and Mr. Norman Davis will be printed *in extenso* in the society's new schedule for the current year. It is thought that this addition will materially increase the interest of the schedule in the eyes of members and others into whose hands it may come. On the question of an increase in the size of show-boards for Japanese blooms, the committee have resolved to have a gathering of growers and others interested to consider the advisability of a change, if any. This will be held in November next during the time of the show.

The financial statement was then submitted, showing a total revenue from all sources of £845 15s. 5d., with a present balance of about £8 in the bank. Some changes were made in the executive, Mr. Leopold de Rothschild being elected the president in place of Lord Brooke. The following addition to the list of vice-presidents was also made: Sir J. Llewellyn, Mr. Martin R. Smith, Mr. S. Barlow and Mr. H. R. Williams—the treasurer, chairman, vice-chairman, secretary and foreign corresponding secretary being all re-elected.

In accordance with the rule, one-third of the general committee retire annually, but are eligible for re-election. The number of new candidates was unusually large, and the competition for places on this committee is yearly becoming more severe. The gentlemen who were successful on this occasion were Messrs. W. H. Fowler, Brooks, Arthur Veitch, Rowbotham, Turke, G. S. Adison, T. Bevan, J. P. Kendall, Langdon, R. Owen, H. Shoesmith and A. Taylor. An alteration in the rules was made to the effect that a general meeting of the society should be held in the month of November during the time of the show to give country members and others an opportunity of giving expression to any views they might have concerning the government of the society and other matters.

It was announced that the trustees of the Holmes Memorial Fund had voted 10 guineas towards the two cups offered through the instrumentality of Mr. N. Davis and partly defrayed by private subscription. They are to be called the National Chrysanthemum Society's William Holmes Memorial challenge cups, one of which is to be offered in the class for thirty-six incurred blooms, with a money prize of £10, as the first prize, £7 in cash for the second prize, and £5 for the third. The other cup will go with similar money prizes to

the class for forty-eight cut blooms of Japanese Chrysanthemums.

New members were elected, and the Cirencester and Cumberland Chrysanthemum Societies received in affiliation.

Mr. Harman Payne read an interesting letter from a New Zealand grower who had raised some seedlings which had been pronounced very distinct by specialists in that colony. The grower was desirous of submitting these flowers to the N.C.S., and offered to have them frozen in a block of ice at the meat-freezing company in Wellington, and then shipped in that condition to England. The experiment is an extremely novel one, and Mr. Payne was instructed to reply to the application that a special meeting would be called to consider the flowers immediately on their arrival here.

It was stated by the chairman that the Holmes Memorial Fund was now closed and the balance invested in trustees' names in the bank.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

THE annual meeting was held on March 14 at the Caledonian Hotel, Robert Street, Adelphi Terrace, Strand, W.C., Mr. Robert Cannell in the chair. There was a large number of members present, including Mr. Arthur Veitch and Mr. G. J. Ingram (Gardeners' Royal Benevolent Institution). The benefit members mustered in stronger force than at any previous annual meeting, and a keen interest was evinced by them in the business of the evening. The report of the committee, as presented to the meeting, is without doubt the most satisfactory one yet issued, showing a substantial increase in all the branches of the society. There is an increase of 73 benefit members for the year, with 3 honorary, making respectively 413 of the former and 50 of the latter. The amount paid in sickness during the same period has been heavier than in any previous year, exceeding that of 1890 by £55 3s. 4d., the gross amount being £119 10s. 6d. The grants to widows of deceased members and to a member who had met with an accident whilst faithfully discharging his duties where he was head gardener, being compelled by his employer to relinquish his situation in consequence thereof, amounted to £30, this sum coming from the Benevolent Fund. The society regrets having lost during the past year three of its members by death. The amounts standing to their credit in the ledger (£65 19s. 9d.) have been paid to their nominees. The largest sum paid in one case was within a few shillings of £40, thus bringing out very prominently one of the most favourable aspects of this society as compared with all other benefit societies. The amount now in hand towards the convalescent fund is £41 11s.; this fund is purely voluntary, but its benefits are for all. With the continued and marked increase of the past year, it is satisfactory to note that the advance in the expenses of management is only £4 0s. 5½d., this amount even including some exceptional charges.

The society also mourns the loss of three honorary members by death, one of whom, Mr. G. Cavendish, was to have presided at the annual dinner in October last, another being Mr. R. Cutler, who took the chair at the dinner in October, 1890; the third being Mr. C. M. Major, of Croydon—all of whom took a lively interest in its welfare. The last annual dinner was presided over with conspicuous success by Mr. Harry J. Veitch, who most generously came forward at the last moment in the unavoidable absence of Mr. Geo. A. Dickson, J.P., of Chester. The trustees have in the interest of the society very judiciously transferred the amount of money invested in 2½ per cent. consols to 3 per cent. Manchester Corporation Stock, to which has also been added £700, the amount of money that the treasurer has invested during the year. The moneys now invested are as follows, viz., Nottingham Corporation 3 per cent. stock, £5500, and Manchester Corporation 3 per cent. stock, £1200, making a total of £6700, being an increase of £700 upon the year's working. The society gave a most

cordial welcome and were glad to see at this meeting three of its oldest members, viz., Mr. Nathan Cole, Mr. Joseph Wheeler and Mr. James George. These gentlemen took an active interest in the formation of the society more than a quarter of a century back, being likewise those three who signed the rules as certified by John Tidd Pratt, the then well-known registrar of friendly societies in England on August 3, 1866. These members continue upon the executive of the society, and evince the liveliest interest in its welfare. Neither of them has during that time drawn upon the funds to which he would be entitled in sickness. Although there was a heavy draw upon the sick fund during the epidemic of influenza recently experienced, the committee are pleased to be able to record that no death has arisen that is directly or indirectly attributable to that malady. This, considering the many fatal cases, is a source of thankfulness, and speaks well for the healthy avocation of the gardener as compared with the majority of professions.

The election of the committee is done by show of hands. The four retiring members were re-elected, two other vacancies also being filled up. The secretary was re-elected for the current year and thanked for his services. Votes of thanks were also passed to the trustees, the auditors (Messrs. Dixon and Cuere), the committee, the treasurer, and to the press for their invaluable assistance so willingly accorded at all times. The marked advance in this society is being appreciably felt by the further increase in its benefit members, several joining at each successive monthly meeting. Considering the advantages offered are so exceptionally favourable to the gardener, the society being, as certified by a professional actuary in 1890 after a close scrutiny of the entire affairs, upon a sounder basis than the well-known societies who admit to their membership persons from varied professions, it is remarkable that gardeners do not embrace its offers to an even larger degree. The United has now gained the confidence of those whom it was formed to benefit. Let others, therefore, who have not joined do so without delay.

Royal Horticultural Society.—The next meeting of the Royal Horticultural Society in the Drill Hall, James Street, Victoria Street, Westminster, will be on Tuesday, March 22. Besides the floral, fruit, and Orchid committees, the Narcissus committee will also meet for the first time this year for the purpose of adjudicating on Narcissi and Daffodils, of which there will in all probability be a fine display, in addition to other spring bulbs. At 3 o'clock Mr. C. Ross will deliver a paper on the "Cultivation of Melons."

Wanted, a climbing plant.—Will any reader of THE GARDEN inform me if there is a wall climber growing and clinging in the manner of Ampelopsis Veitchi, but evergreen and not an Ivy?—ELMCOTE.

Bullfinches and buds.—I shot last week a male bullfinch. Noticing him exceedingly busy, my curiosity was awakened as to the extent of damage one bird of this family may commit in a short time. The one in question was opened, and in his crop were found seventy complete buds. This, I think, proves that bullfinches are about the worst enemy that Damsons, Plums, Medlars, Siberian Crab, not forgetting the double and single Hawthorns, and Almonds can have.—E. M.

Apple Lane's Prince Albert.—I quite agree with all that "I." (p. 209) says in favour of this Apple. Even on quite young trees planted early in November, 1890, there was a full crop of fruit last year. This swelled to a good size and kept fresh and plump until a short time since. In spite of their cropping so freely these trees are literally smothered with flower-buds again. So highly is this Apple regarded, that I planted 100 maiden trees of it this last November, hoping in time to thoroughly test it in every way against many other good kinds in a strong retentive soil.—P.

Names of plants.—*Vulcan*.—*Calanthe Regnierii*.—*T. C. S.*—1, *Begonia*; send better specimen; 2, *Cypripedium barbatum*; 3, *Cymbidium Lowianum*.

WOODS AND FORESTS.

FOREST LANDS AROUND LONDON.

THE wooded aspect of the counties adjacent to London has undergone a vast change during the last half century or less. Formerly a great portion of Kent and the neighbouring counties was covered with vast forests of Oak, but the erection of dwelling-houses, the cultivation of Hops, Strawberries, and other fruit, as also market produce generally, have had a most baneful effect in robbing the country of its vast primeval forests. True enough, here and there patches of these giant Oaks may still be found, but the never-ceasing onslaught to make room for dwelling and other houses is slowly, but surely changing the general aspect of the country and lessening day by day the forest giants for which Southern England was once so remarkable. As it is now, a plot of ground, say from an acre to perhaps five acres in extent, and probably, as the case may be, not one-tenth either of these extents, is purchased at the tempting bait of from £800 to fully £1000 per acre for building purposes. When a large extent of ground can be procured, a few of the best trees may be left alone, but not so with that of the ordinary city men who only want perhaps 100 square yards of building land, and whose care for these native trees is small indeed.

In nine out of every ten cases the trees, big and small, are grubbed out by the roots previous to building being set about, and when this latter is completed a few inferior shrubs take the place of the patriarchs of old, and so the fine Oaks and Beeches that were once the pride of our land are consigned to oblivion. This is no overdrawn picture of how the Kentish forests are being one by one destroyed, and nearly every week cases of this kind come under my own notice.

Rebukes are hurled right and left at our wealthy landed proprietors, who dare to buy in and so save from destruction some of the finest spots around the great metropolis. Acres and acres of forest land have been grubbed over and planted with copse wood mainly for the supply of hop poles in Kent and a few of the neighbouring counties, while for Strawberry culture the extent has not been much less. Less than fifty years ago £20 per acre was no uncommon price for coppice wood, but those were the days when Hop growers made rapid fortunes, and when they had not to contend with blight and other evils that have so infested the crop of late years. Now-a-days coppice wood, at the modest price of £5 per acre is not good enough, and the coppice woods in their turn are being grubbed up, with the Hops as well, and the ground replanted with Raspberries, Strawberries, or perhaps vegetables for the feeding of London.

It is a matter for which Londoners cannot be too thankful that certain noble lords have timely stepped in and saved from threatened destruction some of our finest and most-prized of Kentish forests and open lands by buying these up as they became vacant. Did they not, the thousands of business-men, whose days are spent in town and who wisely buy a small plot of ground and house in the suburbs where they may enjoy their after-business hours, would not leave an unoccupied spot in a very short time.

Everyone may not know that within twelve miles of London Bridge there are spots as full of Nature's beauty as any in the far-famed Lake district or amongst the wild Welsh or Scottish mountains, and where one may enjoy

himself without a thought of the noise and turmoil he has left behind.

Primroses and wild Lily of the Valley, with heathy downs and gorsy banks, have not yet all passed away; while the gaudy kingfisher and purple heron are still to be found in all their native grandeur in our lakes and streams. Such, I feel sure, would not be the case if some far-seeing men had not stepped in and saved the native haunts of these from complete destruction. To one with a love for the field and the woodland, it is oftentimes hard to look on and see a pretty valley stripped of its giant trees and natural vegetation, its streams diverted and utilised, and its whole appearance changed almost in the twinkling of an eye.

Times, it may truly be said, have changed much in and around London, and the changes are not by any means at a cessation point now, for every day sees some woodland of old giving place to bricks and mortar. A. D. W.

PLANTING AROUND LAKES.

MASSING is the most suitable kind of planting in the vicinity of water, rigid, weeping and feathery trees and shrubs being especially desirable. The planting must be so disposed that a too large expanse of water is nowhere seen. Islands should be sufficiently near the margin to join their shadows with those of the plants on the banks. Many very beautiful pictures may thus be formed. Another advantage of proper planting is to give the appearance of unlimited extent, the water losing itself, as it were, in the distance. In the more secluded portions of the lake, shrubs may be densely planted in the foreground and be backed up by large deciduous trees. Here and there noble trees should be planted singly somewhat away from the margin, with broad sweeps of Grass sloping gently towards the edge of the lake. Aquatic plants also will add beauty to the scene if planted in the right positions, that is, in the shallow waters at the margins of inlets. Ferns and alpenines may be planted on rock-work or rootwork formed on islands, or the projecting portions of the margin; clumps of Yuccas, Pampas Grass, and similar subjects may occupy sheltered positions formed by the hollowing out of plantations. No large growing trees should be planted on or near the bank head, as in all probability during boisterous weather they would disturb the foundations and cause leakage. All planting at the back of the bank should be at a safe distance from its base. The reflections of the sky on the water being of great importance, care should be taken that the sky-line may in some parts be perfectly free. This should especially be the case where the line of sight is not obstructed by distant objects; overflows, formal structures, and all objectionable features should be carefully hidden in the course of arranging the planting. Deciduous trees have a pleasing effect near water, owing to the well-defined shadows which they produce. In many cases where it may be desirable to construct rustic bridges, summer-houses, &c., they should be freely draped with Clematises, Virginian Creepers, Ivy, and plants of similar character. A wild garden or wilderness is a most desirable adjunct to lakes where the space is unlimited, and here may be planted all the taller varieties of herbaceous plants, Lilies being especially effective in such positions. The ground in the vicinity of lakes should be comparatively dry and accessible in all weathers. Paths of a circuitous character, losing themselves behind plantations, and again appearing in full view of broad expanses of water, ornamental nooks, &c., sometimes passing below the level of the water, at others rising over prominences considerably above it, should be formed round the margins. If this is judiciously carried out, extremely effective views will be the result. These elevations and hollows will afford positions for seats, rests, &c. No trees or shrubs should intervene between the mansion and the lake, except such as can be effectively combined with the planting. The water supply may be made ornamental

by a series of falls over rockwork. These, if skillfully constructed, are a feature in themselves, especially when seen from elevated positions or through glades. Different sites will undoubtedly require varied treatment, but many of the above suggestions may be made available in the majority of cases.

The Lime tree occasionally suffers much from the ravages of insects, of which a species of Coccus is one of the worst; it often covers the branches in thousands, and destroys the finest and strongest trees. A species of hawk moth may also be observed early in the summer mornings, or late in the evenings, flitting about Lime trees, and thrusting its proboscis into the flowers; it lays its eggs in July upon the upper leaves, the young caterpillars appearing in fourteen days afterwards, and feeding upon the leaves during summer and winter. It passes the winter in a hole in the earth and appears in the following May as a perfect moth.—M.

Lombardy Poplars are often employed extensively in small gardens, owing to their occupying but little space in comparison with other trees, but when they become 8 feet or 10 feet high, they are apt to become bare at the bottom and leafy at the top. Where this is the case, it becomes necessary to reduce the height of each intermediate tree to about 6 feet, giving each cut specimen a good surface dressing at the same time. The pollarded trees soon become furnished below, while the unpollarded ones fill up above. After the specimens that were cut down begin to grow freely, those uncut may be treated in the same way.

Sowing Conifer seed.—Seed of the Scotch Fir and other Conifers may now be sown on well-prepared soil in beds 4 feet or 5 feet wide in open quarters. The more tender kinds, of which one only has small portions of seed, I have always sown on nicely prepared borders in sheltered situations. Very small portions of seed of such are considered difficult to raise I always sow in boxes or in pans, and place them in a cold frame. Very rare varieties I always sow in pots. Common and abundant kinds I sow in beds, covering the seed, according to its size, from half an inch to 1 inch in depth with open sandy soil. The seed in pots, pans, and boxes I cover with charcoal-dust intermixed with the soil, using it also on the border and beds.—J. B.

The Redwood (*Sequoia sempervirens*), as the name indicates, is of a dark reddish colour. It is soft, coarse grained, and very brittle. The grain usually runs very straight, and the wood splits readily, it being no difficult matter to split up a board 1 inch thick, 8 inches to 10 inches wide, and 10 feet to 15 feet long. When dry it is much lighter than Pine, but of the logs cut from a newly fallen tree the butt log, thrown into water, will often go to the bottom like a stone, while the top logs will float like cork. The bark is very thick, soft, and fibrous in character, and contains no resin or pitch; hence fires that frequently run through the underbush of Redwood forests have no effect on the standing timber.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols. price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

Nr. 1C62. SATURDAY, March 26, 1892. Vol. XLI.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ORCHARD AND FRUIT GARDEN.

CANKER IN MELONS.

BEFORE entering upon the causes which lead up to canker and gangrene, it will be as well to define what they are, as I am of opinion that they are quite different, although they may be brought about by the same causes. Canker is a corky-looking substance which surrounds the stem just where it is in contact with the soil beneath the seed leaves or, properly speaking, the cotyledon. Gangrene appears higher up the vine, and may occur at any part of the plant. This is more slimy in appearance and also touch. Pieces of the plant will suddenly collapse in some mysterious manner. Some varieties, on account of their weak constitution, appear to be more susceptible to these diseases than others. Over-rich and loose soil, also keeping the structures too hot and close, tend to the evil. Sometimes the structures themselves are not of the best description, being very low, deep and dark, and also often badly heated. I am of the opinion that Melons may be kept too hot, close and moist in the most exposed and best regulated structures, and this being the case, it is plainly evident that in those not so favourably situated these conditions may easily be carried to excess. In fact, the lower and less exposed to direct light the structures are the less need there is to keep them hot, close, and over-moist. Treatment which might produce good Cucumbers would not answer for Melons, although good Cucumbers might be produced in the same structure as the Melons if treated similarly to the latter.

As regards the necessity or otherwise of syringing Melons, I hold opinions vastly different to the majority of writers on Melon culture. Rarely do I ever read an article on their culture in which the writers do not recommend that the foliage be well syringed at least once a day and very often twice, *i.e.*, morning and evening. The reason generally given is to keep down red spider and also to encourage the fruit to swell more readily. In taking our guide for the cultivation of fruits under glass, we take lessons from Nature, or as near as possible consistent with safety, on account of the changed circumstances. This being so, it will be found that in those countries where the Melon may be cultivated in the open air, very little water falls naturally over the foliage, moisture at the roots being regulated by irrigation, but bright sun there is in abundance. I hold that the syringing as now practised is an evil, and this is more apparent in those Melons grown in structures not well adapted for the purpose. In such as these it tends to the production of canker and gangrene and also loss of foliage, although, perhaps, to a less degree in those erections which are well exposed and also fitted with the latest additions in heating and ventilation. If Melons were given more air and less water over the foliage (it must not be surmised that I lessen the importance of damping down), less would be heard of canker and gangrene and also loss of foliage before the fruit is fully ripe.

Another source of canker is too deep planting. Melons are totally unlike Cucumbers in this

respect, for whereas the latter may be planted up to the seed leaves with the certainty of roots being emitted up the stem, the same treatment will not do for Melons. I daresay it would be seen that where canker attacks the Melon stems at the surface or immediately under the soil, in nine cases out of ten the stems are planted too deeply. How often is the advice given to plant on a mound and so forth, and to keep the water away from the stems. My practice is to sow one seed in a 3-inch pot, filling this latter up to the surface, inserting the seed about half an inch. Half-filling the pot when sowing the seed, afterwards filling up with soil as the stem appears above the rim of the pot, is also an evil, this being akin to deep planting. When ready for planting, the ball should be placed just beneath the surface, the top roots being barely covered. It will therefore be seen that by elevating the stem in this manner there is no part of it under the soil; therefore, there is no fear of canker at that point, whether water touches the stems or not. Canker in Melons with some people is so prevalent, that they are afraid to apply water; consequently what with the fear of canker on one hand and starvation on the other, the Melons have a poor time of it.

Over-rich soil certainly conduces to gangrene, more so when aggravated by an over-moist atmosphere with insufficient air. It is a mistake to mix animal manure with the soil, and also to over-feed. Where it can be procured, the best soil for the purpose is a strong calcareous loam. If the soil is not calcareous, then this should be rectified by the addition of some lime rubble broken up finely. What feeding is necessary should take place after the fruit is swelling—a little fine bone-meal sprinkled over the surface very quickly causing thousands of feeders to appear at the surface, when diluted liquid manure may be applied. If the causes which are likely to conduce to canker and gangrene are avoided, there will be little fear of their appearing. As antidotes for canker or gangrene when it should appear, the atmospheric moisture should be lessened, especially if syringing over the foliage has been indulged in; this, coupled with careful ventilation with a nice artificial warmth in the pipes, will have a visible effect, especially for gangrene. The affected parts should be rubbed until they are dry with lime and charcoal, the latter powdered up finely. Powdered alum is also highly recommended, as also sulphur. In watering, the water should also be kept clear of the stems, but where high planting is carried out, such as I have described, canker at the surface will not be troublesome.

Melons to be of good flavour should carry healthy foliage to the last; but how often is this otherwise, for instead of ripening up on the plant, this is brought about prematurely through the plants collapsing before their time. Certainly these prematurely ripened fruits generally change colour, but the flavour is poor and insipid in the extreme. Y. A. H.

Alexander Peach dropping its buds.—At p. 228 Mr. Crump inquires if anyone else has experienced the same difficulty of bud-dropping with this Peach. I am sorry to say I have, but my trees, as in his case, always set some small latent flower-buds. The trees referred to are near the door and fully exposed in the autumn. I tried lifting, also abundance of moisture at the roots in the autumn, and in some years the buds drop worse than in others. Two years ago the buds dropped badly; last season they stood better. Some may think that it is owing to a high temperature at night. Such is not the case. It is not only in the early house that the buds drop in this way; in a later house

the evil is worse, as upon examining a tree that was lifted last autumn, I have not got a dozen fruits. The tree was in a vigorous condition and was lifted early. Other trees lifted in the same house have set heavy crops. The trees never bearing a heavy crop like some free-setting kinds usually make a lot of strong growth, and require more stopping and disbudding. Perhaps this may account for the bud-dropping.—G. WYTHES.

Unpruned Gooseberry trees.—I am not surprised that Mr. Crump (p. 250) should express himself as being sceptical about the superiority of non-pruned *v.* pruned Gooseberry trees. Indeed, I am surprised that what I wrote has not met with more adverse remarks. I could hardly be convinced until I had seen the trees. Should Mr. Crump be in this neighbourhood at any time, I shall be pleased to show him the trees. We, as gardeners, have too many stereotyped notions, I am afraid. Trees when once thoroughly established do not make that amount of young growth which many imagine they would, especially when they do not receive heavy dressings of rotted manure. The object is to stimulate the trees to perfect their crop of fruit. When varieties of upright growth are selected, the danger of extreme overcrowding is more fancied than real. Take the variety Golden Drop, for instance. This is grown by the thousand, and is highly spoken of by market men. It is surprising what a small amount of growth this variety will make when once thoroughly established. I know it is the practice of nineteen out of twenty gardeners to advocate pruning the trees annually and to take especial pains to keep the trees afterwards free from suckers.—E. MOLYNEUX.

AMERICAN AND ENGLISH FRUIT-GROWING.

WHATEVER may be said or written by way of depreciation of the American agriculturists system of cropping corn land, there is no mistaking the fact that those who have gone in strongly for fruit culture can more than hold their own against the majority of their British rivals. They have undoubtedly an advantage as far as the climate is concerned, but, judging from what appeared on p. 226 of *THE GARDEN*, their marked superiority of crops is not altogether due to climatal influences. A more instructive paper upon hardy fruit culture could not well have been published, and I much regret it was not forthcoming and very generally read before so much planting had been done in this country. In how many instances was anything like adequate preparation of the site made? In very few indeed, if my experience is any criterion. Not merely were the sites selected haphazard, but the preparation was of the scantiest character. The consequence of merely opening moderately large holes in a convenient meadow or, it may be, an old orchard site and sticking therein examples of very productive fruit trees will be an early return for this comparatively small outlay and an early collapse of the trees. Or if the trees do not actually become stunted, they will yet fail to produce fruit that will sell. This I have frequently taken the opportunity of pointing out, and also strongly condemned the short-sightedness of those who plant orchards where they cannot be conveniently or cheaply manured. As Professor Roberts indicates, there ought to be no forcing of the growth of trees by manure, the American method being to so cultivate the ground as to bring out qualities hitherto locked up, the plant food liberated by good cultivation being ample to support a limited number of trees till these have arrived at a good bearing size. The foundation being thus well laid, nothing is wanted but annual or biennial surface dressings of manure to sustain the trees in a highly productive state, the quality of the fruit

in many cases improving rather than deteriorating as the trees age. As will be seen in the paper alluded to growing sheep feed, grazing this where it is grown is considered one of the simplest methods of manuring the trees, and if in addition to the green food the sheep are also treated to a moderate amount of oil cakes or other similar food, the value of their excrement is considerably enhanced.

It will be seen that the greatest pains are recommended to be taken in the preparation of the ground for a limited number of standard trees only, and to further manure these in the course of a few years, but on this side of the Atlantic if the ground is fairly well prepared by means of the subsoil and ordinary ploughs, this is done more with a view to heavily and closely cropping either with vegetables or small fruits, against all of which, what may be termed the permanent trees have to contend for many years without, probably, any assistance in the shape of manure. Not content with planting so many fruit bushes between the rows of trees, even the latter are put out in much larger numbers than it is intended shall be ultimately left on the ground, while to make matters worse, Strawberries are planted wherever a line can be sandwiched in between the bushes. The latter alone are capable of and most probably do rob the ground of very much of its fertility, and what they leave behind, the bushes appropriate, the permanent trees having to largely depend upon what they can find in the subsoil. This is no imaginary picture, but what I assert is true of some of the largest fruit-growing undertakings in the country. The proprietor of one of these has now fully realised the great difficulty that must be faced by all fruit growers who plant these mixed orchards, but I very much doubt if he has yet hit upon a satisfactory method of manuring exhausted ground.

It is those who have planted the most extensively, the acres being counted by the hundred in some cases, that have blundered most in their choice of sites, and the least that these can do is to take the earliest opportunity of clearing off the undergrowth of bushes or small fruits generally with a view to adopting the American system of sustaining the fertility of the soil. Restoring or replenishing the land with nitrogen, phosphoric acid, and potash, applied in the form of salts or nitrates, is by far too expensive a proceeding to meet the views of growers of fruit for market, and the alternative of folding or feeding sheep in the orchards should commend itself as being one of the simplest and best ways out of the difficulty. Fruit growers of the older school were content to plant smaller orchards and to locate these conveniently near to good and cheaply-applied supplies of solid manure. Some of the most profitable orchards I have ever taken good notice of were prepared with the greatest care, some being bastard-trenched and the soil in others deepened by the aid of the subsoil plough. The usual bushes and Strawberries were planted and fruited as long as the overhanging trees admitted of this being done profitably, but, unlike what is taking place in some of the larger orchards much further from London, the undergrowth was not allowed to rob the ground of every particle of fertility. Every winter a large breadth of orchard ground was, and still is where bushes are grown, heavily dressed with good solid manure, such as can be had almost for fetching from the metropolis, and in several instances this meant manure for the trees every second year. As a consequence of this liberal treatment, all the smaller fruits are of the very best quality, and very different to the puny things that are produced by starve-

lings so extensively elsewhere, and which are only fit for the purpose they are grown, viz., making into jam, and very seedy much of the latter is too. It is almost needless to add that the top fruit is correspondingly good, selling well at all times. These well-fed orchard trees are not stunted, woe-begone objects when not more than fifteen years old, but, on the contrary, they show clear-skinned healthy stems and tops still in full vigour. Nor is it any fault of either the cultivator or the trees if the crops fail, white frosts being the principal hindrance to success.

Orchards cannot all be located near to large towns or cheap supplies of manure, but that is no reason why those planting them should completely ignore all possibilities of ultimate failure owing to a want of it. There being no manure available, either a cheap substitute should be found, or else the American system in its entirety be adopted. In any case, I am of opinion that farmers ought not, as a rule, to attempt any system of under-cropping other than that which can be fed off by sheep (stock are too destructive among the trees). Besides, small fruits are too quickly perishable and give far more trouble than the occupiers of good-sized farms can well devote to them. If mixed orchards are planted, then ought some system of irrigation with liquid manure or sewage water to be adopted. Applying either principally by means of horse water-carts or manual labour would be found unsatisfactory, both being expensive and the reverse of thorough. If the drainings from farmyards and all the sewage from either a large mansion, village or small town could be either run or pumped into large tanks, and from these conducted by means of ordinary drain pipes placed midway between the rows of fruit trees, or distributed by means of gullies and sluice gates, the trees as well as the bushes would get the full benefit of it, and the fertility of the orchard be well sustained. In the long run this would be found to be the best and by far the cheapest methods of manuring the ground that could be devised. In this neighbourhood the sewage works are a regular bugbear, there being no possibility, according to present arrangements, of putting so much fertilising matter to a good use. The sludge, after being treated with a view to destroy objectionable odours, can be had for fetching away. Yet I am convinced it would make a capital dressing for fruit orchards. What is taking place in this district differs slightly, if at all, from the experience of other local authorities, while the sewage from the great majority of large private establishments is completely wasted. In only one instance that has come under my notice is the sewage from a private place utilised for irrigating a fruit and vegetable garden, and I may fairly take some credit for this arrangement. Naturally a free use of sewage water makes quite young trees grow too strongly, but it has a remarkably good effect upon apparently exhausted old trees, and I would therefore suggest to American as well as British readers irrigation with the sewage of a town or large establishment as a good substitute for sheep feeding.

W. IGGULDEN.

Gooseberries and caterpillars.—In the summer there are often many complaints of the injury done to Gooseberry bushes by the caterpillar, and various remedies are resorted to for its destruction or to stop its ravages, but as prevention is far better than cure, no one should wait till the enemy comes, as it is easy to stop the breeding of the insect if proper means are employed. This is by the application of a good dressing of lime and soot, put on any time before the leaves and

fruit get too forward, and it ought to be done in the winter as soon as the pruning is over, when it answers a double or three-fold purpose, as not only does it prevent the grub of the caterpillar from hatching and ascending the stems, but it stops the birds from destroying the buds, and cleanses the bushes from Moss if they have any, and thus helps materially to keep them in health. At one time we used to suffer much from the ravages of the insect referred to, as it appeared annually, till we tried the lime, but since then we have had no trouble with it and rarely see one on the bushes. Gooseberry bushes, as "S. H. B." (p. 245) remarks, are frequently allowed to stand too long in one place, and a change of ground is desirable, but to remove surface soil and replace it with new is work for which there is no necessity, as the lime will effect a cure where the bushes are young, and its application does not entail much time or labour.—S. D.

Thinning the flower-buds on Peach trees.—I very much doubt if those who advocate or write about the thinning of flower-buds on Peaches and Nectarines practise what they preach, but whether so or not, I am quite of the opinion that such work is a sheer waste of time, and a most dangerous proceeding unless carried out by experienced persons, and may result in spoiling the crop. Some sorts of Peaches thin their own buds, and most gardeners would like them all the better if they were not addicted to that failing, and fight shy of them on that account, otherwise there can be no doubt that the Noblesse would be more grown than it is, as it is the finest and best flavoured Peach in existence. As to flowers doing harm to the trees, that is a very mistaken notion, in so far as inducing weakness is concerned, for it is not the blossoms of a plant that tax and distress it, but the seed or fruit-bearing, and a Peach tree is in a bad way that needs its flower-buds thinned. Instead of reducing them, I would strongly advise leaving them alone and paying proper attention to an early removal of all superfluous shoots, and never to leave more of those than are actually wanted for laying in, which, as a rule, are only two, and those the best situated—one at or near the base of the last summer's growth, and the other at the end, as then all the leaves will be fully exposed, and, as a natural consequence, form fine plump buds at their axils. Healthy Peach and Nectarine trees, with conditions favourable as regards warmth, and a light, dry, buoyant atmosphere to ripen and disperse the pollen, are sure to set their fruit well, and thinning the flower-buds in no way helps them, and should only be practised on the fruit. Thinning of the fruit should not be completed till after the stoning.—S. D.

STRAWBERRIES FOR PRESERVING.

WITH the increasing demand for large fruit, the culture of the smaller or preserving kinds in private gardens is at times overlooked. The large showy kinds do not make such good preserve, though they may fill the basket sooner. This, however, is no gain, as many of the soft, pale-fleshed, large varieties boil down considerably, whilst the smaller kinds are preserved whole, and are much nicer in colour. The culture of the preserving kinds may be somewhat different. The frequent planting required to obtain large fruits is not necessary for the preserving kinds, though I do not for one moment say that it is wise to keep the plants too long on the ground. At one time the old Black Prince was much used for preserving by those who liked its colour. It is very small, early, and of a delicious flavour, but not much grown at the present time. It is objected to by some on account of its size, but for preserving it is excellent. When I grew this variety for that purpose I used to plant at 30 inches in the rows and 15 inches apart in the lines, and after the fruit was gathered I cut off the runners straight up the rows. The space cleared was manured in the early autumn and lightly forked over during the spring, allowing the plantation four or five years, and planting the new beds in September. Of late years a newer introduction has found favour with growers of pre-

serving sorts, namely, King of the Earlies. This is much like Black Prince, of a delicious Pine flavour, and very dwarf and compact in growth. I think one of its parents must have been the older kind, as it much resembles it, but it has larger fruits, rather earlier and equally prolific. There is scarcely any Strawberry so suitable for preserving as the old Grove End Scarlet. It is grown under various names, and of late years has found great favour with those who make a speciality of jam, as it preserves whole, retaining its beautiful colour. It is of excellent acid flavour, and though the fruit is small it is borne freely. Of late years I have grown the well-known Vicomtesse Héricart de Thury for preserving. The plants require liberal treatment as to room and frequent renewal. This last named variety is an excellent grower on light land; it rarely fails to produce enormous crops and is less subject to damp or decay in wet seasons than some of the softer-fleshed varieties. As it possesses ample foliage, the blooms are often protected from spring frosts. The well known Keens' Seedling is also valuable for preserving, but many prefer the smaller varieties, and they are certainly the best. The fruit of Keens' soon becomes small if not well grown and new beds made every two years. The Elton Pine is also good, though larger than some may wish. When grown thickly, as advised for Black Prince, it produces nice-sized fruit, very late, of a rich red colour all through, with a splendid flavour; this does well on a north border, and often gives fruit when other Pine varieties fail. There are others suitable, but those named are among the best for the purpose. There is also great advantage in preserving some of the mid-season and late kinds, as at that date the Red Currants are ripe, the juice of these imparting a fine colour to Strawberry preserve. G. WYTHES.

Prizes for packing Apples.—With regard to this, mentioned under the heading "A Good Example" in THE GARDEN of March 5 (p. 211), "Exeter" is not alone. This was actually done last year. I happened to act as judge at a fruit exhibition last autumn in this county where prizes were offered and awarded on the same lines and almost in the very words as set forth in the Exeter schedule, only Blenheims were not excluded.—Y. A. H., Worcester.

Grape Lady Downshire.—Noticing that this new Grape is not mentioned in the article (p. 227), I should like to refer to it. It promises to be a good late white variety, and if it comes up to expectation it will be an acquisition, as at the present time beyond the Muscat of Alexandria we have no really good late variety of this colour. Lady Downshire is a cross between White Gros Colman and Madresfield Court, the former being the seed parent. It keeps exceedingly well. On Feb. 7 I tasted fruit cut on Sept. 7 and stored in the fruit room. It is said to set as freely as Madresfield Court.—E. MOLYNEUX.

PLANTING FORCED STRAWBERRIES.

AT one time I strongly advised the planting of forced plants after they had been well hardened off, but I do not see any advantage in this plan. To put out forced plants is loss of time; the fruit is smaller and the results not worth the trouble bestowed. Many gardeners who wish to get fine fruits do not let their plants remain more than two years on the ground. During the first year the finest fruit is secured, and in the second the largest quantity. To get large fruits, runners are prepared in various ways as soon as the fruit is gathered. Where Strawberries are grown in quantity, some plants are grown yearly for the supply of early runners. These being ready in August are planted out at once, and thus fine fruit is obtained the following summer. I have noted the weight of fruit taken from plants grown as described and from forced plants planted out, and the balance was all in favour of the plants from the runners. For special purposes there is certainly some advantage in preserving a late lot of forced plants, giving them cold frame protection for a short time and finally planting out, as such varieties as Vicom-

tesse Héricart de Thury and La Grosse Sucrée will come in useful for a late supply of fruits when Strawberries are over. To do these well, they should be housed or placed in cold frames only long enough to get the foliage matured, as to get a good set of fruit in the open in the autumn, early planting is necessary, as the plants have to make a second growth and perfect their blooms. A west border, well manured and on the flat, is needed. The plants, to make a quick growth, require plenty of moisture and supplies of liquid manure. If the above are given freely, the plants will in September bear a heavy crop of fruit, which, though smaller than the summer fruit in the open ground, will make a welcome addition to the dessert. The two varieties I have named I have found best for the purpose, and though smaller than some kinds, they are more reliable for autumn cropping. I do not advise throwing them away even after that, as if allowed to stay till the following summer, the fruit will be found useful for preserving. S. H. B.

NOTES OF THE WEEK.

Bridgesia spicata.—This answers to "Elm-cote's" requirement (p. 267) of an evergreen self-clinging or mounting climber, which is not an Ivy. The *Bridgesia* also flowers, and for a short time the bunches have a pretty effect. The plant I grew was very fast growing. I have seen *Euonymus radicans* growing up a wall apparently without nails to help its adhesion, but I have never got it to do so myself.—J. I. R.

Potatoes for Holland.—We learn that owing to the failure of the Dutch Potato crop, large quantities of Potatoes are being shipped from ports on the north-east coast of Scotland to Rotterdam. During the season it is expected that over 1000 tons will be exported weekly from Dundee, Arbroath, Montrose, and Anstruther to Holland. The supplies are principally to be consumed, while there is a small quantity to be used as seed. Good prices are being obtained by the shippers.

Turnip Extra Early Milan.—I fully agree with all "S. H." (p. 265) says in recommendation of the above Turnip, for as a variety for frames and for a couple of early sowings in the open, it has, I think, no equal, but for keeping qualities it is useless, and indeed is not needed, as we have already plenty of varieties that are excellent in that respect, but not so early as the above. A superior variety to it for earliness and quality when young has, I believe, yet to be raised.—J. R.

Tea-scented Rose Laurette.—Before the planting season is over I should like to say a word in favour of this old, but little-grown variety. I have a plant some eight years old growing under glass, and it is the most useful Rose for button-hole flowers I possess. It blooms from early spring till autumn, and one has only to cut back a shoot at any time during the growing season to make others spring out, and on every tip there is a bud. In colour it is a combination of white, salmon, and pink. It is small, but in shape perfect.—H. S.

Bletia hyacinthina.—In THE GARDEN of Feb. 27 J. Wood inquires about the hardiness of this. I have grown this beautiful plant out of doors for more than ten years. It is planted in a sunny part of the garden, thoroughly drained, and covered in winter with dry leaves, as we do for many hardy perennials which suffer severely when we get hard frost without snow. Under this treatment the *Bletia* flowers every year beautifully, and in January, 1891, withstood about 20° of frost. My original plants were imported from Japan by a friend who grows them with the same success in this neighbourhood.—M. MICHELI, *Château du Crest, Geneva*.

The double white May forced.—I have sent you a spray or two of double white May. I find it very useful for button-holes at this time of year. We have the double red, but it does not flower so

freely every year as the white. The plant from which the flowers sent have been cut is 3 feet high and 2 feet 6 inches across the head. It is in an 8-inch pot.—E. WOOLLEM, *The Gardens, Charlton House, Shepton Mallet*.

* * Mr. Woollem has sent us most charming sprays of the double Hawthorn. It is so pretty we wonder no one has already made it a speciality for the market. The single kind should also be forced.—ED.

Acacia armata.—It is scarcely necessary at this date to recount the merits of this greenhouse plant, for it is deservedly the most popular and widely grown of all the Australian Acacias. It may be worth while, nevertheless, to point out its value for planting out in a cool, light greenhouse, as this method of culture might very well be adopted in many establishments where pot culture alone obtains. A plant in the greenhouse at Kew (No. 4) is just commencing to open its flowers, and promises in a week or so to make a picture of the greatest beauty. It is planted in a peat border in the centre of the house along with several other Acacias and Australian plants, and forms a broad pyramid 6 feet or 7 feet high. The rich green of the phyllodes, together with the long growths of last summer densely packed with the globular flower-heads, show how admirably this treatment is suited to its requirements.

Solanum Torreyi.—Your correspondent J. Moly, of Charmouth, Dorset, may be glad to know that *Solanum Torreyi* has been flourishing in this garden for a dozen years or more. It stood the winter of 1890-91 very successfully; therefore, I have no fears about it. The blossom of my plant is not variegated, as J. Moly says, but blue. It is the right thing, and was given to me a long time ago by Mr. Falconer, of Harvard, U.S.A. I never have a large stock of it because I give so much away, but if J. Moly cares to apply to me in the late summer, I will, if all be well, give him a growable piece. Several of your readers have written to me about *Lilium Kramerii*; some of them seem almost to think that what I said about it is too good to be true. I think they will be glad to hear that I noticed this morning for the first time this year several shoots coming up strongly out of the ground, and I am, therefore, more than ever convinced that we need not despair about this most beautiful Lily.—H. EWBANK, *St. John's, Ryde, I. of W.*

Notes from Kirkbean.—Here (South-east Kirkcudbrightshire, close to the Solway) the weather has of late been somewhat severe, but flowers are little, if any, later than last year. *Narcissus minimus* has been in flower for a long time, and *N. pallidus præcox* and *N. minor* opened on March 19. *N. scoticus* will be the next to flower. *Iris histrioides* is past long ago, but *I. Bakeriana* and various forms of *I. reticulata* are in bloom. *I. Danfordiae* and *Rosenbachiana* have not yet opened. Snowdrops are still in flower, the latest having been a superior form of Fosteri, which I find very variable. *Chionodoxas* are well in flower, *C. Luciliae* being extra fine this season. *C. gigantea* is good also. *Hepaticas* are all in bloom. Of *Saxifragas* the best at present are *S. luteo-purpurea* and *S. oppositifolia splendens*, the latter being much finer than the type, also at present in bloom. *S. Boydii alba* is past, as are *S. Burseriana* and *B. major*; the latter is a good doer here. Crocuses have been doing well, and the early species lasted long in bloom. Here the sparrows never touch any of the Crocuses.—S. ARNOTT, *Rosedene, Kirkbean, Dumfries, N.B.*

Natal Laburnum (*Calpurnia lasiogynae*).—A specimen of this African plant is now in flower in the Cactus house at Kew, and it is noteworthy, not only because of its rarity, but also on account of its resemblance to the Laburnum of English gardens. We are not aware of its having previously flowered in this country, although the French botanist Lamarck published a figure of it many years ago under the name of *Virgilia aurea*. It attains the dimensions of a small tree, the plant at Kew, which is a young one, being already 8 feet high. Its foliage alone renders it ornamental, the

leaves being pinnate, with rounded, thinly pubescent leaflets. In a young state they are of a beautiful tender green, becoming dark green with age. The flowers, in loose pendent racemes, are of a bright yellow. The species is said to be common in Abyssinia, but it is best known as a native of Natal, in which colony it is known under the appropriate name given above. A conservatory plant presenting in March the appearance of the common Laburnum as it is seen in early summer would be a splendid acquisition to our gardens, but whether the species under notice is capable of being made to do this, it is at present impossible to say.

Dendrobium Phalaenopsis Schroederianum (Shipley Hall var.).—This recently introduced type from New Guinea was shown in splendid form at the last Royal Horticultural Society's meeting on March 22. In the forms of *Schroederianum* there is great diversity of colour. The flowers of some may be termed quite light, while others have a rich rosy purple shade. In the Shipley Hall variety the latter shade of colour is well represented, combined with flowers of beautiful form. The plants shown betokened a free growth, especially so considering the little time they had been imported. This *Dendrobe* delights in an abundance of heat and moisture whilst growing. The plants shown had been so treated. The flowers last a long time in beauty. Some already have been in good condition for two months; this in itself is a good recommendation.

Odontoglossum Cervantesi.—There is no species belonging to the charming group of dwarf *Odontoglossum* which in chaste and delicate beauty surpasses *O. Cervantesi*. In all its forms it is delightful, but none perhaps so much so as the *Morado* variety, which was shown by Messrs. Sander at Westminster on March 22. The flowers are large, and the sepals and petals, instead of being white, are of a beautiful blush tint, the broad front lobe of the lip being also of the most delicate rose. The ordinary form was introduced by Loddiges in 1847 from Oaxaca, in Mexico; it has since been found to extend southwards into Guatemala. So far as heat and moisture are concerned, the species requires treatment identical with that of *O. crispum*, but, like its near neighbour *O. Rossi*, it prefers to occupy a lighter position. It should, therefore, be grown in shallow pans and suspended within a foot of the roof glass of the *Odontoglossum* house, keeping it moist at the root throughout the year.

Batemannia Burti.—The *Batemannias* are amongst the more uncommon of Orchids, this being due in some degree probably to their not being particularly plentiful in a wild state, but also to the fact that they are not amongst the most easily cultivated of this family. *B. Burti* is a dwarf, compact plant with a short stem, which is, however, enveloped completely by the sheathing bases of the leaves that are arranged distichously upon it. The flowers occur singly on the scapes, which proceed from the axils of the lower leaves. The sepals and petals are spreading, somewhat triangular and of a reddish brown, the petals being distinguished by a blotch of purple at the base. The lip is very handsome, being mainly of a clear ivory white; the front portion is trowel-shaped, but at the base there is a curious projection, on each side of which occurs a row of sharply-pointed teeth. The whole flower is $3\frac{1}{2}$ inches in diameter. The species is a native of Costa Rica, whence it was introduced to Britain just twenty years ago. A plant in the best of health with four fine flowers was shown by Messrs. Sander at the Drill Hall on Tuesday.

Oncidium sarcodes.—This Orchid was represented at the Drill Hall on Tuesday by a group of well-grown plants sent by Messrs. Charlesworth, Shuttleworth and Co., and made quite a conspicuous feature in the exhibition. It is one of the many species of *Oncidium* whose flowers are a combination of brownish red and yellow; it is, however, one of the handsomest of that number, and undoubtedly a species of great horticultural value. The spikes varied from short, unbranched ones

little more than a foot long to enormous branching racemes 5 feet in length, each carrying many scores of flowers. The dark green pseudo-bulbs are 5 inches to 8 inches high, each bearing a pair of shining oblong leaves of about the same length, and of an equally rich shade of green. The flowers are upwards of 2 inches across, the sepals and petals being bordered with bright yellow round an irregular patch of brown-red in the centre. The same colours occur on the lip, but the red is reduced to a few spots near the base. The first recorded appearance of this plant in flower in Britain was in April, 1849, when it was sent by a private grower to the Chiswick Gardens and named by Lindley. Paxton shortly afterwards figured what is evidently the same thing in his *Magazine of Botany* under the name of *O. Rigbyanum*. Its native country is Brazil.

Plants to cover a verandah.—I should be grateful if any of your readers could advise me in the following case: At the back of the house facing south-west and shielded from north and east by outbuildings is an iron verandah, supported by light iron columns. I am anxious to cover this during the coming summer with climbers. Can any of your readers kindly say what are the best subjects for such a purpose, and also for hanging baskets? The house lies high in a somewhat cold position in the midlands.—A SUBSCRIBER.

* * *Clematis montana*, *C. flammula*, *Roses Gloire de Dijon*, *Fortune's Yellow*, and *Bouquet d'Or* are among the things we should choose ourselves, but some of our readers may be able to further help you.—ED.

Anoiganthus breviflorus.—No description that I had seen led me to form a true estimate of the value of this flower. It has generally been described as good in colour, but faulty in form, as being one of those half-expanded tubular flowers which cause so much disappointment. My own experience of it is exactly the reverse. My bulb was kindly given to me by M. Van Tubergen, and after resting through the winter it came into bloom about a week ago with four lovely flowers, smaller, but much resembling a very delicate yellow Day Lily. They opened in succession, but all perfect at the same time—about 9 o'clock a.m. They begin to expand in the sun, and in a short time they are not wholly fully expanded, but, more than that, in some degree reflexed. I can, however, readily understand why the descriptions have been in error, since, however brilliantly the sun may continue to shine, each day half an hour after noon the petals begin to contract and remain in a half-closed state for the rest of the day. This has been regularly repeated daily; consequently a true idea of the flowers can only be formed if seen between nine and half-past twelve. I tried artificial light, which is perfectly effectual with *Crocuses*, but quite without result with this plant. If I am right in the meaning of the name, it would certainly not have been given to a half-expanding tubular flower.—T. H. ARCHER-HIND.

Phaius Cooksoni.—The most interesting exhibit amongst the Orchids shown at the Royal Horticultural Society's meeting on Tuesday was a small group of this magnificent hybrid *Phaius* sent by Messrs. Sander and Co. The plant was raised a year or two ago by Mr. Cookson, of Wylam-on-Tyne, from *P. Wallichii* pollenised with *P. tuberosus*, the first flowers appearing in two years from the time of sowing the seed. It was the first hybrid obtained in this genus, but has since been followed by one raised from *P. maculatus* and *P. grandifolius*. Success in hybridising consists in uniting the good qualities of each parent in the progeny, and, judging from this standpoint, no more beautiful hybrid has ever been raised. Since the date of its first flowering it has immensely improved in vigour, the spikes on the plants exhibited being from $1\frac{1}{2}$ feet to 3 feet high (one plant carrying two spikes), and the flowers on the strongest ones numbering twelve and seventeen. At their widest diameter the flowers are $4\frac{1}{2}$ inches across, the sepals and petals being rose, tinted white on the outside, and rose-

coloured inside, becoming paler towards the tips. The lip, which shows more markedly than any other part of the plant the influence of *P. tuberosus*, is shaped like a broad-mouthed funnel, the margin being beautifully crisped and reflexed. It is very richly coloured, the disc being bright orange-yellow with a tongue of the same colour traversing the centre lengthwise, whilst the front expanded portion is reddish maroon shaded with purple. The colours evidently vary very much in different plants. In habit this hybrid is simply a small edition of *P. Wallichii*, to which species no doubt its vigorous constitution is due.

Dendrobium Kingianum var. roseum.—Whilst the Australian representatives of the genus *Dendrobium* are, generally speaking, by far the most difficult to maintain in robust health, *D. Kingianum* is a notable exception. Throughout the whole genus, in fact, there is not one species which can be said to thrive more freely or increase more readily. It is a native of Queensland, where it was discovered and sent to England nearly fifty years ago. It is a very variable Orchid, forms with white, yellow and rose-coloured flowers being in cultivation. A plant of the variety *roseum* is now flowering at Kew, and proves to be a singularly pretty plant, probably the most attractive of all the forms of this species. In habit the species varies but little, the stems being from 3 inches to 6 inches long, swollen at the base and occurring in a closely-packed tuft. The leaves are few (two to five), and, like the raceme, are produced from the apex of the pseudo-bulb. In this variety the flowers are scarcely an inch in diameter, the outside of the sepals and petals being entirely rose-coloured, whilst on the inside they are just tinged with the same colour except at the tips where a blotch of deep rose occurs; the lip also is nearly covered with broad rosy purple veins. This species may be grown in a cool house, although it is perhaps more satisfactory treated as an intermediate house plant, at any rate whilst it is growing. It may be grown either in pots or fastened to blocks of wood, requiring a mixture of peat fibre and *Sphagnum* about the roots.

Notes from Chirnside.—Several paragraphs in THE GARDEN regarding *Gentiana verna* have appeared lately. As I have gathered it wild both in Teesdale, Yorkshire, and in Galway and Co. Clare, Ireland, I may remark that both in Yorkshire and in Ireland it grows on the limestone, and therefore lime rubbish is a good addition to the soil on the rockwork. In Ireland, near Galway, it grows in the turf near the sea. In Teesdale, in wet clayey loam, I have large clumps covered with buds at present, notwithstanding frost and snow, on the rock border. On a sunny morning, later on, there is nothing so pleasing to the eye as a fine patch of *Gentiana verna*. Boyd's form of *Saxifraga oppositifolia* from the Killin Hills comes very near the *Gentian* in my estimation as an alpine. It is just showing colour, and in another week, if the weather keeps fresh, the plants will be one mass of bloom, not a leaf visible, the flowers of a lovely shade of crimson. *Chionodoxa sardensis* has this season well merited being named *Glory of the Snow*, for it showed through its snowy covering a rich mass of blue. *Anemone blanda* is showing its fine coloured buds, but is not yet open in the north. *Saxifraga Burseriana* major in an 8-inch pot in a cold frame was a most beautiful object this morning, being covered with more than 100 expanded flowers of snowy whiteness. The lime rubbish, sand, and a little peat produce wonderful vigour in this section of the *Saxifrages*. The *Lenten Roses* have in many places been entirely ruined as to flowering by the severe frost. For some years I have never failed in having abundant blooms by very simple precautions. The plants are covered every night with common bast mats. During the late severe weather these mats were never, or rarely, removed during the day. This day (March 17), the first fresh day, the plants were blooming profusely under the mats when they were being removed. I strongly recommend this treatment to all growers of these most attractive winter flowers.—C. STUART, *Hillside, Chirnside, N.B.*

FERNS.

HARDY FERNS IN PLEASURE GROUNDS.

In most gardens there are situations which, owing to perpetual shade through buildings or trees, are found extremely difficult to embellish satisfactorily. Places of this description occur frequently in the neighbourhood of the dwelling-house, and are often a source of vexation, as the majority of flowering and fine-foliaged plants will not thrive therein. For such localities hardy Ferns are the most suitable occupants, inasmuch as the self-same conditions which prove so fatal to the well-being of the majority of ornamental plants are just those which enable them to maintain themselves in health and luxuriance. The construction of a fernery is often supposed to entail a considerable amount of labour and expense, and it is this consideration which deters many from

the occupants fail to obtain that luxuriance which constitutes one of the greatest charms of the Fern tribe. Although something in the way of burrs, stumps, or sandstone is necessary to keep the soil open, yet this kind of material should be introduced merely to effect that purpose, leaving as great a bulk of mould as is consistent with good drainage. The cheapest material that can be employed is the root stumps of trees. They are admirably adapted for the purpose, and not only serve to efficiently drain the soil in which they are placed, but appear to retain in themselves a certain amount of moisture, even in very dry weather. Root stumps are often objected to on the ground that they ultimately rot away. That is, however, no detriment in the present case, as by the time they do so, the plants will be well established. As regards soil, there is no necessity to be particular. If some turfy loam or rough peat can be easily procured, the Ferns will be benefited by an admixture of it. Ordinary garden soil, with some of the roughly sifted portion of the refuse heap, will meet their

the terminal ones being broader and deeply cut. This Fern should be grown in a leamy compost, and delights in a cool shady position. When grown in warmth thrrips are very troublesome. Grown under cool treatment the fronds have a very bright, fresh appearance, and when well matured may be used for decoration. It will last well where many Ferns would soon perish.—F. H.

HANDSOME GREENHOUSE FERNS.

THE making of a selection of twelve of the best greenhouse Ferns for growing on into moderate-sized specimens is a more difficult task than selecting the stove varieties. In one or two instances I must include two species from the same genus. The merits of the numerous crested forms being entirely a matter of individual taste, I will leave them out of this list altogether, but must include one or two variegated varieties, as there can hardly be a difference of opinion with regard to the merits of these. *Gleichenias* ought, perhaps, to be represented in the list, but as they require exceptional treatment, I have left them out, and selected those which may be grown with little difficulty by those who have only limited experience and ordinary accommodation. My selection is as follows:—

ADIANTUM WILLIAMSI is decidedly the best Maiden-hair Fern for a cool greenhouse. It is often spoiled through being grown in a high temperature. Potted in a rough open compost, which may consist chiefly of fibrous loam, plenty of drainage, a shady, but not dark, position in a cool house, and with careful attention to watering, it will thrive well and make a very handsome specimen. If another *Adiantum* might be added, I should select *A. Mariessii*, a variety of *capillus-Veneris*, with rather large, nearly erect-growing fronds of a rich deep green, making a bold and handsome plant, and forming a nice contrast to the soft pale green of *Williamsii*.

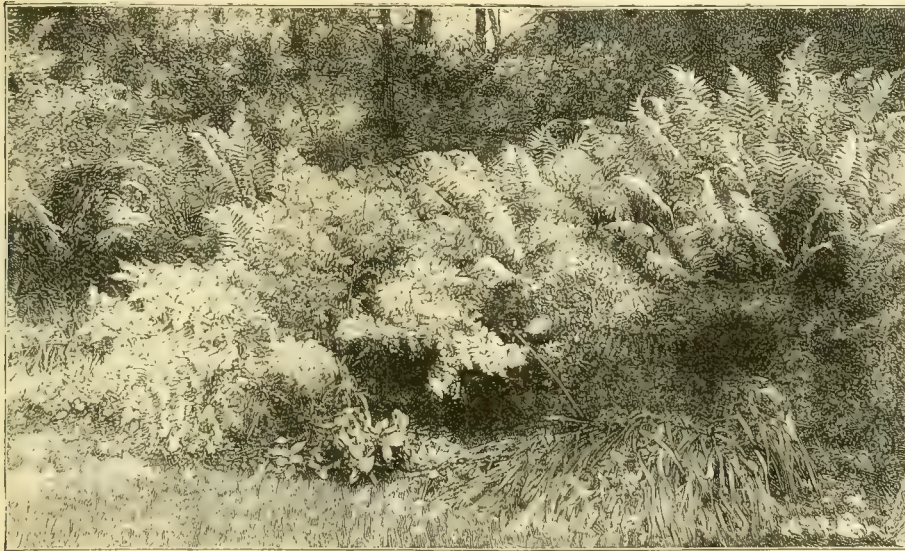
ASPLENIUM LUCIDUM.—This fine Fern is of rather slow growth. In growing on young plants, they may be given more warmth, but must be kept free from thrrips. This likes a shady moist position. When in a suitable position it produces roots on the surface of the soil, which, if fed with a little fertiliser mixed with *Sphagnum Moss*, will help to strengthen the plants and develop large healthy fronds.

ASPLENIUM BULBIFERUM is an old favourite, which, when well grown into a moderate-sized specimen, cannot be surpassed by any of the genus. For smaller plants I should have selected the variety *laxum pumilum*, which has finely-cut fronds and makes an elegant table plant.

DICTYGRAMMA JAPONICA VARIEGATA is a very distinct and handsome Fern, which is not so much grown as it deserves. The fronds, which are produced from spreading underground rhizomes, are pinnate, the long broad pinnæ pale green, with greyish linear markings which radiate irregularly. The fronds have a bright surface and are of good substance. The normal form of this useful Fern differs only in colour, which is of a deep olive-green. Although considered a greenhouse Fern, it likes rather more warmth during winter, and to keep the fronds fresh and healthy, the damp must not settle on them.

LASTREA ARISTATA VARIEGATA is another good variegated Fern; the bright green fronds have a linear marking of a yellowish shade very regularly defined. To form a nice specimen, three or four plants should be grown together, as it is rather slow in growth. It should be grown in a good, rich loamy compost, and treated liberally it will make good-sized fronds. If I might include another *Lastrea*, I should select *L. lepida*, a very light and elegant Fern.

DAVALLIA CANARIENSIS.—There are two distinct forms of this. The best form I have sometimes seen grown under the name of *gibberosa*; in



Royal Fern and Male Fern in the garden at Killegar, Killishandra.

undertaking the culture of hardy Ferns. The Fern tribe is a large and varied one, and if it is desired to cultivate a large variety, then undoubtedly a good amount of forethought and care will be necessary to ensure success. There is, however, a considerably large class which is really hardy in every sense of the word, inasmuch as they will thrive in almost any situation, and require but an ordinary amount of care to be taken in planting. Amongst these are fortunately to be found great variety and exquisite beauty; they are, therefore, all that can be desired for our purpose. Many varieties of *Lastrea*, *Asplenium*, *Scolopendrium*, *Polypodium* and the Royal Fern will flourish in the most ordinary garden soil, and can hardly be excelled in elegance of form and diversity of growth by the more tender kinds. They may be easily procured at a cheap rate of any nurseryman, and some of them, such as the common *Polypody*, the Male and Lady Fern, are generally plentiful in moist hedgerows, from whence they may be safely removed in early spring before growth commences. These varieties are mostly so strong growers; they should, therefore, be planted that they are not stinted in the way of nourishment. Ferneries upon a small scale are apt to become dried up in hot weather, and

requirements. No garden can be considered properly furnished without Ferns of some sort, and many a dark, dingy corner may be simply and almost inexpensively beautified by them. Where winter verdure is desired, the evergreen kinds need only be employed. In a general way, however, they should be used with the deciduous ones, as they contrast so beautifully when bursting into growth in spring. T. W.

Platyloma falcata.—In THE GARDEN (p. 202) "J. C. B." refers to this Fern as being grown extensively for market. In this I think he is mistaken. "J. C. B." evidently has confused the above with *Cyrtomium* (*Aspidium*) *falcatum*. *Platyloma falcata* is a very pretty greenhouse Fern, and if it could be raised freely from spores, it might become a popular market variety. I have never seen it in market, nor have I seen it growing in large quantities. It is found in Hindoostan, the Malayan Peninsula, Australia, New Zealand, &c., but I do not think it is found in Japan. *Cyrtomium falcatum* is found in Japan, but not confined to that country. It is a most useful Fern and nearly hardy, though when in a growing state the young fronds are often damaged by cold or a very slight frost. It is grown very extensively for Covent Garden Market. There are now several varieties; the best form has broad pinne,

this the fronds are larger and more erect growing, the rhizomes also differ. In the best variety the rhizomes spread more and have much finer scales. There are several other Davallias which almost equally deserve a place. *D. Mariesi* I should have given first place, but that it loses its fronds in the winter. *D. Mooreana* is sometimes included with the greenhouse Ferns, but I find it succeeds best in the stove, otherwise I should have selected it for this list.

MICROLEPIA PLATYPHYLLA.—A free, vigorous-growing Fern, which will succeed well in any ordinary compost. It should have a light, open position, but not too much exposed to the sun. Under heavy shading the fronds run up tall and thin.

OSMUNDA PALUSTRIS.—Almost as hardy as the Royal Fern (*O. regalis*), of more slender growth, with a reddish tint in the stipes and rachises. When treated as a greenhouse Fern it is evergreen, and makes a very handsome plant.

PLATYCERIUM ALCICORNE must be included. I have previously given cultural directions for this noble Fern.

PTERIS ARGYREA, though not a valuable Fern, is very handsome and distinct; the soft pale green fronds have a regular linear marking of greyish white. Three or four young plants started and grown together (under ordinary treatment) make a fine specimen.

PTERIS UMBROSA.—The true form of this when grown on under favourable conditions makes a handsome specimen. *P. cretica* Ouvardi is often grown under the name of umbrosa, but when seen together they are quite distinct.

POLYSTICHUM CORIACEUM.—This and *P. capense* are considered synonymous, yet the two forms, as we grow them, are distinct in appearance. *P. coriaceum* has larger and more erect fronds; even as seedlings the two can be distinguished. I believe the form we grow as *coriaceum* is the form from Australia, while the other, which is of a more drooping habit, is the true South African form.

WOODWARDIA RADICANS.—To do this well it must be grown in an elevated position; the long drooping fronds are then seen to better advantage; besides which it is the only way to give the fronds a chance of proper development. A shady, cool aspect suits it best. In a dry place it is sure to get over-run with thrips. As a pot plant *W. orientalis* is almost equally beautiful. F. H.

FRENCH NOTES.

DAPHNE DELPHINI.—The winter-blooming plant which was recently exhibited at the General Agricultural meeting at Paris under the name of *Daphne Laureola* var. *Delphini* is in reality an old hybrid form which was raised at Versailles by M. Fion in the year 1820 from a crossing effected between *Daphne collina* (Smith) and *D. sinensis* (Lamarck). The first-named of these parent plants is a native of Southern Italy, where it may be seen covering the rocks in some districts, and notably so on the banks of the river Volturno. It is distinguished by having its leaves covered with a silky down on the under surface and by its fragrant violet-red flowers. *Daphne sinensis* is a Chinese species with glabrous leaves and very fragrant white or pink flowers; there are also some varieties of it which have the leaves variegated in divers fashions. *Daphne Delphini* combines the qualities of these two plants in its handsome, dark green, glabrous, glistening foliage and its deep red, deliciously fragrant flowers. It was formerly much cultivated for market, but of late years this handsome half-hardy shrub has fallen into unmerited neglect, and is no longer to be met with except occasionally in some collections of temperate-house plants near Paris, or in some open-air gardens in the peninsula of Normandy, in Brittany, and in the Channel Islands. Care should be taken not to confound this plant with *Daphne Laureola* (a native of our calcareous woodlands), which is only used as a stock upon which the *Daphne Delphini* is grafted.

A VALUABLE NEW TOMATO.—This novelty, which bears the name of *Reine des Précoces* (or Queen of the Earlies), well deserves its appellation, as the fruit completes its growth in a very short period of time. When seed of it is sown in a hotbed in March and April, like that of ordinary Tomatoes, the plants thus raised will commence to ripen their fruit in July and continue bearing until late in autumn. This variety, which is exceedingly productive, is one that is equally as well adapted for open-air culture as for growing under glass.

FIELD CULTURE OF WITLOOF.—The cultivation of this plant, which was unknown in France only a few years since, is now not only extending itself in gardens, but promises to rank in future amongst the other agricultural processes of the farmer. At Coupvray (Seine-et-Marne), M. Besnard has at present on his farm five acres devoted to the cultivation of Witloof. The operations connected with this work at Coupvray (to which we shall revert more particularly in a future issue) combine the use of the plough and harrow for the breaking up and rough preparation of the soil, and the employment of the hoe and light mattock for what may be termed the gardener's part of the work, which, of course, also includes various other attentions. This field culture of Witloof promises to be a success.

AMERICAN BLIGHT, &c.—The Pomological Association of the West recommend the following remedies for American blight (*Aphis lanigera*), the *Pyrallis* moth, and the Apple weevil (*Anthonomus pomorum*). (1) For American blight: In gardens, naphthalin dissolved, without heat, in essence of petroleum and applied with a paint-brush. In orchards, a mixture of raw naphthalin, lime, and oil of tar, similarly applied. Another effectual remedy is a mixture of oil and black soap rubbed in with a brush and a sponge. (2) Fires lighted between the rows of trees in the evening attract and destroy great numbers of the *Pyrallis* moth. (3) To destroy the Apple weevil the best plan is to spread suspended under the tree a large waggon-cover or rick-cover with a hole cut in the centre to admit the trunk of the tree, the branches of which are then to be shaken violently, whereby the weevils are dislodged and fall in showers into the receptacle beneath, from which they are shovelled out with hand-scoops into sacks, and taken away to be finally disposed of by casting them into vessels of boiling water.

A NEW SPECIES OF SCABIOUS.—Under the name of *Scabiosa Metaxasi*, MM. Vilmorin have sent out a new species of Scabious raised from seeds sent to them from Mont Zagros, in Persia, by M. Metaxas, after whom they have named it. Although new to cultivation, this species has long been known to botanists under the names of *Scabiosa palestina* (Linn.) and *Asterocephalus palestina* (Spreng.). It belongs to the *Asterocephalus* section, and appears to be widely distributed throughout the East. Boissier records five different forms of it, of which the one named by him *Scabiosa palestina genuina* (the typical form) appears to be identical with MM. Vilmorin's plants. It is a pretty annual, growing 20 inches or more high, and bearing heads of faintly yellowish white flowers, each head nearly 2 inches in diameter, and, although by no means the handsomest of the genus, will no doubt be found useful as a border plant and also for bouquets. Its culture is the same as for the ordinary kinds of Scabious.

A NEW APPLE.—At the meeting of the National Horticultural Society of France, held on Feb. 11, a new variety of Apple was exhibited by M. Alexis Lepère under the longish name of *Grosser Rheinische Bohnenapfel*. The fruit is of superb appearance and enormous size, yellow, like a Calville, and delicately tinged with pink on one side. The committee pronounced its quality to be good.

PORTUGUESE VEGETABLE MARROW.—This is a very vigorous-growing variety with trailing, branching stems often from 18 feet to 26 feet in length, and slightly rounded leaves, sinuated and toothed at the margin. The skin of the fruit, which is of a bright glistening red colour, is very hard and

covered with numerous roundish excrescences. The flesh is yellow, fleshy, thick, and of excellent quality. The hardiness and great productiveness of this variety (a single plant bearing from six to ten fruit) recommend it as admirably adapted for cottage gardens, where it would thrive with hardly any attention. *Revue Horticole*.

FLOWER GARDEN.

THE IRISH DAFFODILS.

Of late years we have had many and varied kinds of Daffodils unearthed as it were from old gardens, pleasure grounds, and the parks or domains in Ireland, but none I make bold to say superior to Countess of Annesley, as its merits are good from all points of view. It is not so early as *Ard-Righ*, but it is a far more robust grower on many soils, and as compared with *N. princeps*, the flower is of better form and substance. I am especially pleased to see Mr. J. C. Tonkin, of Scilly, appreciates its many excellences as a market flower; it is far more free blooming than *Tenby*, and has a better constitution than most forms of *N. spurius* and *N. major*, and as forced very gently the flowers attain to a splendid size and show great purity of colour. As a good all-round garden Daffodil, it deserves even more attention than it has at present received, and I am glad to know that it really succeeds in English gardens better than do the majority of Irish Daffodils. Even in Ireland, the Irish Daffodils do not always do well, and I was not a little surprised to hear from a well-known amateur the other day that he was about to root out all the white Daffodils from his garden, as their constitution was poor and delicate, and so had disappointed him! Alas, I am afraid many in England will re-echo the disappointment, and yet, as seen under suitable conditions in Ireland, these same white Daffodils are amongst the freshest and loveliest and most desirable of beautiful flowers. The main point is they will not stand what is commonly supposed to be good culture. They cannot endure our fat and richly manured soils. In a word, their capacity for absorbing and assimilating nitrogen is, for some reasons not yet fully understood, singularly limited, and until this fact be more fully realised, many growers will undoubtedly fail to grow them permanently and well. On poor gravelly and sandy soils they thrive amazingly in Ireland; often on the grass among tree roots they have apparently lived a long time, and amongst the roots of Hollies, Privet, and Roses of the *gallica* and mossy sections I have often seen them perfectly happy and free flowering, although they had been growing in the same position for many years.

Ard-Righ, a large yellow variety of *spurius*, is also very apt to fail on highly-manured soils, whereon basal rot attacks it just as it does *maximus*, *pallidus præcox*, and the *Jonquil* under similar cultural conditions, and yet I have seen *Ard-Righ* in old gardens in the Box edgings, among *Mezereon* roots, and on grassy banks in orchards and near Hollies and *Arbutus* trees, the roots of which had interlaced its bulbs, as happy, healthy, and free-flowering as one could desire. *Ard-Righ* at its best is a fine Daffodil, but it has not the stamina of the bicolor race, or even of other forms of its own *spurius* section, such as *Golden Spur* and *General Gordon*, for example.

One of the most singular of all the forms of *spurius* is undoubtedly a Daffodil now known as *Crom-a-boo*, which is really a form or phase of *Ard-Righ*, having a frilled or goffered trunk or corona. This Daffodil has been known for some years, but is as yet as rare as it is singular

in its structure. The flower is in size and colour like *Ard-Righ*, but outside the corona are five or six (normally six) bits of goffer work or frilling. This variety, so far as its history is known, originated as a spontaneous or natural seedling on the lawn of the Rectory at Croom, in the County Limerick, whence its owner generously sent me a couple of bulbs two or three years ago. So far as my own practical experience goes, it is more robust than *Ard-Righ*, and we are all anxious that its owner should obtain this season some due recognition such as his flower most assuredly deserves. No doubt its flowers will duly appear before the Narcissus committee in due form this spring and be duly recognised and registered as a most distinct and permanent variety. I have seen its flowers every year since 1886, and have grown it for the past three seasons at least, and so can vouch for its constancy. It may not be generally known, but there is good evidence of the existence of a white Daffodil having a similar frilled corona, and of course such a rare light will not long remain hidden.

But of all the so-called Irish Daffodils I should certainly select *Narcissus Countess of Annesley* as the one variety for garden culture and profitable market work. It is not so fine as those gems of the bicolor section, *John Horsfield*, *Empress*, or *Grandee*, but it is without a doubt one of the very finest, healthiest and freest of all the yellow Daffodils known to us to-day. Its history is obscure, that is as to its origin, but there were thousands upon thousands of its bulbs naturalised in the park or domain at Castlewellan, Co. Down, some five or six years ago. So far as is known, I do not believe it has been found elsewhere. It was at first known as *Castlewellan Daffodil*, but afterwards was recognised as *Countess of Annesley*.

The naturalisation of Daffodils is worthy of far more thought and attention than has yet been given to it. Of course the nurserymen and the growers for market can scarcely be expected to do much in this line, but there are thousands of country house gardens and estates wherein and whereon Daffodils might be planted well once only, and they might then be left to themselves in orchards, thin plantations, sunny margins of woods, and in open meadows or on the outlying fringes of the lawn or dressed grounds. It is a fact that many Daffodils, as well as the *Poet's Narcissus* and many forms of *N. incomparabilis* (*Star Narcissus*), grow and prosper better in the Grass than planted elsewhere. Once well planted in congenial soil these kinds may be left alone, and no doubt this practice, or that of throwing the pleasure grounds into meadows, has led to the preservation and consequent rediscovery of so many kinds of these flowers in Ireland during recent years. In Devonshire and Cornwall, in Kent, Hampshire, and Sussex, in Norfolk and Essex, and even as far north in England as Yorkshire, Durham, and Northumberland, and, at least, to Fife in Scotland, the Daffodil, single and double, has made itself at home near the sites of old houses, monasteries, castles, or abbeys; in a word, peace, religion, and war alike seem to have helped in the culture and fostering of these flowers of spring.

In Cornwall and in the Scilly Islands even the *Bunch Narcissus* (*N. tazetta*) of the Mediterranean region had long ago become established, and whether introduced to St. Michael's Mount by old time or mediæval monks, or by the tin merchants from the East, we may perhaps never know, but as a fact the existence of these flowers in Scilly has led to a total regeneration of the profitable land culture of

these islands from whence are now daily being sent some 20 tons daily of these blossoms to London and other English, Irish, and Scotch flower markets.

I am sorry to say that our Dublin shops are filled with imported *Narcissus* flowers even now, although Cork and the sunny and early south coast are only six or eight hours away from our doors, and the whole south of Ireland is, as I have said, pre-eminently a land of Daffodils.

F. W. B.

FLOWER GARDEN NOTES.

ALTHOUGH no great loss was sustained in the Carnation beds in the winter of 1890, except in the case of the *Cloves*, many gaps were left which afterwards had to be filled, and with the view to make sure of an even lot of plants, I transferred the layers last autumn to a warm south border, leaving the planting of the flower beds until the spring. The beds intended for these favourite flowers for the summer of 1892 had a good dressing of horse droppings before they were dug in the autumn, and with just a break down will be all ready for planting. If very keen winds are experienced after this operation is performed, I generally give a good mulching of spent Mushroom manure. Sorts to be used besides the old crimson and white *Cloves* are *Mrs. Reynolds Hole*, *Raby Castle* (two special favourites), *Ketton Rose*, *Countess of Paris*, *Murillo*, *Mme. Roland*, *W. P. Milner*, and *Sir Beauchamp Seymour*, besides three or four good seedlings. I sow a packet of seed every season, plant out the seedlings in a piece of well-prepared ground, and layer and keep three or four of the best of them until something better comes to the fore. It is not often one gets hold of a real good thing, but as a rule two or three are annually obtained that combine such necessary characteristics as a very fair non-splitting flower, the plant of good habit and very free. Although the requirements of border Carnations are now pretty generally understood, there is one thing in connection with them that has not received quite the amount of attention it deserves, viz., the individual needs of particular sorts. The first few plants I had of *Countess of Paris* were planted on a rather stiff border where *Mrs. Reynolds Hole* and *Raby Castle* were doing splendidly. The *Countess* was by no means happy here, so the first layers secured were transferred to an old herbaceous border with a deep, but rather light ordinary garden soil, and the result has been in every way satisfactory. It is just the same with seedlings, and so from the general appearance of the grass, even at an early stage, we have come to make planting arrangements accordingly. With a view to still further popularise this favourite flower, it would be well if a class were given it at all local shows. We see at present classes for *Roses*, *Asters*, *Stocks*, *Zinnias* and many other summer flowers. Surely the Carnation is worthy a place among them—say a collection of six varieties, three flowers of each, to be shown as grown with stems not less than 4 inches or 5 inches in length.

What to carpet standard *Rose* beds with is sometimes an anxious question. Bare ground is not to be tolerated during the summer months when all around is bright and gay. Various dwarf plants are no doubt practicable, but I know of nothing better than the common *Musk*. As soon as it begins to make headway a few twigs should be inserted round each *Rose* stem some 10 inches or 12 inches from it, and secured at the top as high up the stem as may be deemed advisable. As the *Musk* grows it will cover the twigs and form nice bright little pyramids rising out of the yellow carpet. Mention of this old-fashioned plant reminds one of the many things that can be utilised in the flower garden to make pretty and effective beds, which require no artificial warmth either to preserve them in winter or to hasten their season. Take, for instance, the tufted *Pansies* *Archie Grant* and the well-known *Countess of Kintore* and the common *Ribbon Grass*. Such beds can, if necessary, be made in the autumn, and occasional clumps of the variegation rising from the purple

carpet will make a bright and cheerful bed; so will the scarlet *Lobelia* on a groundwork of tufted *Pansy Mrs. Gray*. I should like to say a good word for *Echeveria glauca*; those who only connect and have seen it associated with carpet bedding have no idea of its beauty when allowed to flower at will. Very effective are nice large flowering clumps of this succulent, and it has the merit of harmonising well with so many things and flourishing on dry, poor borders. It was in such a position that I was first struck with its beauty in connection with the old double *Chamomile*. A border that looked well last year was composed of large flowering clumps of this *Echeveria* with a groundwork of dwarf *Ageratum*, the flatness of the latter being relieved by an occasional plant of *Grevillea robusta*.

It is well to decide early on those subjects that are to be used to fill up any gaps that may exist in herbaceous borders, and either see to their planting or make provision for the same. These additions should in all cases harmonise with their surroundings. They should be employed with the view of adding to the number of colours already known to exist, and if any particular shade dominate rather too freely among the herbaceous things in any particular part of the border, the colour introduced in the annual will blend with it and tone it down. Thus, bright free-flowering *pompon Dahlias* can face large clumps of *Chrysanthemum maximum* and *C. uliginosum*, and nice batches of *Gaultonia* or the Sweet Tobacco associate with early-flowering *Starworts* or large stools of hardy *Fuchsias*. There is an effectiveness about such arrangements all the more pleasing because they are apparently unstudied. I do not know of any better subjects for filling up the front of these borders than *Carnations* and tufted *Pansies*. The former having been mentioned earlier in these notes, it is not necessary to refer to them again. Useful sorts among the tufted *Pansies* in their respective colours and very free are *Bullion* and *Royalty* in yellows, *Countess of Hopetoun* and *Perfection* in whites, and *Skylark*, *Bessie Clark*, and *Kirktown* in the mauves and blues.

E. BURRELL.

Claremont.

THE CULTURE OF MOUNTAIN FLOWERS.

It must not be said of me that I undervalue stones either in rockeries or as used in or upon ordinary soils. A stone often makes all the difference between success or failure in the growth of a plant placed beneath or near to it on an ordinary border. It is one of the most palpable facts in Nature that "Grass grows higher round a stone," as anyone may prove who cares to lay one for a few days on a close-shaven lawn. Why? some may be inclined to inquire. Well, simply because a stone checks evaporation from the surface it covers, and so a plant growing near a stone gets a better and more constant supply of food and a more genial atmosphere around it than does one not so highly favoured. This is practically the meaning of the use of stones in our rock gardens; but another point is that a stone absorbs sun-heat during the day and slowly yields it forth again during the night, and so a plant near a stone is warmer as well as better fed. The third reason for stones in our rock gardens is their appearance; but all attempts at rockeries made to look like mountain boulders or alpine peaks have so far been admitted failures, not only in appearance, but also from the gardener's point of view, for as a broad rule the plants for which they are principally erected most often refuse to thrive upon them.

To come to practical illustrations of rock gardens, one of the richest is that in the Edinburgh Botanic Garden, originally constructed on the pocket system by the late curator (Mr. McNab). Several thousand plants, I believe I

might say 2000 to 3000 species from the most diverse habitats—plants which naturally exist under the most widely different conditions—are thereon focussed on a single acre of ground (more or less, as the lawyers say), and generally they thrive there in a manner that is the envy of all who see them. Now, just as there are some rock gardeners who have failed by too persistently copying Nature and native conditions, so, too, others have failed by copying this rock garden at Edinburgh. In its own place and for its own purpose it is a creation well-nigh perfect, but as copied indiscriminately and in widely different climates and under different conditions it has proved more or less of a failure.

I have seen other and widely different alpine gardens and rockeries in many places. That in Messrs. Backhouse's nursery at York has for long been one of the most artistic and successful in England, but there are now scores of others both in England and Ireland well worth study. I think Mr. Dewar, who is no mean authority, once said that the rock garden at Narrow Water, Co. Down, was one of the finest he had seen, with its gigantic *Gunnera manicata*, a specimen, perhaps, never surpassed, even if equalled, in European gardens before. Again, travellers have told me that the masses of silvery *Leontopodium alpinum* clustering on the rockery at Ardee, Co. Louth, and the great scarlet *Pentstemon*-like flower-spikes of *Ourisia coccinea* have exceeded in luxuriance and beauty those specimens of these lovely plants as seen in their native wilds, and from a gardener's point of view no doubt they did so. We most of us know how luxuriantly *Meconopsis*, *Eomecon* and many *Primulas* grow in the rock garden at Kew, and we also know how happy the sale plants of many nurserymen who grow alpine look as grown in pots and plunged in coal ashes or sand in any out-of-the-way corner, so that rocks and stones are really not a *sine qua non* after all.

The real lover of alpine and mountain plants does not care for mere stones except so far as they conserve or augment the food and temperature as enjoyed by the vegetation he admires. The rockery that shall be at once artistic and practical for alpine plants is a desideratum yet to come. In very hot and dry and sunny places, rocks or stones above ground level often do more harm than good, and most alpine, as my friend shrewdly observed, would thrive better in a bog garden or in a marshy place. Of course, I know that there are plants that love the hottest and driest and most exposed positions, and that thrive best in the poorest of limestone soils, and for such things *Sphagnum Moss* or a bog is scarcely Elysium. Of such, let us broadly instance *Linarias* or *Snapdragons* and the family of *Dianthus*, to which our *Cloves*, *Carnations*, and *Pinks*, our *Saponarias* and *Gypsophilas* belong, all plants that thrive exquisitely on old lime-rubbish and sand, or in the clefts and chinks and crannies of rotten old walls. *Aubrietia* and *Wallflowers*, *Arabis*, *Erinus*, and *Iris germanica*, and those of the dwarf or *I. pumila* races also thrive best on walls or on elevated and rather dry (in winter) rockeries. *Iris stylosa* is another example, rarely free flowering unless starved in a dry and sunny spot. Those who have seen the walls of Conway Castle fairly on fire with red *Valerian*, or the warm sandstone rock at Nottingham Castle yellow with golden *Wallflowers*, will understand what I mean, and there is one plant from California, viz., *Zauschneria*, that is a constant non-flowering trouble to most gardeners, and yet I have seen it scarlet and vivid as a *Pelargonium* as growing out of the sheer precipitous face of a

limestone wall. It is also so with many things—with *Edelweiss* for example, or with the exquisite silvery-leaved *Androsace lanuginosa*, all of which are, I opine, things not likely to be happy in a bog, and certainly not during the winter-time.

In conclusion, I should like to suggest that whilst it is well-nigh impossible to give to our alpine and rock plants too much thought and practical care, it is quite easy to give them too much coddling with panes of glass and hand-lights and other mechanical notions, and more or less repelling appliances which quite rob the rock garden of any interest for the plant-lover pure and simple. Whenever I see a rock garden disfigured by glass or crockery and other similar sheltering appliances, I lament the alarming quantity of sack to the minimum of bread, and furthermore I do not really believe that rockeries so adorned please anybody else half so much as they do their owners.

grey Lichen have at last decently covered them? I have often thought that there have been too much "designing" and "making" or "building" of rockwork in our gardens, and too little thought and care or feeling in the leaving alone, or in the delicate and careful enrichment of such natural rocks and water as often exist within the precincts of many enclosed grounds. There are hundreds of pretty rills and brooklets and numbers of lovely glades and vales that might at small expense be girt with Reed and Lily and many other exquisite exotic flowers. One main point is to keep rockery-maniacs from ravaging the lovely glens and glades near so many country houses, where Lady Ferns and *Osmundas* feather the water, and where the *Primroses* and *Bluebells* and every tuft of Moss are most precious as a part of our universal birthright—our share in the great garden of Nature.

F. W. B.

ASTERS.

MARCH is the month for sowing Asters.

In very light warm sandy soils the seeds can be sown in the open air, but such are not common, and then an old-fashioned bed made up on a heap of leaves and litter, and having 4 inches or 6 inches of soil on the top, comes in very handy. It can be made up in the open, and by arching Hazel rods over it and covering them with mats, protection can be afforded when the weather is frosty. A bed in a cold house or frame can be utilised in the same way, and sowings can also be made in pans, shallow boxes, &c. In the latter the seeds can be sown broadcast, though where it can be done it is best to sow in drills, the seeds being placed in them thinly. When the young plants are strong enough they should be pricked out in a cold frame in a bed of good soil, a compost in which leaf-soil is prominent, and there they become strong, well furnished with roots, and can be transferred to beds in the open ground without danger of a check. An old-fashioned hand-light comes in very useful for raising small quantities of seeds, and these can be sown thinly in flower-pots if convenient to do so.



White Poppies.

Another vexed point is that of labels. Small zinc tallies on which the names may be written with indelible ink (if such exists) are unobtrusive; but, alas! most rock gardens are woefully over-labelled, so much so in some cases, as to have quite a cemetery-like effect, and to this a cynical friend assents, because, as he says, most rock gardens really are cemeteries, since so many plants die upon them. In public gardens, of course, labels of some legible kind must be adopted, but in private gardens and from the artistic standpoint, I fully agree with Miss Jekyll's dictum that they be excluded from what really should be our pleasure grounds, rather than a botanical or a school garden.

When we look at this question of alpine plant-culture fairly, it sometimes strikes us that in many, even if not in most cases too much attention has been given to the stones of which they are formed, and on the other hand, very often too little thought has been given to the plants intended to embellish them. The errors perpetrated in bad attempts to grow lovely mountain flowers have been, and unfortunately still are, legion. Again, have not some of the so-called natural or stratified rockeries spoiled the most precious and pretty nooks about a place, until Ivy-green and Periwinkle or green Moss and

To have fine Asters they must be planted in good soil. The strain may be excellent, but in poor soil the flowers cannot display their quality. Ground for Asters should be of a good sandy loam, deeply dug and well manured previously and laid up rough for a time. Then when the time comes for planting, the soil should be levelled down and shallow drills formed. How far they should be apart depends upon the size of the plants when fully grown. The giant sorts, such as Truffaut's *Pæony*-flowered or the tallest Victorias, together with the broader branching quilled varieties, should be 15 inches apart in good soil—the grower loses nothing by allowing his plants plenty of room in which to develop—the dwarf Victorias, the pretty free-flowering bouquet and pompon varieties, 9 inches apart; the dwarf *Chrysanthemum*-flowered can be closer together. When used in beds Asters may be placed close together in order to secure the desired floral effect, but in the case of plantations, and especially in the case of flowers grown for exhibition, ample space for a free development is highly desirable.

How finely Asters can come from seeds sown in the open ground was well shown in Messrs. Sutton and Sons' Portland nursery at Reading last season. The seeds were sown in the warm light sandy soil peculiar to this nursery in April in drills and a very light covering of soil placed over them. Despite the cold late character of the spring, the seeds

germinated remarkably well, and as soon as the plants were large enough they were thinned out to the requisite distances apart, the soil was kept clear of weeds and gently stirred about the plants, and a top-dressing of well-decayed manure greatly assisted their development. The trial of varieties made was remarkable for its extent and the fine quality of the flowers. For beds, Messrs. Sutton and Sons' selected bedding varieties, which can be had in distinct colours are most valuable. They average about a foot in height and produce large heads of fine bloom. The dwarf bouquet varieties make a good edging to beds of the foregoing. As a white Aster, Snowball, one of the gems of the collection, is of great value. The plant forms a large symmetrical head, producing finely-formed flowers of the purest white. For brilliancy of colour, Fire King is by far the best. It is of an intense scarlet-crimson hue, a colour altogether unexpected in Asters a few years ago. It is a superb variety for massing. For ribbon borders, the dwarf *Pæony*-flowered and the dwarf *Victoria* are well adapted; they can be had in distinct colours, and they come remarkably true from seed. The giant French and *Victoria* types, with the aristocratic *Comet* and its varieties, then *Mont Blanc* and then *Crimson Globe*, are all very fine exhibition sorts, and for cutting, the taller bouquet and pompon types. One remarkable feature about the improved Asters is the many new types introduced of late years, such as the *Comet*, *Washington*, *Jewel*, and others, which, having apparently broken away from their sections, have formed an interesting class, noticeable for their strongly-marked individuality of character. They are all well worthy of being cultivated, and add new features of beauty to the flower garden.

The Aster, despite the size of its blossoms, appears to be a better wet-weather flower than the Stock. Last summer was a record for wetness and coldness, and yet the Asters were remarkably fine in the collection alluded to above. They had careful culture, and being also of the finest selected types, it was not surprising they succeeded so well during so unkind a summer. R. D.

Primula denticulata.—A new danger has sprung up here in connection with an attempt to naturalise *Primula denticulata*. During the past three years I managed to work up a fair stock of this plant, and had got a nice group planted by the waterside. The plants grew and flowered well last year, after which I divided them and increased the size of the group, mustering from thirty to forty strong plants in all. They were looking well before winter came, the crowns being plump and big. A few days ago during the mild weather, previous to the present return of winter, I went to look at the plants, and found to my dismay that all but three of the crowns had disappeared, having evidently been eaten off by something; most of them had been taken out an inch or two below the surface, though a few of them that had been recently attacked had only lost the crown itself. The enemy might have been either mice, pheasants, or moor hens, but I strongly suspect the last. Had I found it out sooner, I should have taken means to discover which it was. The holes were not big enough for rats to have made them, and mice would have left traces of their work in the shape of small bits of the plants lying about, but whatever did it, did it cleanly. A similar group of *P. rosea* growing near has not been touched; the crowns of these, from some reason, were not so attractive. Can anyone who has had a similar experience give me a hint for guidance in future operations?—J. C. TALLACK.

Erinus alpinus at Abinger Hall.—In the joints of the stonework of terrace steps, or indeed anywhere where a foothold can be found, the pretty

Erinus alpinus is growing in abundance. The *Linaria Cymbalaria* is also much favoured for a similar purpose, as it is an admirable brickwork plant. A very beautiful densely green creeping plant on stonework is *Arenaria balearica*, also found largely at Abinger Hall. —D.

PERENNIAL POPPIES.

THE perennial Poppies, by the continued efforts of our florists, have now become the most brilliant and beautiful of our garden flowers. The two most popular species are the Iceland and Oriental species. They have given rise to a great many beautiful forms, and in the orientale section especially, in the advent of *Blush Queen*, we have a new strain capable of eventually producing something rich and startling. Much the same may be said about the annual species. All our beautiful varieties have been developed from the common field Poppies.



The Hairy Poppy (*P. pilosum*).

P. somniferum, the Opium Poppy, has given us some of the most beautiful and grotesque forms of flowers to be found in the garden, while the French varieties, supposed to have originated from a cross between *P. Rhæas* and *P. somniferum*, are among the most showy of our border annuals. The annuals, no less than the perennials, are amenable to ordinary garden culture, and should be treated exactly like other hardy annuals, being sown where they are to flower about the end of March or beginning of April, thinning out the seedlings when the young plants can be handled. Those taken out if managed carefully may be replanted in another part of the border or in beds, after which they should be well watered. In addition to the above-mentioned annuals, *P. pavoninum*, *P. heterophyllum*, and *P. armeniacum* will be found decided acquisitions. *P. californicum*, about which so much has been said is certainly not so showy nor yet so useful as is our native *P. dubium*. Of the perennial species, the accompanying woodcuts illustrate two of the sections which will be found almost indispensable for rockwork, &c. *P. pilosum* is a native of Bithynia and Mount Olympus, and is known in gardens under the names of *spicatum* and *Heldreichi*. The former name ought to repre-

sent a distinct species, allied, however, to *P. pilosum*, but the latter, which is described by Boissier as a variety, seems to differ so little from the type, as to be practically useless in gardens. *P. pilosum* is a really striking and useful plant, a continuous bloomer, continuing all through the summer and autumn months. The leaves are almost entire and densely hairy or pilose on both sides. It is readily increased by division and seeds. *P. nudicaule* (the Iceland Poppy) is an extremely useful garden plant. It is dwarf, like *P. alpinum*, and in groups makes extremely showy beds or patches on the mixed border. The flowers vary from yellow to rich orange in the variety *miniatum* and pure white in *album* (see illustration). It is easily raised from seed and may also be divided, but this does not always answer. *P. orientale* and its varieties are the handsomest and most brilliant of all Poppies. The variety *bracteatum* is larger and more brilliant than the type. A great many new varieties have been raised lately, some of which are exquisite in form and gorgeous in colouring. The only fault to be found with *P. orientale* is its dying down in late summer and autumn. It then gives a dirty, ragged appearance to the bed or border which is always unsightly, and if cut away leaves a big gap. The only way to deal with a plant of this description is to plant it directly behind a dense mass of dwarf Evergreens or something that keeps its leaves until late autumn. It may also be planted with good results on sunny banks among mixed shrubs, &c., where it may display all its beauty without showing the untidiness afterwards. *P. lateritium* resembles dwarf or weak forms of *P. orientale*, and is very useful for the rockery. *P. atlanticum* is also a useful rock plant with brick-red flowers and finely cut leaves. It flowers all through the summer and forms dwarf tufts of brilliant green. D. K.

LYCHNIS VESPERTINA PLENA.

AMONG good summer and autumn-flowering perennials the above plant holds a foremost position, and large plants of it laden with a profusion of fragrant white flowers are sure to be admired. As the plant is a scarce one and always has been, a few remarks concerning its propagation may be helpful to many. Singularly enough, this *Lychnis* is only another instance of the many good hardy herbaceous plants that are somewhat difficult to increase, and where this is so, it is very often the case that they cannot be divided with much certainty, seed being often scarce and cuttings troublesome. Where there are large examples there should be no trouble in raising a stock of young plants, the present being the best time of the year for making a start. The plants at the present moment are just pushing forth their young breaks from the old tufts, and these young growths when sufficiently long and strong are the very best material for providing a healthy stock of plants by-and-by. Some suggest lifting the old stools and placing in slight warmth, but my advice is to leave them alone. When about 3 inches long these young breaks will be most suitable for cuttings, and the most important item to ensure a good batch of plants is the manner in which the cuttings are detached from the old plants. Every cutting should be detached with a heel, never under any pretence using a knife during the operation. The finger and thumb are the best means of taking off the cuttings, taking them as near the stool as possible, and with a little downward pressure tearing them off, and inserting in pots of sandy soil without further ado. A large specimen is capable of producing in the early spring a considerable number of suitable cuttings, and it should be borne in mind that if the spring is lost and the plant commences to put up the spikes, the opportunities for propagating it are once more at an end. Where a quantity is needed the old stool should be

examined every few days, and those that are ready taken off. If this were done, there need be no scarcity of this fine old perennial, for such cuttings as those I have just described root quite freely in about three weeks and in good hands to fully 90 per cent. Not so, however, when the spring is lost and the late summer chosen for propagating this plant, for then only flowering wood is obtainable, and this never roots. A manure frame with slight warmth will be found an excellent medium for rooting the cuttings, but if not, a small handlight in a shady position in the greenhouse will do equally well.

E. J.

CARNATIONS AS ANNUALS AND BIENNIALS.

I AM much inclined to the opinion that we over-cultivate even our best varieties of Carnations, and that by lifting the layers each year a certain amount of vigour and stamina is lost to the plants. This step, however, is a necessity in some districts, but there are other localities where the Carnation may be left in the borders to form broad patches and provide hundreds of spikes where now only a few are forthcoming. Suppose, for example, the plants were layered in the usual way, and instead of being detached in autumn and potted they were allowed to remain attached to the parent and to flower twice in the same spot, the result would be astonishing, and the handsome patches loaded with their wealth of flowers equally so. There is nothing new in the idea, for my father used to practise it between thirty and forty years ago, and I have since adopted it myself. Any notion of overcrowding could easily be rectified by thinning out a layer here and there and forming another colony elsewhere. Carnations grown in this manner would materially add to the beauty of the garden. Few, I think, can possibly realise the great increase in flowers which this method ensures, otherwise it would be widely imitated. But yet another way remains of securing abundance of flowers, and this is by raising Carnations from seeds, or, in other words, treating them as though they were annuals. There is much in this method to recommend it to those interested in gardening. In the first place, a good-sized packet of seeds of a reliable strain may be had for 3s. 6d. or 5s.—many are offered very much lower than this even—which is far below the price of a dozen good named kinds. A packet of seeds at the latter price should yield from 100 to 200 plants—enough to stock any fair-sized garden. The seeds may be sown in July and August, preferably the former, and the plants begrown on quickly without a check, planting them out in good ground either in the border or in specially prepared beds in early autumn, allowing plenty of room for free and full development. In some localities it may be deemed advisable to pot the plants up for the winter season, but the instances where this is absolutely necessary are very few; indeed the Carnation that is feeble from the start is not worth much nursing. Plants that are put out in the open ground as early as possible will furnish a good display of useful flowers the summer ensuing. There will, of course, be some with single flowers, but the majority will produce double flowers, some of which may be worth retaining, and the remainder may be discarded. Those retained I would recommend to be layered in the usual way, but instead of lifting and potting, allow them to remain attached to the old stool to flower the next season. In this manner you will obtain an astonishing wealth of flowers at the smallest possible cost or labour. A sowing of seeds may be made annually and thus a supply be kept up. Carnations may also be treated more as though they were biennials, for it is when thus treated that they give their greatest yield of flowers. The main differences of this method over those named previously is the sowing of the seed and the flowering period. Seeds should be sown in February or March, but the earlier the better, any time during February being excellent. As the seedlings appear and are fit to handle, lose no time in potting them singly into 3-inch pots, transferring them from these to the open ground in May. By the end of the

year the majority of these will have formed fine tufts, and a few plants may show a tendency to send up a central spike, but this I always discourage. These plants should be placed if planted in beds quite 18 inches apart, a space they easily fill before flowering time; in fact the more robust generally occupy much more than their allotted space, frequently producing fifty or sixty spikes of flowers to a plant, the number of flowers being as remarkable as their great variety. I have for years past raised and flowered many hundreds of plants in this way, and can recommend it to those who must ever have a supply of bright and fragrant flowers; and having made the start, an annual sowing will keep up a succession for future supplies.

H. M.

KITCHEN GARDEN.

PREVENTION OF TOMATO DISEASE.

REGULARLY as the season comes round there are complaints as to the appearance of the Tomato disease in one form or another, and instead of waiting until it does show itself, it will be as well to consider the best way of warding it off. With plants under glass, I think there is every reason to believe that good cultural attention from the earliest stages will certainly prevent attacks, although I am fully aware that some people appear to think that the disease, especially the form termed Cladisporium, is more constitutional than otherwise, and that it is almost hereditary. Certainly, such statements are hard to believe, although we must give full weight to the theory of the disease being contagious through raising seedlings from seed taken from diseased fruits or plants. No one would think of raising plants from a known tainted stock, especially as seeds thoroughly pure may be now very easily obtained. Whether the disease is contagious or not through the seed, it is clearly evident that prevention is better than cure. In the case of plants in the open air, we cannot guard so well against attacks any more than we can against the Potato disease. When Tomatoes are grown so that they become gross or watery in growth, they are devoid of that woody tissue which is so desirable if fruitful plants, capable of warding off the disease, are to be produced.

Last season the disease, as is well known, was very prevalent; but still, there were isolated instances in which good crops were produced free from disease. This being so, I think it would be proved in every case where success attended the growers' efforts that exceptional treatment was provided, if we may so term it, although "rational" would no doubt be the correct word. It will be found in these instances that the plants had been carefully raised from the first and grown on fully exposed to the light in a structure in which a buoyant atmosphere was maintained. This would neither be too warm and close nor cold and draughty. The plants would have been potted off as soon as ready, and also grown on until eventually they were placed in 7-inch pots. Under good treatment, the first fruits would be already set by the time the plants were ready for planting out. The mistake must not be made in planting in an over-rich medium, as in this a gross or succulent growth is produced which the disease quickly attacks. The soil may be fertile and yet not rich. The time for affording extra support, if any is needed, is after a fair crop of fruit is set. Over-dryness at the roots, I am also of opinion, is another source, or rather it adds to the evil of disease. Where the plants are growing against sunny walls, it is astonishing how

dry the soil often becomes, especially when fully occupied with roots.

Plants growing solely under glass are more under control, and either the structure or the conditions the plants are subject to must be at fault if the disease in any form proves to be troublesome. During the last year or two growers have become more fully alive to the importance of having the structures efficiently provided with hot-water pipes, so that by their judicious use the atmosphere may be more under control than where there are no pipes provided. At one time it was thought that all that was needed to ensure full crops of Tomatoes free from disease was to merely have a glass roof without providing for any artificial heat whatever. Certainly under such conditions good crops are occasionally produced, but only where the structures are managed judiciously as regards ventilation. In such structures the most judicious course is to keep the ventilators continually open, so as to cause a circulation of air amongst the plants. Keeping the houses unduly close, or closing up early to conserve the sun-heat, renders the plants very susceptible to attacks. A hot, close and over-moist atmosphere, such, for instance, as in a warm plant stove, is also conducive to attacks. Very often, again, even where an efficient heating apparatus is provided, the fire, for the sake of economy, is let out for a week or two at a time, especially if a warm term should intervene, with the result that plants are often attacked with disease; whereas, if a gentle warmth had been maintained, the disease would have been prevented.

A. Y. A.

CARROTS AND THEIR CULTURE.

PERFECT types of Carrots are what we all admire, and those of extra symmetrical shape which are periodically exhibited, generally come in for an extra share of admiration. In the stump-rooted section, which finds the most favour, is the variety known as the Nantes Horn. On our heavy soil we find the stump-rooted forms more suitable than the Long Red Surrey—a good variety certainly for winter use, but on account of its length a deep sandy soil is needed. The Altringham, if a good stock is secured, is also valuable, being of good quality and also an excellent keeper. It is objected to, however, by some people on account of its somewhat rough appearance, the Long Red Surrey being preferred on this account. The best rule is to select the stump-rooted and intermediate forms for shallow and cold soils. For forcing and very early use the Parisian Forcing is a good type, the Early Nantes being selected for succession, although the old Early Scarlet Horn is not to be despised, and is still liked for its good quality when young. Young Carrots being so much appreciated, instead of sowing a large breadth of whatever early form should be selected, it will be much the wisest course to make a sowing at intervals of three or four weeks. For the very earliest select Parisian Forcing, and for succession the Nantes Horn or some other selected form of the same type. These small sowings should not interfere with the main crop, but should be used for supplying the kitchen with young and tender roots.

Before entering on details of culture it will be as well to consider the best means of combating those inveterate pests of the Carrot known as the Carrot fly or maggot and the wireworm—two very destructive foes when once they gain a foothold. In some gardens these are very destructive, there being a very great difficulty in securing any sort of a crop. Where these pests are known to affect the crop, preventive measures will no doubt have been taken in the autumn by either deeply digging, bastard-trenching, or even ordinary trenching. The soil by being turned up roughly will have become pulverised, and if, as I have previously advised in the pages of THE GARDEN, the surface has received a slight coating of either gas-

lime or freshly slaked lime, much good will result. But this will not have been enough, it being simply the primary preparation. The present cold and dry weather will also have acted in pulverising the soil, especially if the plot had been again forked over beforehand. A dressing of burned vegetable refuse now forked in lightly will prove of inestimable value both as a preventive of insects and as a fertiliser. A further addition of soot and a little salt sprinkled over the surface at the rate of 1 oz. to the square yard and lightly worked in previous to sowing will also be beneficial.

Freshly manured land is not suitable, this causing the roots to become forked. Land that was manured the previous season for a crop is the most suitable, as this by being deeply worked will grow good roots. The best time for sowing will depend upon circumstances. On strong land the roots are apt to come coarse if sown too early. I am referring to the main crop. From the middle to the end of April suits the majority of soils and districts. The soil should if at all loose or spongy be equally trodden over previous to drawing the drills. It is a good practice on heavy soils if at all lumpy, and the site had not previously been dressed over with burned refuse, and probably where it might be rather scarce to spread equally over the surface, to scatter it along the drills previous to seed-sowing. Again, if the maggot is not likely to be troublesome and the soil should be rather heavy, a little fine sandy soil from under the potting bench should be sprinkled along the drills after sowing, this ensuring a more regular germination. The drills for the maincrop kinds should not be less than 12 inches apart, the Horn or Stump-rooted an inch or two less, the roots being thinned out for use as they grow, leaving sufficient for a crop if larger Carrots are wanted later on. In each case the seeds should not be sown too thickly. The main crop should be thinned out to 4 inches or 5 inches or even 6 inches. A free use of the hoe is a necessity from the time the seedlings appear through the surface until the foliage covers the ground.

A. Y. A.

BRUSSELS SPROUTS.

ONCE more Brussels Sprouts have proved of almost inestimable value to the kitchen gardener, this being one of the few green vegetables that have not failed to be continuously serviceable, and that, too, in spite of the very trying winter weather experienced for such a length of time. They did not come out of the ordeal scatheless, as nearly the whole of the hearts or Cabbage-like tops were spoilt by the frosts, the centres being completely blackened. It is the more delicate varieties, that is to say those that are of comparatively neat growth, that suffered the most, and this, though not altogether surprising or a new experience, is yet most regrettable, for the simple reason they are yet the best that can be grown in private gardens. After all, it is the sprouts that are mostly required, and even if the heart is lost to the kitchen, leaving it still longer on the plant leads to the formation of a late supply of firm and mildly flavoured sprouts, which may be found among the upper leaves for some time longer. The stronger growers, notably the Aigburth, are undoubtedly somewhat harder than varieties of later introduction, but the large strongly flavoured sprouts these produce will not do now-a-days for employers, though market gardeners cannot well be blamed for growing most extensively that which pays them best. For small gardens and, indeed, for the largest private places it would be a difficult matter to find anything to surpass the variety introduced by Mr. J. Simpson and aptly named the Bullet. Being of very neat compact growth, it may safely be planted 18 inches apart each way, or even more thickly in the open fields or allotment gardens, and it can be depended upon for producing abundance of close,

small sprouts of the best quality when cooked. Paragon is also of neat growth, but does not button in so surely. In Ne Plus Ultra (Merritt) we have another variety that requires no more room than the old Imported, our rows being put out either between Potatoes, or else 2 feet apart each way. This, again, never fails to yield a heavy crop of medium-sized close sprouts mild in flavour, and as tender as can well be. Exhibition or Perfection is a stronger grower, but the strain is yet a good one, this variety being one of the best for planting among Potatoes. The sprouts in this case are rather larger than would be tolerated on the dining-table I have to cater for.

Much difference of opinion exists as to the proper time for raising the plants, and I hold that no hard-and-fast line should be laid down in the matter. It is very certain, however, that the introduction of more sure cropping varieties has obviated the necessity for raising the plants very early in all moderately warm localities at any rate, but in northern or less favoured districts it may yet be advisable to sow the seed not later than February. Of this necessity, however, for early sowing I have some doubts, and believe the difficulty can be got over in many cases by the plan I invariably adopt. Instead of sowing the seed in boxes some time in February and placing it in heat to germinate, this necessitating first pricking out and then moving the plants with a trowel, a more simple proceeding would be to form a slight hotbed, principally for the purpose of raising the requisite number of Brussels Sprouts, early Broccoli, and such like. A good-sized bed should be made, setting on this a shallow frame, rough or otherwise, a few inches of fine loamy soil being raised well up to the light in this. The seed should be sown thinly broadcast and covered with a little sifted soil. This being done from the middle to the end of March, or in southern districts as late as the first week in April, and protection afforded either with lights or mats, a capital lot of strong plants will be ready for planting out, say, from the middle to the end of May. There being no crowding or coddling of the plants, they will be sturdy stuff when wanted, and may be drawn and rapidly planted with a dibble with every prospect of their growing away more rapidly than any which have first been pricked out on warm borders and then moved, as they must be, with a trowel. I am aware that gardeners and amateurs generally cannot form mild hotbeds for everything they are advised to use them for, but what is to prevent those who annually collect together large heaps of steadily decaying and therefore fermenting material from doing this a little earlier than usual, first turning it to good account in the rearing of Brussels Sprouts and other plants.

Let the method of raising the plants be what it may, there must in no case be any great delay in finally getting them out, much-drawn weakly plants being very slow in recovering from the severe check given and never doing so well as could be wished. Brussels Sprouts should have a moderately rich and somewhat firm root-run, a strong yet sturdy growth being most conducive to the formation of a mass of close sprouts. Crowding should also be avoided, this being a frequent cause of partial failure. I have already given the distances that should be allowed varieties of neat growth, while the rows of stronger growers should be not less than 30 inches apart, the plants in the rows being a similar distance apart. On strong ground the rows of coarse varieties may well be 3 feet apart, and when fully grown they will even then touch all round.

An early and heavy moulding up both steadies and strengthens the plants and ought always to be given.

Where double cropping has to be carried out as much as possible, the plan of putting out Brussels Sprouts between rows of Potatoes is most commendable, though not if late varieties of the latter are principally grown. The practice I adopt is to plant a large breadth of Ashleaf Potatoes in drills not less than 3 feet apart, and between these, after they are moulded up, the Brussels Sprouts are put out. Before the latter require much space the Potatoes can be lifted, and all that remains to be done is to clear off rubbish and mould up the Brussels Sprouts. Any quick maturing, short-topped Potatoes may be substituted for the Ashleafs, but those with strong haulm are liable to smother anything between them. W. I.

TREES AND SHRUBS.

THE FORSYTHIAS.

FOR profuse and early flowering few hardy shrubs can equal the various species of Forsythia, and as they are amongst the easiest to manage, one can only wonder that they are not more frequently planted than is the case at present. They make excellent wall plants, the long supple shoots taking well to twisting and tying, while when kept in bounds by judicious pruning, neat-habited and handsome standards are the result. In the matter of soil they seem quite indifferent, succeeding and flowering with unwonted freedom even when planted amongst building debris, old mortar gravel, and such-like accompaniments of house-erections. Not that they are not the better for good soil, but a plant that can succeed under the adverse circumstances of poor and almost worthless soils is worthy of special consideration.

F. VIRIDISSIMA is perhaps better known than any other species, although at the same time it is by no means the most ornamental. A fair-sized clump of, say, half-a-dozen plants, when kept well in bounds by trimming and hard pruning, for the whole family has a rambling disposition, is a by no means ineffective feature of any garden, but particularly in the first days of spring. The flowers in this, as indeed in all the species, are yellowish-green, and produced in the axils of the previous year's leaves. They are, perhaps, not very showy, but being produced at a time when flowers are at their scarcest out of doors and in great abundance on the leafless branches, and, moreover, being of peculiar formation, they render this shrub one of the most desirable for early spring gardening. The present plant wants plenty of pruning to keep it in bounds, and this it stands with impunity, the flowering as well as outline being much improved by a judicious use of the pruning-knife.

F. SUSPENSА is not so well known as the former plant, but, though rather shy flowering at times, it is a desirable acquisition, and soon forms a pretty plant of moderate dimensions. It, too, is of the freest growth in almost any but the stiffest or most waterlogged soils, and is hardly so rampant in growth as F. viridissima, and with more lithe and fragile branches. For planting in masses of, say, half-a-dozen together, and where the slender branchlets can get supported by one another, it would seem to be well suited, and I have seen it used with good effect as a trellis plant, the friendly support given to the rather weak branches being kindly received. Forsythia Fortunei and F. Sieboldi are forms of F. suspensa, and do not materially differ from the original. A. D. W.

The Retinosporas.—By the way, what charming Evergreens the Retinosporas are, looking well at all seasons of the year! I am planting them very

extensively, as, independent of their beauty, they are much better adapted for moderate-sized and small places than Spruce and Arbor-vitæ, which with White Pines were about the only evergreen trees planted in this country until recently, but people of taste want something better, which is found in the Retinosporas and Blue Spruce.—JAS. TAPLIN, *Maywood, N.J.*

Planting specimen trees.—A common mistake in tree planting that can be seen to a greater or lesser extent in most gardens is allowing insufficient room for the development of the specimen—in fact, regarding more its present aspect than the dimensions it will in time assume. Perhaps this is more noticeable among Coniferae than any other class of plants, for a good deal depends upon the symmetrical character of the specimen, and consequently where crowded up so that some of the branches are lost, its ornamental features are to a great extent destroyed. Where planted rather thickly for the sake of immediate effect, those intended for permanent specimens should always receive the first attention, by clearing away any others that deprive them of light and air. I have seen many grand plants spoilt by indecision when two or more specimens were in close proximity to each other, for being so much admired, there was a natural disinclination to interfere with them till it became absolutely necessary, and then the mischief was already done, for where the circulation of air and light is checked, the branches deprived of their natural invigorators become weakened, and traces of this are always visible afterwards. Not only should the relative positions of the future specimens with regard to each other receive more attention than is usually bestowed upon them, but (more especially in small gardens) the distance from the walks or dwelling house need to be thoroughly considered. There is really no need to plant large trees where only space exists for the proper development of small or medium-sized ones, as we have now a considerable choice of all classes both among trees and shrubs. In a few words, permanent specimens should firstly be planted thoroughly, and, secondly, must never be crowded up.—T.

The Winged Elm (*Ulmus alata*).—This derives its specific name from the peculiar corky excrescence which is disposed on either side of the stem, even to the smallest shoots, that at a little distance appear to be two or three times stouter than they really are, but on close inspection this is found to be owing to these cork-like ridges on the bark. As might be supposed, this peculiarity is more pronounced during the winter when devoid of foliage than it is at any other season, and two or three times lately when we have been visited with a particularly heavy hoar-frost (notably just about Christmas), it wore a totally different aspect from any other deciduous subject. This Elm forms a medium-sized tree with a head composed of numerous branches arranged in a more or less horizontal manner, but though so distinct and curious, it is of little or no commercial value. The cork-barked variety of the English Elm also possesses the same prominent features, though in a lesser degree. There is also a very peculiar variety of the Ash (*verrucosa*) whose bark is as rugged as that of an ordinary Elm, being in this respect very different from any of the others. Besides the above there are many more deciduous trees and shrubs remarkable for the colour of their bark, or some other feature which causes them to stand out conspicuous during the winter when leafless. First and foremost stand the different Birches, second to none being some individuals of our own common Birch, while the black Birch of the United States (*Betula nigra*) is widely removed therefrom. In this the reddish bark partially peels off and hangs in flakes during the winter. This Birch forms altogether a far less graceful tree than the common kind. The golden-barked Ash, the striped Maple (*Acer striatum*), the golden-barked Willow, several of the Dogwoods, and the Himalayan Bramble (*Rubus biflorus*), whose stems present the appearance of having been whitewashed, suggest themselves as examples of this class.—T.

Gaultheria procumbens.—This little under-shrub is more attractive during the winter than at any other season of the year, owing to its bright red berries, which, nestling among the bronzed leaves, retain their cheerful colour through sharp frosts and cutting winds. In not too dry a soil it will thickly cover the ground, and forms then an admirable carpet plant for some of the larger Ericaceæ, while a very happy arrangement in which this little shrub played a part was at its best some time ago at Kew. It was a circular bed completely covered with this *Gaultheria*, from which sprang half a dozen plants of the Japanese Witch Hazel (*Hamamelis arborea*), then in full flower. In this way the association of the bronzy-green leaves of the *Gaultheria* and the golden blossoms of the *Hamamelis* formed a most beautiful winter picture, and at the same time a very uncommon one. The little white bell-shaped flowers of this *Gaultheria* are borne during the summer months, but they are not particularly conspicuous. The larger growing *Gaultheria Shallon* is better known than the preceding, being used in some districts as a covert plant. It is also one of the very best low-growing shrubs we possess for planting under trees; indeed, in this respect it almost vies with, if it does not actually equal, the Ivy, that is if the ground is fairly moist, for where dry the *Gaultheria* is not so satisfactory. I have seen it growing very luxuriantly quite near the water. The deep green foliage is always attractive, and in spring when interspersed with the wax-like, urn-shaped blossoms it is exceedingly pretty. These flowers are succeeded by berries, which when ripe are of a blackish-purple colour. Both these *Gaultherias* are natives of North America, and while *G. Shallon* was introduced in 1826, the other has been grown here since the middle of the last century.—T.

Remedy wanted.—Can any of your readers suggest a remedy for white-fly? This pest is becoming very plentiful and does serious injury to Bouvardias, Fuchsias, *Cestrum aurantiacum*, *Habrothamnuses*, *Alonsoas*, *Salvias*, and other plants. It also infests Strawberries, but does not appear to do them so much harm. Most insecticides when used at a safe strength fail to kill it, and tobacco fumes are ineffectual unless very strong and used several times in close succession, as it does not affect the eggs, and these quickly hatch out another brood. It is quite hardy, Strawberries in the garden and the variegated Japanese Honeysuckle on a wall being smothered with it. The best thing I have found for getting rid of it is frequent dipping in tobacco water made as strong as the plants will bear, but one or two dippings are not enough, as the insects are so light and quick on the wing that many escape before they can be immersed. The tobacco water kills the eggs it reaches. The eggs appear to the naked eye as small insects without wings and with many legs, but when seen through a magnifying glass they are like nothing else so much as minute white or green Gooseberries, and it is then seen that they are stationary, the hair-like appendages mistaken for legs being presumably Nature's provision for attaching them to the under sides of the leaves.—J. C. TALLACK.

Agapetes buxifolia.—Like many other of the vacciniaceous plants of Northern India, this species is an epiphyte, and although it assumes the form of a bush and grows to a height of several feet, it finds sufficient nourishment on the mossy stems of forest trees by means of the abundant roots it produces. Like several others also of this family of plants, it forms at the base of its stem a large tuberous swelling. As a greenhouse plant it is well worth growing. It is evergreen, and its leaves, except in being crenulated at the margin, are in shape and texture not unlike those of the Box. The flowers are borne on the ripened portion of last year's growth from the leaf axils and occur either singly or in pairs. The corolla is tubular, an inch in length, spreading at the mouth into five pointed lobes; in colour it is bright red. The species flowers during the months of March and April, but its attractiveness is not confined to

this period, as it afterwards bears conspicuous fruits of a milky white colour. It should be grown in a compost of peat and silver sand, requiring, in regard to temperature and moisture, the same conditions as are given to greenhouse Azaleas. It strikes readily from cuttings. The tuberous base to the stem is not formed until the plants are of considerable age, and we have not noticed it on any plants in cultivation. The species was first found by Nuttall on the Duphla Hills, between Bhotan and Assam, at an elevation of nearly 3000 feet. Further south it reaches much higher elevations.

GARDEN FLORA.

PLATE 850.

TREE CARNATIONS.

(WITH A COLOURED PLATE OF TREE CARNATION MRS. A. HEMSLEY.*)

IN this section are included all of those which will flower during the winter, and we frequently see others which belong to the border Carnations included with them. The term "Tree" is hardly applicable to many of the winter-flowering varieties, which are of a dwarf compact habit. I believe the term was first applied to those which are naturally of tall growth and branch freely from the stems, most of them having fringed flowers. The Bride, Sir Charles Wilson, Andalusia, Laura, and White Swan are good examples of these. These may be regarded as belonging to quite a distinct section, of which Miss Joliffe, A. Alegatière, Dr. Raymond are examples. These latter, however, though of dwarf habit, are among the best for winter-flowering. Mons. A. Alegatière, of Lyons, was one of the first to introduce this dwarf section, and the scarlet variety (A. Alegatière), one of his first, still remains a favourite and is extensively grown for market at the present day. Considering their usefulness and the fact that seedlings may be raised with little difficulty, the number of good varieties is limited. Although of late years we have had some useful additions, many of the old sorts still retain their position. The accompanying plate represents one of the latest additions. This was raised by Mr. H. B. May, and first flowered during the summer of 1890 in the open ground. The plant was layered, and the stock obtained flowered the same autumn. The flowers from which the plate was made were from plants propagated from pipings, or cuttings, about a year ago. At the present time there are some good blossoms on the same batch of plants. It appears to be a free-growing variety of intermediate height. The plate well represents the flowers, which are of a rich deep crimson, with a bright shade when they first open. Of other new sorts, Winter Cheer is a valuable acquisition, the plant being of dwarf habit, branching as freely as Miss Joliffe, the flowers well formed and of a bright crimson-scarlet—certainly one of the best for winter flowering. Mrs. Moore is the best white variety. La Neige, white, sometimes suffused with pink, is remarkably free flowering, but the flowers are rather small and fringed. I saw this in fine condition last autumn, but cannot say if it would flower as well at mid-winter. Miss Joliffe Improved appears to be brighter in colour than the old favourite. I do not know its origin, and was inclined to think the improvement was in the culture rather than the variety, but I now find that some of the largest growers prefer it to the old form. Uriah Pike

* Drawn for THE GARDEN by Miss Gertrude Hamilton, Nov. 5, 1891, from flowers sent by Mr. H. B. May. Lithographed and printed by Guillaume Severeys.



TREE CARNATION MR. A. HEMLEY

is a fine crimson, but I believe the stock of this is confined to one or two large growers who grow for cut blooms only. Besides the scarlet variety alluded to above, there are several others of recent introduction, including the Duke of Clarence, of vigorous habit, flowers large and full; Duke of Fife, a strong growing variety with smooth, well-formed flowers, a little inclined to sport. Some of the flowers are flaked with white, but when they come true, they are very bright in colour.

Where it is desirable to keep up a succession of bloom several varieties should be grown. To the scarlets may be added Florain, dwarf in habit, flowers medium-sized, very bright fiery scarlet; Vulcan, Warrior, and Souvenir de F. Labruyer. Whites: Mlle. Carle, Purity, Valentine Carle, La Belle, and Empress of Germany (white, tipped with pink). Of yellows, Andalusia is the best for winter flowering. Boissy (pale primrose), Pride of Penshurst, and Germania are border varieties, but are often included with the Tree forms. Earlystruck cuttings will flower in the autumn, and those propagated later will bloom early in the spring. Pinks: Mrs. Llewellyn, Mrs. H. B. May, Mrs. W. H. Grenfell, and Pink Perle (pale flesh-pink). Crimsons: Dr.

Raymond, Mrs. Keene, Edith, and Indian Chief. Flakes: Mme. Lombard, buff, flaked with red, fine full flowers; Jean Sisley, buff, flaked crimson, very pretty, but rather delicate.

Souvenir de la Malmaison and its varieties are generally grown with the Tree Carnations, but they produce only one crop of bloom, and that early in the spring. Mme. A. Warocque is an exception, however; this fine deep red variety flowers throughout the winter.

To flower Tree Carnations successfully during the winter, the plants must be treated properly. They are sometimes termed perpetual-flowering, yet it is a mistake to suppose that the same plants will keep up a succession of bloom for any considerable time; though by growing on successive batches of plants, the same varieties may be had in flower throughout the year, and in some of the varieties the same plants will bloom several times during the year. The plants may be propagated at intervals from January to May and grown on without stopping them, or older plants may be grown, and by stopping them at different times a succession of bloom may be kept up. It is a great mistake to suppose that Carnations can be forced into bloom by giving them a high temperature. They may be brought into flower earlier in the spring by giving them a little extra warmth, provided they have plenty of sunlight and air. The general treatment of this class of Carnations has been frequently dealt with in THE GARDEN. I may, however, add a word in favour of the dwarf varieties being used for bedding. Some were tried last season and found to succeed well, coming into bloom earlier and lasting longer than many of the ordinary border varieties.

If treated in the same manner, the Tree Carnations would prove to be as hardy as the border varieties; yet when grown in pots under glass they will not withstand severe frosts, the growths being more succulent and tender. The chief distinction between the two sections is that

the border varieties, as a rule, produce lateral shoots from the base of the plants only, while the Tree Carnations branch out all the way up the stem to where the buds begin to appear, and these side shoots come into bloom freely and again branch out. The border varieties may be grown in pots for early spring flowering, and in an intermediate temperature will come into bloom early. Sometimes all the side shoots will flower as well as the main shoots, and when this happens there will be nothing left to get stock from. I have seen plants which have been



Carnation Miss Joliffe.

forced which, after they had done flowering, were quite useless, but this does not happen with the Tree section. F. H.

THE WEEK'S WORK.

ORCHIDS.

PERHAPS no season of the year is more interesting to the cultivator of Orchids than the present. There is now a wealth of beautiful flowers in the houses, and many more beautiful species and varieties are pushing up their flowers from sheaths or from the axils of the leaves. The nights are still very cold, but there has been a very fair allowance of sunshine, so that the difficulty of keeping up the temperature has not been very great, because it has been possible to shut up the houses early and thus to utilise to the fullest extent the solar heat. If it is necessary to have the shading down during the hottest part of the day, it should be drawn up early in the afternoon, in order that none of the beneficial effects of the sun heat may be lost. The Cattleyas are now in great beauty, some of the varieties of C. Trianae are truly handsome and make a gorgeous display; not only are the different shades of colour an interesting study, but the length of time the flowers retain their beauty is a matter of much interest. Some varieties will fade in two or three weeks, others will retain their

beauty in the same house and under precisely similar conditions for five weeks. We have a very fine variety which is always the last to open its flowers, and for two seasons I watched them from the time of expanding until they passed away, and each season they lasted five weeks, fading about the middle of May. I notice the flowers pushing up through the sheaths of many other fine species and varieties to succeed them. C. Lawrenceana will be in flower before the advanced guard of the C. Mendeli and C. Mossia section. The very pretty small-flowered Lælia harpophylla is now in flower; the finer varieties of it are beautiful, and the plant does not take up much room in the house. I have grown it well in small pots placed near the roof-glass on the side stage of the Cattleya house. The entire length of the house may now be a blaze of beauty and be kept so until well into June. The Dendrobiums are a feature of almost as much importance as the Cattleyas, for although they do not make such a gorgeous display in the house, many of them, such as D. Wardianum, D. nobile, D. Leechianum, &c., are more valuable as cut flowers. We grow in the Cattleya house the Aerides Fieldingi, the Fox-brush Aerides as it is termed. The flower-spikes are now pushing out, and when the blooms are fully expanded they have a very excellent effect amongst the other Orchids. The blooms open earlier if the plants are placed in the warmest house, but in the Cattleya house they are not at their best until June. The larger-flowered species, of which A. crispum is the type, do well in the Cattleya house, and when healthy plants of Aerides Lindleyanum and A. Warneri have fully developed spikes with all the flowers expanded, they are always appreciated. I am always anxious and in some fear that the Aerides and Vandas in the Cattleya house will be over-watered in the winter, and the Sphagnum Moss suffers from withholding the water; moreover, there is some anxiety lest the plants may not get enough, but I think, if an error is committed, better be on the side of too little than too much water. Now there is not likely to be any danger. Our plants that did not need repotting were surface-dressed with fresh live Moss; this is kept in a growing state. Cattleyas and Lælias that are rooting freely will need to be thoroughly watered when they are seen to be dry at the roots. The larger proportion of the active rootlets will be clinging to the insides of the pots, and unless as much water is applied as will saturate the entire mass of roots, the plants will suffer. Some Cattleyas, though growing freely enough, do not make roots in proportion at this season. C. Warneri, for instance, does not root freely, although the plants are making their growth, and water must be applied with caution. Such plants need not be watered more than once in eight days, unless they are in flower-pots that might be considered too small for them, and which are quite filled with the roots.

The first question a beginner in Orchid culture is likely to ask is, How often must I water my plants? forgetful of the fact which ought to strike him at once that the weather would make a difference of time in one direction, and the condition of the plants themselves (a much more obvious difference) in another direction. For instance, they would require to be watered at least twice as often in dry, sunny weather as they would in dull, cold damp weather, and a healthy, vigorous-growing plant would require to be watered two or three times for once that a weakly, badly-rooted one would. Only this morning I noticed a weakly plant which seemed too moist, but the man in charge of them informed me that it had just been watered, having had no water at all for two weeks; other plants of the same genus and species were being watered twice a week. These remarks on watering apply to all the departments. I also constantly use rain-water a little warmer than the atmosphere of the house. We either place water-pots full over the hot-water pipes, or have small iron tanks which are constantly filled up as the water is used. I ought to add here that the plants of Odontoglossum citrosimum in the lightest part of the Cattleya house are now throwing up their flower-spikes with the young growths. These have been kept quite dry

during the winter; now they will take a plentiful supply of water. Our specimens of *Colocynthis cristata* have become overcrowded with bulbs, and I find thinning them out by hand is not nearly so satisfactory as turning the plants out of their pots and dividing them. One large example may be parted into three or more medium-sized specimens. If the roots are much disturbed the plants will suffer a little, the pseudo-bulbs shrinking considerably sometimes. Place the plants on the shady side of the house, and see that they do not suffer for lack of water at the roots; some fibrous yellow loam mixed with the peat is excellent. When making their growth, these plants can take plentiful supplies of manure water. In alluding to the *Dendrobiums*, I did not mention *D. Falconeri*. This species and the handsome large-flowered variety *giganteum* can do with a good winter's rest like most of the others. When making its growth it requires to be carefully watched for red spider, and should be watered and syringed very freely. *Renanthera coccinea* should now be placed in a warm house, be freely supplied with water, and treated very much like *Vanda teres*; they both require a good resting period, followed by a decided period of growth. *Angraecum sesquipedale* and *A. eburneum* may now be repotted if they need it. Ours were repotted last year, and the plants needed no more than to have some of the rotten *Sphagnum* removed, replacing it with fresh green material. J. DOUGLAS.

FRUIT HOUSES.

LATE PEACHES AND NECTARINES.—All the trees in the latest houses and cases, whether these are heated or not, will now be flowering freely, and with plenty of air circulating among them, bees also being busy, there should be no need of any artificial fertilising of the flowers. At the same time, it is advisable to smartly tap the trees every day after the pollen is dry, and if from any cause flowers are scarce, the precaution of lightly brushing these over with a rabbit's tail on a stick, or by the slower process of touching each with a camel's-hair brush may well be taken. In most cases there are, however, far more buds than are needed, and the practice of stripping off those on the underside of the branches wholesale is to be commended, as being of much benefit to those reserved, as well as saving a considerable amount of after labour. An exception to this rule should be made in favour of trees in unheated houses, as should we experience extra severe late frosts, all the flowers on the upper or most exposed side of the branches might be destroyed. This does not often happen, but it is well to be prepared for any emergencies. Fumigating with a view to destroy the early broods of green and black fly should take place either before the buds are open or after the fruit is set, strong tobacco fumes being liable to damage the tender fructifying parts of newly-opened flowers. There ought to be no fixed times for watering the borders, but if the trees are treated similarly to plants in pots, that is to say given a good soaking whenever approaching dryness at the roots, no mistake will be made. Young trees, or any in comparatively rich borders and growing very strongly, should have no liquid manure as yet, but it may be applied to those in exhausted old borders now, and frequently with advantage. Unless it is desirable to retard the trees so as to have plenty of ripe fruit in September and October, the crops may, and should be, forwarded, and the trees benefited considerably by giving less air, closing early, and syringing freely, both in the morning and when the house is closed, commencing this treatment directly the fruit is set. Unless fire-heat is turned on in dull or cold weather it is impossible to maintain anything like fixed temperatures, nor does this much affect the trees, and all that is necessary is to ventilate freely on bright and warm days, and more sparingly when either easterly winds or dull weather prevail, closing early in any case, so as to raise the heat considerably and to create a moist atmosphere which will last for several hours.

SHIFTING PEACH TREES.—Repeated experiments have amply proved that Peach and Necta-

rine trees move remarkably well about the time they are in flower, a few days or even weeks before or after that period not greatly affecting the case. When, therefore, there are failures to remedy or blanks to make good under glass, trees of almost any size may safely be brought from the open walls into the houses and, if need be, forced at once. Not but that the trees if left where they now are would bear good crops, but there are fewer difficulties to contend with when they are under glass, and the quality of house-grown fruit is invariably superior to anything that can be ripened in the open. New houses or blanks in older ones may therefore be furnished now, and if particularly desirable, trees may yet be shifted from one house to another even if they have a crop set on them. In each and every case it is of the greatest importance that the work be done carefully and well. It is not necessary nor often possible to move them with a large ball of soil about the roots, but as many of the latter as possible should be saved and be surrounded in their fresh site with a tempting or fibre-producing compost, in which the residue of a garden smother, or what is left when a great heap of garden rubbish has been burnt, plays an important part. Newly-moved trees, whether they were shifted in the autumn or spring, must never be allowed to become dry at the roots, though saturation should be guarded against, and if the young growth flags in the sunshine, shade lightly, give less air, and syringe overhead frequently. Thus treated, root-action will soon be quickened, and when it is seen the top-growth is less affected by sunshine, gradually withdraw the shading and ventilate more freely. Avoid over-cropping newly transplanted trees, or the fruit may be small and the young growth not so strong as desirable.

STRAWBERRIES.—These, on the whole, have flowered much better than they did last year, when there were many failures to be noted, and good sets have been affected. Those who have forced rather hard will now be gathering good dishes of ripe fruit, and if they are of the variety *Vicomtesse Héricart de Thury*, the quality will be satisfactory even if ripened in a Pine stove. No other variety amenable to hard forcing is other than of poor flavour if kept to the last in a strong heat, but all would be improved considerably if, after the best of the fruit is well coloured, the plants are shifted to shelves in a cooler drier house for a few days, but they must not be dried off at the roots. Now the days are longer and more air is admitted to forcing houses, Strawberries set their fruit without much extra attention, though it is advisable to still continue fertilising the flowers with a camel's-hair brush. The best crops and finest fruit are to be had by starting the plants on shelves, stages, or sunny walls in moderately warm houses—newly started vineries and Peach houses answering well—being transferred from these to the back shelves or stages in Melon, Cucumber, and forcing houses generally to swell the fruit to as great a size as possible. The fruit cannot well be too large now-a-days; therefore, early thin out very freely, leaving from six to nine of the largest on each plant and feed freely with some quick-acting kind of chemical manure or mixture—Peruvian guano answering well. The soil in the pots ought never once to become really dry, and the time will soon come when it will be necessary to water many of the plants twice daily. Sauces or troughs should not be used for setting the pots in, but if the shelves were covered either with a thick layer of turf grass side downwards, or, better still, a good bed of fresh Moss, this will save the watering-pot and be a tempting rooting medium. Syringe overhead freely in order to keep down red spider, and if green-fly is troublesome, fumigate with tobacco, but there must be no nearly or quite ripe fruit in the house, or it will be badly and irretrievably tainted.

MELONS FOR FRAMES.—According as pits and frames are cleared of Potatoes or can be spared, many of them might well be devoted to Cucumber and Melon culture. In anticipation of this, more heating material should be prepared for freshening up the old hotbeds, and strong healthy plants got

ready for planting. Sow seed singly in 3-inch pots, and if possible raise the plants in a hotbed rather than in a house devoted principally to the cultivation of a variety of insect-infested plants.

PRACTICAL.

PLANT HOUSES.

STOVES.—GENERAL REMARKS.—The weather now being more favourable to plant growth, it will be safer to advance the temperatures a few degrees both by night and day than it would have been a few weeks back. There is no real gain in maintaining high temperatures too early in the season, when the elements are all against the building up of an enduring growth. It is a mistake to fancy that high temperatures are the chief factors in accelerating the growth of plants, so as to obtain results that will be of a lasting character, when we have to contend against such an absence (to a great degree) of sunshine, with days none too long for the direct benefit of the plants. Growth, it is true, is made, but it is, more often than not, either long-jointed or of a spindly or weakly condition, which, when we have longer days with the sun's rays more powerful, will be found to suffer in no small degree. This will arise from two sources—in the foliage it will be from want of substance, whilst at the root it will be caused through a deficiency of or a weakly root-action. Plant growth when not unduly forced does not require nearly so much protection against injury by scalding. Palms, even if they have been subjected to an extremely high temperature with the exterior elements all against them, will be more susceptible to this failing, and even if not actually scalded, the leaves will more than likely assume a paler colour than is their wont.

With more favourable weather, such as we in the south have been enjoying during the past few days, it will be possible to allow of a little more ventilation. This work should, however, be performed in a cautious manner when the sun is bright with a prevalence of easterly winds. At such times it is best to reduce the heat in the pipes early in the day rather than have to be forced into admitting an inrush of cold air through the ventilators over and above what would be necessary under good management. Early closing should be the rule; this, with a general moistening over of all places where there is a susceptibility to dryness, or, in other words, damping down, also by light syringings of the plants, will greatly assist their growth. These syringings I have notified "light," as heavily syringing newly-potted plants is not at all desirable; it is misleading as to the true condition of the soil at the roots. Light syringing may, however, be thorough; it should not merely be a damping of the plants overhead, but underneath and between them as well. It may in this way take a little while longer, but it is directed oftentimes to where thrips and spider are finding a congenial home, and is thus in the end a direct saving. When there is any extra heat in the pipes at nightfall or likely to be later on, to maintain the desired temperature the syringe should again be lightly used, whilst at all times a close watch should be kept upon the evaporating troughs to see that they are filled up.

In watering newly-potted plants, particularly large ones of a deciduous character, some considerable care is necessary not to be too liberal in this respect at the thus early period of the season. Should the soil perchance have become too much soddened, the roots will not afterwards take to it kindly, and its condition will militate against the growth of the plant throughout the season. Rather than water such plants prospectively early in the day, when everything points to a bright and sunny time, it is much better to look to them later on when their true condition can be better gauged. On the other hand, such plants as Palms, which have been freshly shifted after having had a good long time in their previous pots, with the balls a complete mass of roots, will still require to have a fairly good supply of water. Provided the potting when done was performed in a careful and

thorough manner, there will not be much fear from too much moisture. The potting, if done firmly, as it should be, will direct the water more towards the roots and not be absorbed into and afterwards retained by the new soil. This also refers to *Ixoras*, *Dipladenias*, and other plants of an enduring growth, as it pertains to the potting, although in but few instances would nearly the same amount of water be required as in the case of Palms; *Dipladenias* in particular need but little water now. The condition of each class of plants as to their individual growth and the maintenance of their foliage in a healthy state should be ascertained with some degree of certainty.

The temperature, as before indicated, may now be allowed to rise, but 68° should not be exceeded as an average at the time of banking up the fires for the greater majority of stove plants. During cold frosty nights with keen winds blowing, it will be much better to be content with 65° rather than aim at a higher figure by an intense heat in the pipes, which invariably means a dry and parching atmosphere. During bright and sunny days the thermometer may range up to 85°, but plants that are susceptible to scalding and where inferior glass is used will when that point is reached be more liable to injury. It will be better, therefore, to guard against this either by running down the blinds where already fixed if but for an hour or two (certainly not for any length of time, as the beneficial effects of sunshine are too valuable to be thus thrown away), or by temporarily shading such plants either by paper thrown over them inside or by some light material upon the glass outside of the house. During comparatively sunless days the temperature, if it rises 10° or 12° by fire-heat and a blink of sunshine, will be sufficiently high; a few degrees less if quite cloudy. Early closing during bright weather with the thermometer at 85° and the plants well bedewed with the syringe will greatly encourage their growth and refresh them after a few hours of rather trying weather upon young growth.

JAMES HUDSON.

THE KITCHEN GARDEN.

TOMATOES FOR THE OPEN AIR.—Possibly the results of last season may have a deterrent effect on those people whose Tomato plants suffered from the disease last season, but as failure probably in many instances might be attributed to faulty cultivation, it may be as well to try again on a different principle. On a large scale certainly Tomato growing in the open air is a hazardous speculation, for although success may attend the grower's efforts in a very favourable season, the opposite would no doubt be the case in the majority of instances. In private gardens the case is different, and certainly where space can be afforded under glass this is certainly the surest and safest method to pursue. In other cases outside Tomatoes have to be cultivated to help on the supply, and, as is well known, good crops of serviceable fruit are obtained by those people who attend judiciously to the plant's wants. It will be as well to remember that a good start is half the battle, and instead of putting out puny drawn-up plants, strong and well-matured ones are what is necessary. Another disadvantage with these small plants is that the season, or at least the warm and sunny weather, is over before the fruits have a chance to ripen.

RAISING THE PLANTS.—To secure good strong plants suitable for planting out the first or second week in June the seeds should now be sown. It is of the utmost importance that the plants be grown on sturdily from the first, as on this probably the ultimate success will depend. I prefer to sow the seeds thinly in well-drained 6-inch pots, the soil consisting of equal parts of leaf soil and loam with a little sand. Place in any fairly warm structure or gentle hotbed, when the seedlings will very quickly appear. As soon as this stage is reached remove to a shelf near the glass, but do

not apply any shade, this causing a drawn and sappy growth. Directly the rough leaf stage is reached pot off singly into 3-inch pots. A little shade and sprinkling overhead will very quickly assist in establishing them so as to withstand all available sunshine and also a little air, but guard against cold draughts or even a cold and stagnant atmosphere. An intermediate temperature is what is needed to start the plants well. By standing them well clear of each other a sturdy growth will follow. When ready for repotting, pot on into 7-inch or 8-inch pots, in which the plants will remain until planting-out time. The first trusses of fruit will then have formed. If it is desired to grow the plants as cordons, all side growths should be rubbed out. If it is desired to have plants with two or three stems, the points of the plants must be taken out to cause these to form when about a foot high, but all side stems from these resulting growths must be kept rubbed out as for the single cordons.

POTATO PLANTING.—With the recent frosts and drying winds, all soils, if the opportunity was taken to get the ground turned up beforehand, will be in a highly pulverised state, and the planting of what are termed late or main-crop varieties should now be pushed on, that is, when the state of the soil will allow of its being trodden on or worked. Select medium-sized sets in preference to those of a small size, or even cut tubers. With these late kinds, also bear in mind the evils which are likely to accrue if close planting is indulged in. The least that can be done under any circumstances is to allow at the least 30 inches between the rows, and 3 feet would be better, and the sets 1 foot or 15 inches apart, the latter distance being the better. In planting, chop out the rows with heavy and broad hoes, or even pronged hoes, this being a deal better than planting with a blunt-ended dibber as sometimes used. Nor should the special Potato manures be omitted if there is the least idea of the ground wanting in fertility. They should be used according to the directions which have recently been given in the pages of *THE GARDEN* on Potato planting.

PLANTING FIRST EARLIES. Except by planting a portion of a border so as to provide for an early supply and according to demand, do not be in too great a hurry to plant out the main batch. The first or second week in April is safest for these. Take particular care in planting these, as no doubt especial pains will have been taken in the preparation of the sets, the main or primary sprout being the one to take care of, all smaller ones being rubbed out, one sprout, or at the most two, giving far better returns than where a multitude of stems is encouraged. The rows should not be less than 2 feet or even 26 inches, and the sets 1 foot or 15 inches.

PLANTING ASPARAGUS.—The exact time for planting Asparagus will vary according to the district. Where new beds are in course of contemplation, these would be prepared ere this, so that all would be in readiness when the time comes for planting. Very often where the roots have to be purchased, very likely the district in which they are to be obtained will be earlier than where they are to be planted; therefore the best course to pursue would be to know from the vendors when the plants are likely to be ready, so that when received all may be in readiness to set about the work. Very likely if taken up too early before growth has made a move, decay takes place. Unduly drying the roots is also very injurious. When the plants are raised at home, much of the difficulty of transplanting is lessened, as the work may be prosecuted with dispatch. In either case, whether the plants are purchased at a distance or raised on the place, care must be taken in planting. Shallow holes must be taken out to allow of the roots being laid straight out and the crown an inch below the surface. Some fine and well-pulverised soil must be drawn about them and pressed firmly with the hand. If planted just as growth is commencing, young rootlets will commence to form simultaneously. Success may then be assured.

A. YOUNG.

PREPARING THE GROUND AND SOWING SEEDS.

I READ in one of the gardening papers recently that vegetable and flower seeds should be ordered early in the season, and after reading the passage I pondered over it. If the seeds are ordered very early and sent home, there is the temptation to sow the vegetable seeds with the first fine days in February or even earlier. I know it was so during the present season. Early in the month the weather was so fine and pleasant, that I planted out some early Potatoes, sowed Peas and Broad Beans, also the entire crop of Onion seed. Scarcely was the planting and sowing accomplished when the change came—16° of frost, followed by snow; then 12° and 20° of frost. Early Carrot seeds were sown, also Lettuce and Radish seeds in early borders. The soil was in very good condition when the seeds were sown, but after the snow and frost, what a change had taken place! The frost had penetrated deeply; the snow soaked the ground, loosening it and throwing the seeds on to the surface. Suppose the seeds vegetate badly or in some instances not at all, who is to blame, the gardener for sowing the seeds too early or the seedsman for supplying bad seeds? I am afraid that the seedsman has to bear the blame, when in many instances there is no blame attached to him whatsoever; nor can one seriously blame the gardener for doing what he thought best under the circumstances. If there had been no change in the weather, it would have been the right thing to do. The best thing to do will be to sow again when it is seen that the seeds have perished. A great deal of success or failure in the raising of kitchen garden seeds depends upon the preparation of the ground and the condition it is in at the time of sowing. Many gardeners no sooner clear one crop off the ground than they are anxious to get in another, and this happens sometimes for the early crops. For instance, I know a gardener who is not satisfied unless he can have a crop of Coleworts off his early borders late in the autumn, and I have known them to be taken off the ground just as it was time to sow the Peas in February. On examining this ground, it was found to be in a wet, sodden state by being trodden upon when it was wet, and at midwinter it is impossible to get a good chance to dig the ground, so that it may be laid up for a time to the action of the weather.

The right way to have kitchen garden soil in good condition for early crops, and thus maintain the reputation both of the gardener and seedsman, is to prepare it as early as possible in the autumn. I am quite aware that only a small portion of the ground can be prepared thus early; but it is not necessary for later crops. The ground should be manured and dug or trenched not later than the end of October, and it is best to perform this operation when it is dry, or at least comparatively dry upon the surface. Successful results cannot be obtained if the ground is worked when in a wet condition, or when it is raining. When the soil has been well dug up and exposed to the action of the atmosphere through the winter, it crumbles down readily when lightly forked over just before sowing the seeds. The time to sow seeds for the earliest crops has often been discussed. Early Peas, for instance, used to be sown in the north about the end of October or early in November. Some gardeners do so now, but those who will try the experiment of sowing Peas at that time and also early in February, or even later in the month if the weather is unfavourable, will find the spring-sown crop almost as early, if not quite as early as that sown the previous year. It will also be found that the spring sowing will produce very much the larger crop, and there is this advantage over the autumn sowing that the trouble of looking after them during the winter is avoided. Birds, slugs and other depredators have to be looked after, and I have long since concluded that it is best to leave the sowing of Peas until the spring. The smaller kitchen garden seeds are more likely to be injured than such things as Peas and Broad Beans, and for such crops the necessity of having the soil in good condition is much more urgent; and I strongly advise keeping the seeds in a dry room for a week

or two beyond the usual time for sowing rather than risk the partial loss of the crop by sowing when the soil is in bad condition. I have known complaints made to seedsmen about seeds being bad when they had been tested previously and found to be of the best quality. Seeds also vegetate very badly in heavy, undrained soils. Of course no good garden should be undrained, but, as a matter of fact, many are, and gardeners have to make the best of the conditions under which they are placed. In this case it is better to wait until a favourable opportunity for sowing occurs. When the seeds have been sown in the drills and the loam looks most unpromising material to cover them in with, get some dry, fine-y-sifted sandy loam and cover in the seeds with it, and simply level down lightly with a rake. Some gardeners have quite a mania for treading the ground, but this must not be done under every condition of the soil. If it is dry and a light sandy loam, then let it be trodden over by all means. J. DOUGLAS.

ORCHIDS.

CATLEYA AMETHYSTOGLOSSA.

A nice variety of this pretty plant has reached me from a friend living in France a good many miles south of Paris, and he asks, Is this not a very unusual time to see this species in bloom? This question I can scarcely answer, for I have observed that the imported plants, if they have done well, usually flower early from their first growth made under cultivation. Messrs. Low, of Clapton, have made this Orchid much more plentiful than it was some thirty years ago, for then the only plant in the country was in the collection of Mr. Robert Warner, near Chelmsford. The flowers now before me are very handsome, but they vary much, as if they had been gathered from a batch of newly imported plants. The flower marked No. 3 is a perfect gem. It is the variety that I should take the greatest care of and which should be marked as the typical form, all the others being varieties of more or less value. The flower in question measures some $4\frac{1}{2}$ inches across the petals, which, with the dorsal sepal, are about equal; the lateral sepals, however, are slightly larger, white, profusely and regularly spotted with rosy purple, the shade from which spots appears to cast a delicate tinge of rose over the ground colour, making it a delicate rosy white. This is a superb flower; the others are more or less flushed with rose colour in the sepals and petals, with the spotting or dotting more uneven, and with a less beautiful lip. The form detailed seems to be more like the plant I knew as the type. This *Cattleya* is not difficult to grow into good specimens, but I think it requires more warmth than such plants as *C. granulosa*, *C. guttata*, *C. Leopoldi*, and others of a similar nature. It should be firmly potted in well-drained pots, using good brown peat fibre and a little chopped Sphagnum. It requires careful watering, as do most *Cattleyas*, and during the winter it should not be allowed to suffer from drought. I think it thrives best if kept in a winter temperature of about 60°, as it comes from the warm parts of Brazil.

WM. HUGH GOWER.

Oncidium splendidum.—From Mr. H. E. Gribble, gardener to the Marquis of Londonderry, Stockton-on-Tees, comes a very nice flower of the above-named species. The large lip is of the richest clear golden yellow, the sepals and petals transversely banded with chestnut. For the introduction of this fine plant into our gardens we are indebted to Mr. Sander, of St. Alban's. Although the plant was known in our gardens before, Mr. B. S. Williams having had an excellent variety

which passed into the collection of Sam Mendel, of Manley Hall, Manchester, its price was so excessive that it was confined to only the few. I have seen many plants flowering freely this year. I think the variety sent by Mr. Gribble is about the best I have seen. The plant does well in the temperature of the *Cattleya* house.—G.

Odontoglossum Alexandræ Stevensi.

Mr. Norfolk sends me a very fine flower of this variety which well deserves attention. The broadly lanceolate sepals are white, transversely banded with cinnamon-brown; petals much broader, prettily toothed and undulated on the margin, white, much spotted with the same shade of brown as the sepals. The lip has a patch of bright yellow on the disc, the apex pure white with a broad blotch of cinnamon beneath the crest, and numerous smaller ones scattered round about. It is a grand form, which first appeared in the gardens of the Duke of Sutherland at Trentham, and was named after his late gardener. The *Dendrobium* noble from the same individual is a very broad-petalled form, but pale.—G.

Phalænopsis.—H. Perkins sends me some flowers of this genus, and I hope many others will take it in hand. The residents near London need not despair, for Mr. Young, the Orchid grower at Mr. Wigan's at Sheen, flowers these plants most beautifully. Amongst the flowers sent are some of *P. Schilleriana* which differ only in colour, some being very good, but certainly not so fine as some I recently saw in Messrs. Low's nursery at Clapton. There are also some good flowers of *P. Luddemanniana*. The flower marked is *P. Luddemanniana* ochracea, the sepals and petals of a citron-yellow, transversely marked with brown. It is by some much admired, and I believe a somewhat rare variety. The flowers of *P. speciosa* are not so good as I have seen, the rich amethyst-purple being much barred with white. The wholly white flower is *P. tetraspis*.—W. H. G.

RENANTHERA COCCINEA.

I OBTAINED a single growth about 2 feet long, and being very successful in blooming it, I will give "D. P." (p. 231) the treatment I give it. The piece had scarcely a root. I took a 9-inch pot and made a good outlet in the bottom. I then placed a dry Hazel stake about 4 feet long in the pot and filled up with crocks, charcoal and fresh Sphagnum. I then stood the plant on the crocks and tied it to the stake, placing a boss of fresh Sphagnum between the plant and the stake, leaving them about an inch apart, and as the roots began to break, this opening was filled up with live Sphagnum, which had very soon the appearance of being run all over with green caterpillars. I stood it in the hottest and lightest place—just behind the boiler—in a late viney, half of the house being Muscats and the other part Lady Downe's. This was in the spring of 1861, keeping it as near the glass as circumstances would allow. This corner was very close and hot during the growing season. The Sphagnum was well supplied with water. As the Grapes began to ripen a drier atmosphere was maintained.

When the Grapes were ripe, fire-heat was used only now and then to disperse damp, and on several occasions in hard weather the thermometer has been down to 32°, the *Renanthera* not being injured in the least; of course, every part about it was as dry as we could keep it. When the growing season came round again, most of the dry Sphagnum Moss was pulled out and replaced with fresh, using the syringe freely. In the autumn of 1864, the plant, being 8½ feet long, showed for bloom. With a view of exhibiting it at the South Kensington Orchid show, I cut a 6-inch pot in half, placing the two halves on the plant over the first root below the bloom-spike. It was in full bloom by the 1st of May, and was exhibited at the Kensington Orchid show in the second week in May, receiving second prize as a single specimen. A special certificate was awarded at the meeting of the Royal Horticultural Society, May 16, 1865. After the top was cut off, the plant again pushed a new growth

from the top leaf, ripened up, and again showed bloom on the new growth, which expanded about the same time as before. I feel sure under a similar treatment the *Renanthera* would bloom every year as freely as a *Dendrobium*.

JAMES SMITH.

Waterdale, St. Helen's, Lancashire.

SACCOLABIUM CŒLESTE.

SEVERAL persons have written to me of late complaining that their plants of this species have suffered much during the cold weather we have lately had. I think the species has not been well understood by our growers. The plant is figured both in the "*Reichenbachia*," iii., p. 63, and in the "*Orchid Album*," t. 361. Both of them speak of the plant being a native of very hot and moist places in Siam, so that I imagine the persons complaining of the health, of their plants at the present time have been keeping them too cold and too wet. A combination of these circumstances would cause the falling leaves as mentioned by some, notwithstanding the plants being well up to the light, which is a plan I do not approve of for tender plants in the winter season, because this is often the coldest part of the house. I always used to remove the baskets to a lower elevation in cold weather and frequently set them upon the stage, and that too with good results. This plant, I consider, does best in a temperature of not less than 65° at the lowest; therefore, to keep it in good health, I consider it should be removed from its close proximity to the glass in the winter season. In the summer-time it will stand any amount of heat with moisture; therefore, hanging close to the glass will suit it admirably, taking care that the plant is not exposed to the burning influence of the sun's rays, which only give the plants a yellow, unhealthy appearance. Its flower-spike is erect, from 6 inches to 9 inches and even a foot long. I saw spikes each a foot long upon some plants which were imported by Mr. Shuttleworth soon after the species was known. The flowers are closely set, large for a *Saccolabium*, pure white, having the tips of all the segments blotched with azure-blue or blue of a deeper shade, the lip frequently blue throughout. The most beautiful spike of this plant I have ever seen was in the possession of Mr. Cobb, of Sydenham. It was very long and dense, all the flowers being tipped with bright light blue. The plant is frequently called *Rhynchostylis*, but I see nothing to warrant the adoption of this name. The plants of this species thrive best in a well-drained basket surrounded with clean and sweet Sphagnum Moss, which at no season of the year should be allowed to become quite dry, as the plant in a state of Nature, although subjected to great heat, is surrounded with an amount of moisture, which always causes sufficient evaporation to maintain its foliage in good condition.

WILLIAM HUGH GOWER.

Dendrobium lituiflorum (*G. Haynes*). This is the true species. "G. H." says it has growths nearly 3 feet long and pendent. The flower sent is upwards of 4 inches across, sepals and petals spreading, the latter much the broader and richer in colour, being of a rich, deep rosy-lilac, becoming paler, in fact almost white, towards the base. The trumpet-shaped lip is deep amethyst-purple at the base, which is zoned with white and broadly tipped with rosy purple. This is a beautiful species, and it was very rare before I imported the species from Assam some twenty-two or twenty-three years ago. This was the first time the white-flowered form was heard of. The variety *Freemani* is an erect growing plant also from Assam, having a zone of

yellow on its lip. The variety found in Burnah has been named *robustum*, from its growth, but the flowers are not superior to those of the Assam form.—W. H. G.

Epidendrum radicans (W. W.).—This plant comes from Guatemala and Mexico, and is said to grow naturally amongst long Grass and other weeds, but I have seen it doing well hanging on a wall which caught the sun for about half the day, with a temperature of the cool end of the Cattleya house. It was syringed morning and evening during the summer, and during winter once in the middle of the day. It grew well, and was very seldom out of flower during the whole season. Many people dry this plant in winter. This is a wrong plan, causing the plant to become weak. It usually flowers during the months of April, May and June. It should be potted in rough brown peat fibre. If grown upon a wall, a small pot will suffice.—W.

MALFORMED CYPRIPEDIUMS.

THE flowers of Orchids belonging to the genus *Cypripedium* seem very liable to abnormal variation in their forms. During the last two years I have come across some very interesting examples which were grown in the houses of Mr. Joshua Saunders, of Clifton, near Bristol, who is a very successful Orchid grower. The plants were apparently in perfect health, so that there is no reason to suppose that these singular flowers were the result of faulty cultivation in any way. To render my description of them more intelligible, I may mention that the flower of an Orchid is supposed to consist of three sepals, one above and two below, three petals, two of which are above and one beneath, six stamens, and three pistils. These are usually modified into three sepals, two petals, a labellum or lip, which is formed by the lower of the three petals and two stamens, which grow together, are completely confluent, and a column which is composed of the three pistils and the remaining four stamens which are joined together and form that organ. In the genus *Cypripedium* this arrangement is slightly changed, for the two lower sepals are joined together beneath the rest of the flower, so that there would appear to be only two sepals, one above and one below. The variations I have met with are as follows: No. 1 (see the figure) is a flower of *C. superbiens* var. *Veitchii*, in which the two upper or side petals have become incorporated with the lower sepal, one on either side of it; the labellum or lip is entirely wanting. No. 2, a flower of *C. Lawrencianum*, in which the two upper or side petals have become joined together and take the place of the upper sepal; the lip is absent and the column is somewhat distorted. No. 3, a flower of *C. superbiens*, which is apparently normal, except that there is no lip. No. 4, a flower of the same species, also normal, but with a very misshapen rudimentary lip. No. 5, another normal flower of *C. superbiens*, but with two well-developed lips, one in its normal position, the other at one side and slightly turned, so that the opening of the lip is towards the true lip. A correspondent to *Science Gossip*, writing in the January number of that periodical, mentions two abnormal flowers of *C. Sedeni*, one in which the upper sepal was wanting and the two lower ones distinct. There were no side petals, but a petal took the place of the upper sepal. In the other "the corolla of the flower was composed of four petals, the lateral petals were half curved, and the two lower petals assumed the saccate form of the labellum; the two lower sepals were crescentic." I should be interested to learn from

Orchid growers whether abnormal flowers of *Cypripediums* and other Orchids were commoner than usual last year. G. S. S.

SHORT NOTES.—ORCHIDS.

Schomburgkia tibicinis (Vulcan).—This is the name of your bulb, which you appear to know is quite dear. It is a very fine species, and I should advise you to get some more plants of it. It was described by me in THE GARDEN a short time since.—W. H. G.

Lælia rubescens (Karl).—This undoubtedly is the plant which you send. I used to find this species somewhat uncertain, and I always succeeded with it best by growing it on a block. When making its growth I used to place it in the Cattleya house, afterwards resting it in the cool house.—G.

Lælia Boothiana (G. W. H.).—This is the name of the Orchid sent. It is very early in the season for it to flower. It is frequently grown in gardens in England and called *Cattleya lobata*, but your flower proved the plant to be a true *Lælia*. The flower sent is a



Malformed flower of *Cypripedium superbiens* Veitchii.

large form, being upwards of 5 inches across the petals, which are broad and with crisp edges, and, as well as the sepals, of a deep rich rosy purple. The lip also is deep rich violet-purple with a paler throat. I am very pleased to see the flower at any time, but in the middle of March it is quite a surprise.—G.

Cœlogyne cristata (J. F. W.).—It is a very fine variety of this, which appears to break into numerous forms in various localities. I saw a fine lot of plants growing in a cool house with *Dendrobium Jamesianum* and *D. infundibulum* lately in Messrs. Low's nursery. They were quite healthy, but they were not flowering.—G.

Cœlogyne corrugata (W. G. T.).—This is the name of the piece of plant you send. It is said to be rare, but this is a mistake. It is not rare, but very seldom seen in flower. It comes from the Neigherry Hills, where it is said to grow always upon the northern side and in quite cool localities. It will not thrive except in the coolest house, and if you wish to flower it, you must so grow it, potted in a similar manner to other species of the genus.—H.

Cattleya Trianæ (G. Craig).—Your flower is a very grand form. I should not hesitate to call it *popayanensis*; the sepals and petals are lilac-mauve;

the richly-coloured lip is very long and funnel-shaped, rich rose colour in the tube, the whole of the spreading front lobe being of an intense rich maroon-crimson; the throat deep rich orange. It is a remarkable variety, well deserving particular attention. The variety *Backhousiana*, which you appear to think it is, has deeper-coloured petals.—W. H. G.

Epidendrum bicornutum.—G. Sheppard sends me the first flower he has open on this plant, and says he has eight more to open. I have a spike in my possession which has twenty-four flowers. This specimen was grown in Croydon only a few years ago. It is a beautiful Orchid, well deserving every care and attention. It seems to do best in strong heat and moisture with plenty of fresh air.—W.

Cattleya Trianæ splendidissima.—J. MacDonald sends me a fine flower of this magnificent variety. The flower measures rather over 6 inches across. The sepals and petals are white, with a tinge of light mauve. The lip is finely frilled round the margin, the entire front portion being rich magenta, the throat rich orange-yellow. This is a superb and striking variety, well deserving a place in any collection.—W. G.

Cypripedium Haynaldianum (G. Hepple).—This is the name of your plant, and not *C. Lowi*, which it much resembles, and which one not well acquainted with Lady's Slippers might easily confound it with. The dorsal sepal is much larger, however, and spotted. Like *C. Lowi*, it requires the warmest house, as it comes from the Isle of Luzon. It grows very freely in a mixture of peat and Sphagnum. A little light turfy loam is also a desirable addition.—W. H. G.

Epidendrum criniferum.—T. Mason says this appeared in an imported lot of Orchids. He says the spike is terminal and bears five and six flowers. The flowers are each about 2 inches across, the sepals being bright yellow, marked with rich brown; the petals, of the same colour as the sepals, are longer, but very much narrower. The side lobes of the lip, which are fringed with long hairs, are white, dotted with rosy pink, the central lobe being yellow.—W.

Cœlogyne lentiginosa.—A Burmese plant, which Mr. Williams says cannot be classed amongst the first-rate beauties in the Orchid family. It was first received from Thomas Lobbs. The plant here figured flowered with Mr. Cummins in the garden of Mr. A. H. Smee, Carshilton, Surrey. It is a somewhat small-growing plant, and succeeds best in a hanging basket or pan. It likes the heat of the East Indian house, with a fair share of sun and light and abundance of water to its roots in the growing season.—*Orchid Album*, t. 442.

Lælia xoniensis.—A beautiful plate of a fine variety which bloomed in the famous collection of Mr. G. F. Tautz, late of Studley House. It was raised by Mr. Dominy at Exeter before the Messrs. Veitch came to the Chelsea nursery. As no record was kept of the parentage of the early hybrids, the exact cross has never been satisfactorily cleared up. It is usually said to be between *Cattleya Mossiæ* and *Lælia purpurata*, but it is more likely to have been between *Lælia crispata* and *Lælia purpurata*. It succeeds well with the other *Lælias* and *Cattleyas*.—*Orchid Album*, t. 443.

Cypripedium philippinense (T. J.).—This is the name of a very nice flower of this species, which was first sent home by Mr. J. Veitch from the Philippine Islands. It was named *levisatum* by Bateman, and figured by Hooker in the *Botanical Magazine*, t. 5508. Reichenbach had, however, previously named it as above. Mr. Sander imported a similar plant which the same authority called *Robelini*. This is said to be distinct, but some of our English authorities put them together. Yours, however, is the typical plant.—W. H. G.

Cattleya Trianæ formosa (H. B. T.).—This appears to be the name of the flower you mark B. It measures upwards of 6 inches across. It is a handsomely shaped flower, although not so round and full as that of *Cattleya delicata*, the sepals and petals being white, flushed with rose, having the petals much frilled and undulated, the lip large and full, the side lobes rolled over the column and pale purple. The front lobe is much frilled at the edge and the whole front rich deep magenta, behind which it is wholly deep orange.—G.

Cattleya Trianæ delicata (H. B. T.).—This is the variety you send marked A, and a magnificent form it is, measuring upwards of 8 inches across, white, slightly flushed with rosy lilac; lip large, beautifully frilled and undulated on the margin and toothed on the edge, white, slightly flushed with soft rosy

lilac and stained in the throat with a light yellow blotch. This flower is an exact counterpart of some I had from Mr. R. B. White, of Ardarauch. This plant was at one time figured and known by the name of *Cattleya Warszewiczii* delicata.—G.

Vanda Amesiana. J. Brooks sends me a very nice form of this, but it by no means equals the original plant figured in the "Orchid Album," t. 296. I saw the plant in Mr. Low's nursery before it went to America. That plant, I am told, did not come from the same place as Mr. Boxall got the second lot from, and from the first importation only one plant lived. The flower marked No. 2 is not, as you say, a white form, for I can detect some tinges of lilac in the lip, but I believe there is a pure white variety.—G.

STOVE AND GREENHOUSE.

FLOWERING CANNAS.

THAT a specimen of one of the large-flowered race of Cannas *Alphonse Bouvier*—should have been exhibited at the Royal Horticultural Society's meeting on January 12 in a condition worthy of an award of merit, speaks highly in favour of the different members of this group of Cannas for winter blooming—in fact there is scarcely any season of the year when their large and showy blossoms cannot be had. Started in the spring and grown on in the cool greenhouse under much the same conditions as *Pelargoniums*, *Fuchsias*, and plants of this class, these Cannas will, as a rule, commence blooming about midsummer, and continue till the cold, damp weather of late autumn sets in. This is in an ordinary greenhouse, but with additional heat flowers will continue to be developed more or less throughout the winter. It is now three years since a coloured plate representing two distinct varieties of this group of Cannas appeared in *THE GARDEN*, at which time they were really but little known, while at the present day there is a very large demand for them. As flowering plants for the greenhouse during the latter half of the summer good use was made of these Cannas last year at Kew, while planted out they will also bloom freely; but with our unsettled summers they are seldom seen at their best when treated in this way. The individual blooms do not remain long in perfection, but a succession is kept up for a considerable period from the same panicle, as the laterals develop after the expansion of the earlier blossoms, while in the case of strong established plants shoots sufficiently strong to flower are pushed up one after the other throughout the growing season. A pleasing feature in connection with these Cannas is the wide range that exists among them in the colour and markings of the blossoms, some being of a deep scarlet-crimson tint, while others are of a lighter hue, and the various shades of orange-red, amber, and yellow are also represented among them. In some, the greater portion of the flower is yellow with a margin of red, and in others the position of these two colours is reversed. Blooms with the petals splashed and flaked are also to be found among them. Foliage distinctions occur, too, for besides the numerous shades of green many of them possess the rich dark-coloured leaves which in the older varieties form such a striking feature in a bed or mass. It is now some seven or eight years ago since the first varieties of this section were put into commerce by their raiser, M. Crozy aîné, of Lyons, in France, who has since then sent out a selection every year, and it may truly be said of them that very few, if any, classes of greenhouse plants have made such rapid strides in so short a time as these Cannas.

When cultivating them in pots it should be borne in mind that they are gross feeders, and if to be seen at their best they must have liberal treatment. A soil composed principally of good open loam with an admixture of well-decayed manure will suit them perfectly, while as the pots get full of roots additional stimulants in a liquid state will be of service. The principal reason for just now calling attention to this desirable group of Cannas is that where it is intended to obtain any of them the early months of the year are the best for that purpose, as when dormant the rhizomes can be sent by post without any risk of injury. Apart from the fact that the carriage is very much less than for established plants in pots, there is another item well worthy of consideration, especially where glass accommodation is limited. Very possibly the plants have been pushed on in heat for the purpose of propagation, and if kept in a greenhouse they are apt to stand some time without making much further progress; whereas if obtained in a dormant state, they may throughout be accustomed to a greenhouse temperature.

Raising seedlings is very interesting, and if the seed is saved from the best varieties some good results may be reasonably anticipated. If sown in a gentle heat during the spring the plants will bloom the first year, that is of course when they are shifted as required. The seeds will germinate very quickly if sown as soon as ripe, but after being kept for some time they grow best with a little assistance. By some a slight filing of the hard outer coat is recommended, but I much prefer to soak the seeds in warm water for 24 hours at the most, when if sown and placed in a gentle heat the first leaf soon makes its appearance above ground. A great objection to filing is that it may be carried a little too far and the embryo be injured thereby; whereas, after soaking, the principal consideration is that the soil is not allowed to become dry, otherwise the growing portion will quickly perish. H. P.

Pyrus Maulei under glass.—Besides its beauty as a dwarf flowering shrub in the open ground, this is also extremely useful for blooming under glass early in the spring, as not only will it flower profusely so treated, but will retain its beauty longer than those shrubs that require more forcing to get them into bloom thus early. Where needed for this purpose little bushes of this *Pyrus* can be kept entirely in pots, and if plunged outside during the summer in a sunny spot and kept well supplied with water they will flower year after year, that is, if no more forcing than the protection of a greenhouse is given them, for in common with all other shrubs if brought on in a high temperature, the plant is so weakened that it will need a season to recoup itself. In addition to *Pyrus Maulei*, some of the forms of *P. japonica* will flower well in pots, and are then very useful for the embellishment of the greenhouse, but in order to obtain good flowering plants they must be allowed to attain a larger size than is necessary in the case of *P. Maulei*.—T.

Ophiopogon spicatus variegatus.—I have had under my observation for more than three years a fine plant of this *Ophiopogon*, which has been for the whole of that time in the window of a London dwelling-house, and though it has not been repotted, but occasionally watered with a little weak guano water, it grows freely, and is, taken altogether, one of the most satisfactory subjects that could be found for such a position. An occasional syringing to keep the foliage clean, and water when necessary, is all the attention needed by this *Ophiopogon* to keep it in good health. For indifference to the draughts and dust of a dwelling-house it vies with the ever-popular *Aspidistra*. There are several of these *Ophiopogons* in cultivation, but the best for the purpose mentioned are the green and

variegated forms of *O. spicatus*, the leaves of which are numerous, while the flowers are white, and contribute but little to the embellishment of the plant. *O. Jaburan*, on the other hand, has spikes of deep blue blossoms which are very attractive, but the leaves are not numerous enough to render it so effectual as the other. There is a variegated form of *O. Jaburan* in which the leaves are striped with yellow. Although hardy, the foliage of these *Ophiopogons* is far more satisfactory under glass than it is in the open ground.—H. P.

Azalea Mme Van der Cruyssen.—This Indian Azalea is, with the exception of *Deutsche Perle*, grown, I should say, to a greater extent than any other variety. The blooms are semi-double and of a deep, bright, almost purplish pink. Another reason no doubt for its being such a universal favourite is that it will grow into a saleable size in less time than most of the other varieties. While imported plants of this Azalea are rarely one whit the worse for their change, another variety, *Sigismund Rucker*, frequently suffers greatly; in fact it is in this respect the most unsatisfactory of all I have to deal with, for many of the plants will often lose the greater part of their leaves after being packed up for a little while.—T.

ANNUALS FOR POT CULTURE.

WHERE the room is all too limited for the proper cultivation of permanent plants, whether soft-wooded or such as are of hard and enduring growth, more dependence should be placed upon annuals for purposes of decoration during the spring, summer, and autumn months, more particularly the two last named seasons of the year. For the early spring-time the seed would have to be sown the previous autumn, frame protection being provided during the winter months. Annuals for pot culture must be divided into three heads, viz., hardy, half-hardy, and tender. Of the first named there is a good number of kinds that are particularly well adapted to the purposes in view, and which if sown at once will give a good return in the shortest possible space of time. Some of the best of these are the following: Ten-week Stocks in various colours. In the case of these I have myself kept to the large-flowering scarlet, purple, and white varieties; these are very reliable and afford for all practical purposes three as distinct colours as one could desire. The habit, too, of this strain is excellent for pot culture. For later flowering the East Lothian strain of *Intermediates* in their distinct shades of colour should also be included. The best way with these Stocks is to sow thinly in shallow seed-pans, raise in a steady heat, and remove to a cool house or pit as soon as the plants have fairly developed their seed leaves. Great care is necessary to avoid damping off; this will occur if the young plants are kept in a moist atmosphere, or if kept too freely watered. A dry position with a free circulation of air (not necessarily cold) and a moderate supply of water will be found the best. As soon as fit for pricking off, three or four plants should be put into a $\frac{1}{2}$ -inch pot, using good light loamy soil and leaf-mould. This size of pot will be found better than a smaller one, no further labour being afterwards required in repotting, as they will flower well in the size advised. In cultivating Stocks in pots many make the common mistake of supplying the plants with too much water before the pots are fairly well filled with roots. For instance, if one watering be given when the seedlings are pricked off, no more will be needed until the soil is quite dry; not even a damping overhead is advisable. The young plants, it is true, will droop, but this never need cause any anxiety; they will come round quickly enough and in a far more satisfactory way than when coddled too much. When the flower-spikes begin to show, then more water can be given in safety with occasional applications of weak liquid manure. When the first flowers unfold, the plants may at once be placed where they will remain whilst in bloom. A few weeks previously it will have been possible to grow them out of doors (or at least in a frame with the lights on at

night) in the case of the Ten-week varieties, whilst the East Lothian forms will of course have a long period in the open before they flower.

Mignonette seed of such approved kinds as the French variety Machet, Miles' Spiral, Crim-son King, Dwarf Erect, and Garaway's White if sown now will provide a most useful lot of plants that will come into flower before the outdoor stock and in succession to the autumn-sown stock. Mignonette seed should always be sown in the pots in which the plants will afterwards flower when the growing of a serviceable decorative stock is the primary object in view. Repotting into larger pots only involves unnecessary labour, absorbing time which might be more profitably devoted to other things. It is, of course, essential to give shifts when growing larger plants, as standards or as extra-sized bushes. For most practical purposes what are termed 48's and 32's will be found the best sizes to use; smaller pots involve more labour in watering, larger ones give too much soil, with a disposition on the part of the plants to die off when the soil is over-moist and the seedlings not arrived at a good size. The soil should be chiefly loam, the best being that which is of a friable nature, neither too heavy nor too light; when too heavy some leaf-mould should be added. This soil should if possible have some lime rubble that has been powdered down fairly fine mixed with it, and that in place of sand; it should also be quite on the dry side. I do not mean absolutely dry, the object being to ram it as firmly in the pots as when potting pot Strawberries or Cape Heaths. The object of this is to secure a more enduring growth; in loose soil the plants grow too rank, whilst the same condition will tend to a greater retention of moisture for a longer period than is desirable. The pots should be well crocked; then a layer of fowl's manure, if available, should be added before the soil, not mixed with it, for the simple reason that this stimulating agent is not needed until the plants are well advanced. With a firm surface the seed should be sown, and a little fine soil added in the same manner; no heat should be employed to raise the plants, a cold pit or frame being the best place. The surface may be advantageously screened by means of sheets of paper until the seedlings are above the soil; then all the light possible should be given. When large enough to see which are the most promising plants, the weaker ones should be thinned out, so as to leave from five to seven of the best to each pot. Until well established, a moderate supply only of water is needed, but when it is seen that the plants are making good headway, then more is required. Mignonette should never be allowed to suffer for want of water, more particularly when the pots are filled with roots. If allowed to get dry a few times, the older foliage will soon fade to a brownish colour and tell its own tale. As an additional stimulating agent, I have not yet found anything to surpass weak Peruvian guano water; this will fulfil all the requirements. The best plants in my case have been grown upon light shelves near the glass. True, they take a lot of water, but without painstaking no one deserves to succeed. When in full bloom the plants can, of course, be placed where desirable, but the seed-pods should be removed, so as not to distress the plants.

There are several varieties of annual Grasses, such as are termed ornamental, which are well worthy of extended cultivation in pots. Of these the following may be recommended as amongst the best: *Agrostis nebulosa*, *A. laxifolia*, and *A. pulchella* (the last making the most compact plants). *Briza gracilis* is the most suitable for pots of its class. *B. maxima*, although a beautiful kind in the open border, is not so well suited for this work. *Eragrostis elegans* as a later kind to come into use is specially good. This Grass is best sown in the open ground, being lifted when of good size for potting, but not sufficiently advanced to cause any check to the growth; the pots should then be replunged in the open ground, looking to the watering as may be desirable. *Hordeum jubatum*, although a tall-growing kind, is well worth attention, and so is *Lagurus ovatus* (the Hare's-tail Grass). These are all varieties that are ornamental

in a flowering state, but for its value as being ornamental in its leaf-development, *Eulalia japonica* zebrina should be named; its use would save many plants of enduring growth from being run upon too much in decorative work. A fairly light soil will suit all of these Grasses, the same sized pot as recommended for Mignonette being advised, and with the one exception named above it is best to sow the seed and not afterwards disturb the young plants, that of the *Eulalia* being sown quite thinly. A very pretty plant of dwarf growth is *Asperula azurea setosa*, a species of Woodruff; although it is not a showy kind, it is extremely pleasing when in flower; it does not require any special cultivation. For flowering during the summer months the *Calliopsis* are well known in the open border, but they are quite as useful in pots when a fair amount of pains is taken in their culture. The seed may be sown in the open or in pots. I prefer the latter method, a shift being given once when the plants are seen to need it some little time before coming into flower. Having arrived at this latter condition, they should be brought under cover and kept freely watered; a light position will suit them best. Of the Campanulas, the quick-growing *C. Lorei* should not be passed over. A few seeds of this small Bellflower may very well be sown in the pots with the Grasses previously alluded to; this makes a very pretty mixture. Centaureas furnish us with the Corn-flowers, which will make most fitting companions for the *Calliopsis*, requiring likewise a generous course of treatment. Should the plants in either instance be found to grow too tall for the particular purpose in view, it will be well upon the second attempt to pinch them before too far advanced. *Hibiscus africanus*, with its large sulphur-coloured blossoms, is quite distinct, and is to be recommended where there is a good variety of flower required with a large space to be filled during the summer months. *Linum grandiflorum coccineum* is a very free-growing annual in the open border, being also for pots a very distinct addition; it requires all the light possible when taken under glass.

Nemophila insignis is an annual that is rarely seen in pots, yet for this system of culture it is admirably suited. It is beautiful when used in combination with the common Musk in pots for the margins of stages in the greenhouse or conservatory during the summer. This *Nemophila* may be transplanted from the open border when small; if wanted earlier it would be better to sow in pots and raise in a cold frame. When kept we'll supplied with water after having filled the pots with roots, it will last a long time in beauty. The most approved varieties of Asters hardly require any recommendation, being so well known to most growers, and by many grown in pots for autumn decoration. Grown in pots is perhaps not a correct term, as in most cases the plants are pricked out in the open ground as with other Asters to flower outside, being lifted just as they show for bloom. Between that time and the period of blooming there is a long enough interval for them to become well established. The best results are obtained by adopting a hardy course of culture so as to secure dwarf sturdy plants when lifted for potting; it is better therefore to grow the plants in as open a position as possible. The following are half a dozen good kinds for growing in pots: *Diadem*, Veitch's Empress (both crimson and white varieties)—one of the very best—Triumph, Snowball, dwarf *Chrysanthemum*-flowered and dwarf German. With such a selection it will be possible to have a long season of bloom, for it will be a rare occurrence to find all of these various strains in flower at one time. Sweet Peas in pots are somewhat of a novelty, yet they can be grown most successfully in pots, but better still in long boxes such as are used in windows. The best success with these fragrant flowers I have noticed in the case of a grower of known repute has been, when sowing the seed in August, the plants were kept in a cool house all the winter, steadily growing meanwhile and flowering profusely in March and April, when such flowers would be a most agreeable and welcome addition to the cut-flower supply. The plants as they increased in height were trained up the side of a

span-roofed house next the glass, producing a very pretty effect, whilst but little room was taken up by the boxes. Well-grown plants of hardy annuals in pots will give a good return for the labour expended, whilst the details of culture are such that anyone may soon grasp them, finding out for himself, after a few experiments, what in their particular case gives the best results and renders the most service during any particular period. The great advantage in growing such plants is that of being able to throw them away as soon as they fade; thus it is possible oftentimes to retain them in positions where it would not be deemed advisable to allow plants of permanent growth to remain. To those who have to make a good show in their houses with the minimum amount of room for growing and storing plants, I strongly advise recourse being had to these beautiful plants.

PLANTSMAN.

Daphne indica.—This is now flowering freely at Messrs. Veitch's. *Daphnes* are rather slow-growing when young. They do well when planted out, using a mixture of about two parts turfy loam and one part fibrous peat made sandy. The border should be well drained, and the soil should be made firm and hard, leaving space for good soakings of water. I am under the impression that they succeed best in a border that is never disturbed. During the growing season liquid manure may be freely applied.—W. H. G.

Boronia megastigma.—This plant is now flowering in the most profuse manner with the Messrs. Veitch, its delightful fragrance perfuming the whole house. It is not grown to the extent one would have expected. It is a plant that gets ruined very often by standing in the house, during which time no doubt the plant gets dry at the root, thus causing the shedding of the leaves and generally death. I am told that about five years is the extent of its life under any circumstances. For the truth of this I cannot vouch. I should much like to see young plants of it become more popular and more generally grown.—W. H. G.

Rondeletia amœna.—Though by no means so showy as *R. speciosa* major, recommended on p. 236 as "perhaps the most beautiful variety," this species is well worth a place in any selection of flowering plants for the stove, as not only are the blossoms very pretty, but its season of blooming extends over a lengthened period—in fact, more or less throughout the greater part of the year. The branches are fewer and the oblong-shaped leaves larger than in most members of the genus. The flowers, which are borne in massive clusters, are pale pink or blush-coloured, with a number of yellow hairs in the middle, thus forming a golden centre. The finest clusters of blossoms are borne on the more vigorous shoots. This *Rondeletia* is a native of Guatemala, and has been grown sparingly in this country for years. It is by some included in the genus *Rogiera*, by far the best known of which is that pretty greenhouse shrub, *R. gratissima*. By the latest authorities, however, the genus *Rogiera* is eliminated altogether, the members of it being included with the *Rondeletias*. *R. amœna* can be readily increased by cuttings of the young shoots at any time during the growing season, and when rooted, all the attention needed is about the same as that given to the general run of stove flowering plants. It should be pinched back rather freely when young, otherwise it is liable to get naked at the base. As the taste for stove flowering rather than for fine-foliaged plants seems to be on the increase, we shall probably see the different *Rondeletias* become more popular than they are at present.—H. P.

Tinnæa æthiopica.—This shrubby member of the Labiate is in general appearance very different from its allies, while its small dark-coloured blossoms are by no means showy, but they possess such a delicious Violet-like perfume, that it is on this account well worthy of cultivation. The flowers, which are borne in the axils of the leaves, are limited to no particular season of the year, but are, as a rule, borne in the greatest quantities during the spring and early summer, though in some cases flowers may be had nearly all the year round.

It is a native of Tropical Africa, and was introduced into this country a quarter of a century ago. Its propagation and culture are of the easiest, the treatment required being such as is usually given to the general run of stove plants. This *Tinnæa* has a tendency to run up somewhat thin and naked at the base, and to obviate this as far as possible, it should be freely stopped when young and so placed that it is not drawn up by overhanging plants. Though this *Tinnæa* cannot claim the merit of showy blossoms, its pleasant fragrance will commend it to many.—T.

PLANTS FOR EDGING GROUPS.

Nothing adds so much to the beauty of a group of plants as a suitable edging of some dwarf material. This applies in every instance where plants are grouped for effect. The annexed

illustration shows well a bold group of *Hydrangeas* in flower, edged with *Maiden-hair* and *Pteris* Ferns. In groups arranged for exhibition, I have, however, sometimes seen *Adiantums* laid on their sides to form an edging to hide the pots, but this practice should at once condemn a group, for there are many suitable plants which would answer the purpose much better when placed in a more natural position; besides which they may be utilised for the same purpose in the conservatory or other plant houses, and while they occupy but little space they give a pleasing effect and a good finish. Of plants suitable for the purpose, *Isolepis gracilis* stands foremost. This may be grown with little trouble, and is readily increased by division. When it is desirable to increase or renew the stock, a few of the old plants may be broken up, and if they have not stood long enough to get weak and unhealthy they will soon start away. Provided the plants are in a fairly warm house, they may be broken up at any season of

the year. They should be potted in a rich loamy compost. Like most Grasses, this likes plenty of moisture at the root and to be well exposed to the sun. Liquid manure may be used freely after the pots are well filled with roots. *Panicum variegatum* is a good companion for the above, but requires rather more warmth. During the winter it must be kept in a stove temperature. This may be propagated from cuttings; several cuttings put in a pot and stopped once after they are rooted may be left to grow and spread over the pots. Light sandy soil should be used, as when treated too liberally it loses its variegation. In the summer-time it may be used for the conservatory, and will keep well for a considerable time, but during the winter it is of no use except in the stove. *Ficus repens* is a very serviceable plant both for covering walls



Group of *Hydrangeas* edged with Ferns.

illustration shows well a bold group of *Hydrangeas* in flower, edged with *Maiden-hair* and *Pteris* Ferns. In groups arranged for exhibition, I have, however, sometimes seen *Adiantums* laid on their sides to form an edging to hide the pots, but this practice should at once condemn a group, for there are many suitable plants which would answer the purpose much better when placed in a more natural position; besides which they may be utilised for the same purpose in the conservatory or other plant houses, and while they occupy but little space they give a pleasing effect and a good finish. Of plants suitable for the purpose, *Isolepis gracilis* stands foremost. This may be grown with little trouble, and is readily increased by division. When it is desirable to increase or renew the stock, a few of the old plants may be broken up, and if they have not stood long enough to get weak and unhealthy they will soon start away. Provided the plants are in a fairly warm house, they may be broken up at any season of

and as an edging plant; it is also a good plant for covering baskets, &c. For *Nephrolepis* and other Ferns which do not hang over the sides of the baskets this forms a pretty covering. As an edging plant it should be grown several plants together, and may be allowed to grow to any length according to circumstances. Cuttings taken from the tips of young growing shoots will root freely in the stove propagating pit; they may be put into small pots several together and potted on after they are well rooted. They will do well in any ordinary compost. A great recommendation to this plant is that it succeeds well in a cool greenhouse, and when used for decoration it will bear a good deal of rough handling. The variety *minima* has much smaller leaves, and for some purposes is more desirable, but for general use I prefer the old type. There are several *Selaginellas* which may be recommended, but none are more serviceable than the old *S. Kraussiana*, or *denticulata*, as it is generally

loose material and surfaced with a little better compost. The *Selaginellas* are very partial to plenty of moisture, but they suffer from excess, especially where the pots are not well drained. *Tradescantia zebrina* is a useful old plant for edging, growing freely under almost any conditions. For elevated stages, where the long growths can hang down, it is very effective, but it requires renewing from time to time, otherwise it gets ragged and untidy; the variety *multicolor* is very pretty, but inclined to run out. When propagating, the best variegated shoots should be selected, and while the plants are growing the shoots which revert to the normal form may be cut away. If grown in light sandy soil it will not run out so much as when treated more liberally.

Other plants might be named for the purpose, but the above will be sufficient for general use. Although a neat edging in plant-houses is rather the exception than the rule, I believe that where attention is paid to this matter it is

thoroughly appreciated by all who pay any regard to neatness and finish. It also shows off the more interesting objects to better advantage. T. W.

Aralia Sieboldi.—I am obliged to Mr. Harris for his note respecting this plant maturing seed in this country. I was aware that it does seed in England; yet, although I have frequently seen plants in flower, I have not seen any good seeds. Nor have I seen English seed offered. I have received seed from the Continent for several years, and I believe most growers obtain it from the same source.—F. H.

Dracæna Doucetti.—This is a pretty variegated *Dracæna*, or rather *Cordylina*, for it is one of the narrow-leaved class, of which *C. australis* is a well-known example. In the newer form the leaves are very numerous and narrower than in *C. australis*, while they are deeply edged and variegated with creamy-white. It is perfectly distinct from *Cordylina australis variegata*, which is occasionally to be met with. Both succeed well in a cool greenhouse, and consequently may be used where tender stove plants would suffer.—H. P.

Epacris onosmæiflora flore-pleno.—Despite the great number of species and garden varieties of *Epacris* and their allies, the Heaths, now in cultivation, there are, as far as I can recall, only a couple with double flowers, and they are the double form of the common Ling (or Heather) and the subject of this note, a variety of the Australian *Epacris onosmæiflora*. This is very different in general appearance from the numerous garden varieties of *Epacris*, being a stout free-growing kind with long shoots thickly clothed with leaves, from the axils of which the flowers are borne in great profusion. The flowers are very double, in the shape of little white rosettes, but before expansion they are slightly tinged with pink. So numerous are the blooms, that the entire shoot is wreathed with them for a considerable distance. In a light airy house where slightly shaded from the full rays of the sun, this *Epacris* will remain in bloom a considerable time. It was introduced by Mr. Bull and first distributed by him in 1883. The typical *E. onosmæiflora* is in cultivation, but it is not particularly showy and is very seldom met with, while I have seen a very inferior form of the double to which the name of *semi-plena* might be appropriately applied. The *Epacris* in question is also known under the specific name of *purpurascens*. Its stout succulent style of growth renders it less easy of propagation than most of the others, and to succeed with it, the cuttings must be selected from the weaker shoots. It is certainly less showy than many of the garden varieties of *Epacris*, but at the same time forms a very interesting and ornamental specimen.—H. P.

Moss for packing.—This is not so easily obtained as many who advise its use seem to imagine. What is wanted is a soft, clean, and springy material, any that is coarse, very dense and green, or having much earth clinging to it not being at all suitable for packing. Where others procure what they require I am not able to state, but in my case nothing I can find other than from the lawns is fit to pack choice fruit in. Ours being a rather clayey or moisture-holding soil, and the lawns never dressed or manured in any way, Moss more than holds its own against Grasses generally, and at this time of the year is particularly prominent and plentiful. Advantage is taken of a few dry days to collect as much of this Moss as possible, and an active labourer can fetch up large quantities with the aid of a fairly sharp iron-toothed rake. Deferring this work till the days are longer renders it an easier matter to properly dry the Moss, but I find we can collect it more readily in March, and it can be dried sufficiently on a dry floor of any kind or even on wattled hurdles, old doors, and such like, these being taken in and out of doors according to the weather. If frequently turned, the drying is not long in being accomplished, and the Moss keeps well in loose heaps in a dry shed of

any kind. If the Moss collected for packing is at all dirty, it must be first well dried and then heavily thrashed, the soil as well as the earthy smell being got rid of if this cleansing process is well carried out.—I.

The garden at night.—"F. W. B." (p. 248) well deserves our thanks for drawing attention to the beauties and pleasures of the garden at night and its charms as seen under artificial light. Although our peregrinations through the houses at night are mainly undertaken for the examination of thermometers and the destruction of obnoxious pests, still we cannot pass the beauties of many flowers as revealed to us by lamplight without pausing in admiration, as being altogether so different to what we see them in daylight. Outside the houses also, given a clear moonlight night, the charms are manifold; the shadows of various trees and other objects, together with the scent of countless flowers in the still night air, well repay for a moonlight ramble. Again, in hilly districts such as this, one is unable to confine the attention to the garden alone, the surrounding scenery being so grand, gigantic mountains throwing their weird shadows across vast tracts of the lower lands, and, together with other objects, reflected in the placid river. I believe many employers enjoy the garden in the twilight, for while in the country they often take a stroll and apparently enjoy the quietness and sweetness of all around. For this reason I endeavour to have plenty of evening and other sweet-scented flowers under the terraces and in close proximity to the house, and I have no doubt of their being appreciated. I cannot conclude this note without a word as to the superior scenic beauties of the landscape as seen at dawn of day in spring, summer, and autumn to what can generally be obtained as the day advances, for the atmosphere is then so clear, that far distant objects are seen more distinctly and in finer and more delicate details than later, when the haze partly obscures the vision. At this time of the morning the general tranquillity of animate Nature and the comparative repose of all around seem to add refinement to the scenery.—J. R., *Tany-brook*.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

MARCH 22.

IN the amount and variety of exhibits there was a considerable improvement upon the last meeting, and although the day was far from inviting for visitors, there was a good company present and a deal of interest was evinced in the plants exhibited. One long central table, with side ones, was well filled with early spring-flowering plants and Orchids. Of the latter, the comparatively new and extremely beautiful *Dendrobium Phalaenopsis Schrederianum* was shown well, there being a considerable variation in the different plants staged from the Shipley Hall collection. Pot Roses were an important feature. The plants shown from Cheshunt were of most serviceable size, bearing well-developed blossoms. Daffodils were largely shown, clearly demonstrating the extreme value of these early spring-flowering bulbs for pot culture. From Syon Gardens came a good and varied collection of forced shrubs of the most approved kinds, and from Farnham Royal a most select assortment of well-grown Cinerarias. Early-flowering greenhouse plants were well represented from Highgate, and Orchids in season from various growers.

Orchid Committee.

First-class certificates were awarded to the following:—

DENDROBIUM PHALAENOPSIS SCHREDERIANUM VAR.—This was considerably the finest form of this New Guinea type of *Dendrobe* from amongst the ten plants exhibited, and it was without doubt one of the most attractive features of the meeting. It bore five well-developed flowers with other buds to

open, and fully exemplified its title to the specific name *Phalaenopsis*, bearing a striking resemblance to these Orchids when not closely inspected. Like others of this species, it flowers from the terminals of both old and young growths; the blossoms fully 4 inches across. It is a lovely variety of a deep and rich rosy purple colour, the lip darker than the other parts; the sepals are very broad and smooth, being veined with a darker shade, but not so much as in the lip. Shown by Mr. E. Miller Mundy, Shipley Hall, Derby (gardener, Mr. Elphinstone).

MOOREA IRRODATA (Rolfe).—This was a cut specimen, the spike only being shown, bearing thirteen flowers of a pale brownish colour with lighter centre, the blossoms incurring after the manner of the Dove Orchid, and possessed of considerable substance. From its appearance one would surmise that the growth is similar to that of the *Peristerias*, but of a more moderate character. From the Royal Botanic Gardens, Glasnevin.

Awards of merit were given to—

DENDROBIUM PHALAENOPSIS SCHREDERIANUM DELICATUM.—In colour this is quite a contrast to the variety just alluded to, being quite a light form; the edges of the blossoms were suffused with rosy pink upon a nearly white ground, the central parts almost white with the same colouring imparted to the lip with a light centre, a very delicate form. From Mr. E. Miller Mundy.

DENDROBIUM INFUNDIBULUM (Cassio-Bridge var.).—The plant shown bore only one flower; it is best described as a superior variety of its species, from which it does not differ in detail. Shown by Mr. E. Moon, Cassio-Bridge, Herts.

Botanical certificates were awarded to—

EPIDENDRUM LAUCHEANUM.—The plant bore a long raceme of flowers, these being small and closely arranged upon the spike; the colour somewhat dull, but interesting for its novelty. From Messrs. Sander and Co.

MEGACLINIUM FALCATUM.—This African Orchid is quite minute and not in any sense of a showy character, being also a comparatively old species, having been introduced from Sierra Leone in 1822 ("Dictionary of Gardening"). From the Royal Botanic Gardens, Glasnevin.

Messrs. Sander and Co. made a fine display of Orchids, consisting chiefly of choice varieties, many being of a most interesting character. *Phajus Cooksoni* was in good condition, three strong plants being shown, one (a lighter form) being the handsomest of the three; *P. assamicus*, a somewhat distinct species, having flowers of a pale greenish-yellow colour with a white lip, borne upon a strong spike; *Ansellia africana lutea*, a pale yellow form of this old Orchid with faint markings of light brown; *Dendrobium Dalhousianum* was finely shown in a cut state, including one or two very superior varieties with as many as fourteen flowers upon a spike; *Cypripedium Wallisi* bore three well-developed blooms on the spike, the tail-like appendages being nearly 2 feet in length; *Cattleya Trianae alba* is a pure white variety with a faint lemon blotch on the lip; *Dendrobium fimbriatum oculatum*, seldom shown, and *D. Brymerianum* in good condition; *Spathoglottis Lobbi*, a bright golden yellow, and very pleasing species of slender growth; *Batemannia Burti*, with four of its terra-cotta-like flowers; Sander's variety of *Epidendrum aurantiacum* with sweetly scented orange-scarlet flowers; *Schomburgkia undulata*, a dark shining brown species, and several forms (cut blooms) of *Cattleya labiata*, also a plant of *Epidendrum dellense* with six spikes (silver Banksian medal). Messrs. Charlesworth, Shuttleworth and Co., Clapham, had a most interesting group of *Oncidium* sarcodeas, showing great diversity in the varieties, some lightly barred and blotched with brown, others more so, one or two of the latter being quite superior forms; the long arching spikes of these *Oncids* were very effective. *O. varicosum Rogersi* was also shown here, and a good plant with one spike of *Odontoglossum cirrhosum* (silver Banksian medal). Mr. E. Miller Mundy had a group of *Dendrobium Phalaenopsis Schrederianum*

two of the best forms of which have been alluded to. These plants had in most cases made excellent growths, and had become thoroughly established, flowering on both old and young shoots. This variety of *Dendrobium* exhibits a singular diversity in the colours, no two being hardly alike (silver Banksian medal).

Other Orchids consisted of a superior form of *Odontoglossum* triumphans from Mr. Le Doux, East Molesey, Surrey, with seven flowers upon the spike. From Mr. Lucas, Warnham Court, came a quite diminutive species of *Masdevallia* named *M. simula*, looking more like a *Saxifrage* in growth than an Orchid. The same gentleman also showed *Dendrobium nobile nobilius*, a dark form; and from Glasnevin came *Lycaste fulvescens*, with flowers of a dull yellow colour borne upon long footstalks. Sir Trevor Lawrence sent a hybrid *Dendrobium* not named (*speciosum* × *Kingianum*), with small pure white flowers more like an *Epidendrum*. From Mr. R. J. Measures, Cambridge Lodge, S.E., came a hybrid *Masdevallia*, *M. Hinksiana*, with dull yellow flowers (*tovarensis* × *Davisii*), also a distinct species of *Odontoglossum*, the lip being its conspicuous feature, white with rosy spots; it did not appear, however, to be fully developed, and *Brassia Lawrenceana*, a scarce species of superior merit. Messrs. Heath sent from Cheltenham *Cypripedium Argus Moensi*, with intensely dark spots upon the petals. Mr. Cummings, The Grange Gardens, Carshalton, showed a fine spike of *Epidendrum Frederici Gulielmi*, a Peruvian species with dark purple flowers.

Floral Committee.

A first-class certificate was given to—

RANUNCULUS CORTUSÆFOLIUS.—A species introduced from Teneriffe in 1826. The cut specimen exhibited was a dense cluster of lustrous yellow blossoms much larger, but not unlike those of the common Buttercup in colour. The foliage is of noble proportions, the one leaf shown being fully a foot in diameter. From Lord Hylton's gardens at Merstham, Surrey (gardener, Mr. Wood).

Awards of merit were given to—

AMARYLLIS ECLIPSE.—The name well indicates its character, for it is quite a superior seedling, being the best of its colour yet seen; the plant was a vigorous one with twin spikes, the ground colour white veined and suffused with deep crimson upon the outer margins of the petals, which are broad and of extra substance. From Messrs. Veitch and Sons.

AMARYLLIS SILVER QUEEN.—This is a seedling with extra fine and large flowers, having broad petals striped up the centre with silvery white, this colour also appearing between the veins and outer blotches, which are of a bright red colour; the plant shows a good constitution. From Messrs. Paul and Son, Cheshunt.

ROSE CAROLINE TESTOUT.—Of La France character, but paler in colour the silvery shade of the reverse of the petals being even more handsome with the paler pink colour, than in the case of the well-known La France; this is a decidedly promising new Rose. From Messrs. Paul and Son.

ROSE H.P. DANMARK. a darker form of La France, was voted the same award, but it had previously received this recognition; this is also a good type of Rose. From Messrs. Wm. Paul and Son.

EUONYMUS JAPONICUS COMPACTUS.—A very dwarf and close growing form with silvery variegation; this should prove a most useful variety for edging, being of as dwarf and compact growth as Box edging. From Messrs. B. S. Williams and Son.

Messrs. Paul and Son had a charming collection of Roses in pots, the plants of decorative size, in the best of health, and bearing blooms in many instances quite fit for competition in a cut state. The best of these were Tea-scented *Elise Fugier*, a very full flower, with outer petals white and centre of a pale lemon colour, free, and of good habit; *Souvenir de S. A. Prince*, Mme. St. Joseph, and *Madeline d'Aoust*; Hybrid *Perpetual J. D. Pawle*, one of the newer of the dark kinds, an excellent

pot Rose, Miss Dickson, Henri Schultheis, Gustave Piganeau, another admirable pot Rose, Duchesse de Dino, and Mme. Victor Verdier: Bourbon Mrs. Paul, which makes a capital kind in pots, and the dwarf Polyantha *Roses Perle d'Or*, Georges Pernet, and *Gloire des Polyantha*, which are little gems for pot culture. With these were included forced examples in dense bloom of *Azalea mollis* and a promising pure white *Lilac*, after Charles X. in its style of growth, called *Marie Legrange* (silver Flora medal). Messrs. Barr and Son showed an excellent assortment of *Daffodils* which made a good display by themselves. The best of these were bicolor *Horsfieldii*, *obvallaris*, vars. of double forms of *incomparabilis*, *poeticus ornatus*, *Achilles*, *incomparabilis Leedsii*, Sir Watkin, *maximus*, *poeticus ornatus* *Burbidgei*, *Leedsii amabilis* (Paper-white), *Queen Bess*, *Golden Spur*, and a new kind of Mr. Barr's introduction called *Queen of Spain*, (silver Banksian medal). Messrs. Cutbush and Sons showed an admirable group of early-flowering greenhouse plants, embracing the best of the *Epacris* in profuse bloom with well-grown dwarf *Ericas* in a similar state; also *Acacia Drummondii*, one of the best for pot culture, and *Boronia heterophylla*, full of flower with the sweet-scented *B. megastigma*. Their dwarf form of *Calla*, a good strain of *Cyclamen*, and a promising dwarf *Mignonette*, the perfume of which was very powerful, were also included (silver Banksian medal). Messrs. James and Son, Farnham Royal, staged their noted strain of *Cinerarias*, which show a still further advance in the form and refinement of the flowers as well as in their size. The plants were dwarf and sturdy, the selection of colours, both in the light and dark shades, being all that one could desire (silver Banksian medal). Messrs. B. S. Williams and Son had some grand forms of *Clivias*, the plants very robust and healthy, bearing immense trusses of flowers. The best were *C. aurantiaca*, *Lindeni* (a bright orange-scarlet), *Prince of Orange*, *robusta* (extra); the last has extra long and vigorous-looking foliage, and is quite a major variety. With these were included some well-flowered *Azalea mollis* and a promising double white variety of *indica* named *Princess of Wales* with full flowers, and a basketful of a very dwarf form of *Solanum capsicastrum* called *nanum*, a serviceable plant (silver Banksian medal). Mr. Wythes sent from Syon House an excellent assortment of early blooming shrubs and plants suited for forcing. These were well flowered and of useful decorative size, and included such as *Spiræa confusa*, *Azalea mollis*, *Prunus sinensis* fl.-pl., *Guelder Roses*, an early white *Rhododendron*, *Lilacs*, with *Dielytra spectabilis* in admirable condition. Dwarf bushes of *Laurustinus* in good flower were also included, and an assortment of *Acacias* (cut specimens) of sorts not so often seen, but admirable for cutting (bronze Banksian medal). Mr. C. E. Smith, Silvermere, Cobham, Surrey, sent three baskets filled with *Forsythia suspensa*, *Pyrus malus floribunda*, and double-blossomed *Peach*, all in profuse flower. The examples staged were all cut specimens, but these well indicated the great value of these early-flowering hardy shrubs (bronze Banksian medal). From Kew Gardens were sent some beautiful racemes of *Acacias* thickly studded with flowers, and from Chiswick Gardens came the *Chiswick* type of *Clivia*, which is of dwarfier growth with narrower foliage than in most kinds. Mr. Leach, Albury Park, had a distinct and dark form of *Anthurium Scherzerianum* called *Leachi*, the spathes very broad. Messrs. Veitch and Sons showed other excellent examples of their strain of *Amaryllis*, one of which called *The Volunteer* is an especially fine dark kind of a rich crimson-scarlet colour, with broad petals and of good substance.

In the classes provided for amateur growers for early spring-flowering bulbs there was no competition, a somewhat singular fact, considering that good prizes were offered. Neither was there any competition for *Cinerarias*, but in the class for six forced shrubs Mr. Wythes showed a well-flowered lot of dwarf plants consisting of *Azalea mollis*, *Spiræa confusa*, *Prunus sinensis* fl.-pl., and a *Lilac*; to these the first prize was awarded and bronze Flora medal.

Fruit Committee.

There were only a few exhibits before this committee. An award of merit was given to—

ORANGE SILVERMERE SEEDLING.—This possessed great merit, being a nice-sized fruit of good flavour. It had been grown in pots in a winter garden with only a limited amount of heat. Shown by Mr. Quarterman, gardener to Mr. C. E. Smith, Cobham, Surrey.

A new *Cucumber*, a cross between *Beeston's Prolific* and *Lockie's Perfection*, was shown by Mr. Roberts, gardener to Mr. H. Packe, Prestwold, Loughborough. It was very good for so early in the season, straight, with few spines and little neck. A good dish of *Mushrooms* was shown by Mr. Miller, gardener to Lord Foley, Ruxley Lodge, Esher. A *Tomato* named *Ladybird* was sent from Albury Park, Guildford, by Mr. Leach. This, though small, is of excellent flavour, and was shown in large clusters, the committee thinking it a desirable winter-fruiting variety. A dish of seedling *Apples* from Mr. Ballantyne, The Dell, was of great merit as regards colour and firmness of the fruit, but somewhat deficient in flavour. The tree from which the fruit had been taken was found growing in a wood. A splendid lot of *Asparagus* was sent by the Messrs. Poupart, Mortlake. The heads were of great size and of good colour.

The secretary read the paper on *Melons* by Mr. Charles Ross, Welford Park, Newbury, who was unable to attend. Mr. Ross said to get *Melons* early in the season required a considerable amount of skill, and though he had cultivated this fruit for many years, he had often met with failures. *Melons* being so readily fertilised caused a certain number of new varieties to be raised yearly, thus gradually displacing older kinds, though some of the latter stood the severe test, and if kept true were much appreciated. The great drawback in *Melon* culture was the difficulty of keeping the stock true, so that new kinds must be introduced at times to keep these fruits from degenerating. The varieties of *Melons* grown many years ago were now seldom seen. Soil was one of the chief points in their culture, a rich stiff loam, dug from an old sheep pasture and stacked six months before being required for use, being necessary. This soil required no manure to be mixed with it. Whatever manure is necessary should be given in a liquid state as the growth required it. For early fruits, pots were much the best, but success depended greatly upon the materials at command. For early sowing he preferred old seeds that were hard or well ripened. The plants produced from old seeds were of sturdier growth and more short-jointed than those raised from new seed. *Melon* seed remained good for many years if kept dry, and when sown, a light loam should be used, sowing the seed in 3-inch pots and covering with glass. Where early *Melons* are required, the seed should be sown in January in a temperature of 65° or 70° at night with from 5° to 10° higher during the day. When the seedlings are large enough, pot off into 5-inch pots, and if to be grown in pots afterwards into 12-inch ones. Little moisture and careful airing are required early in the season. Two fruits are sufficient for a pot plant. When watering, care should be taken to keep it away from the stem to prevent canker. When in bloom a drier atmosphere must be maintained, and when the fruits have set the blooms both male and female should be removed, as to leave them weakens the plant. Water or liquid manure should be given in a tepid state. Stopping and removing laterals and superfluous growths early in the season will need constant attention, and as the fruit ceases swelling liquid manure must be omitted and moisture both at the root and in the atmosphere also withdrawn. An overdose of moisture causes the fruits to split and also destroys the flavour. The fruits should be suspended when grown in a house either by boards with holes in them to allow the moisture to escape or by other means of support. The season for *Melons* is from April to October, and though grown later, the fla-

vour is poor and much inferior. The fruit should be used after being cut two days, being then at its best. It should be removed from the plants when the stem of the fruit is cracking or parting from the plant. When grown in beds a 16-inch ridge is a good depth of soil, and water should be given freely, and not in dribbles. A second crop may often be secured if the plants are clean, top-dressed after fruiting, and kept close for a time. Melons are not subject to many diseases, gumming and canker being the worst. These are often brought on by too much manure in the soil, giving the roots a check, watering with cold water, and cold draughts. Powdered charcoal is the best remedy for canker.

DISCUSSION.—The chairman (Dr. Masters) called upon Mr. Wythes, as a Melon grower and raiser, to add a few words. Mr. Wythes said Mr. Ross's paper needed few words from him; he thought it a valuable paper in many ways. As some people were apt to depreciate the raising of new fruit, he was glad Mr. Ross did not do so, as it was necessary with Melons that so soon degenerated to get new varieties. He also liked the pot system for early fruits if due attention was given them. In reply to a question of Dr. Masters why a close temperature was so often advised when Melons in their native habitats were freely exposed, Mr. Wythes said he had grown good fruit very early without air or opening the house at all, but the Melons were deficient in flavour compared with those more exposed. On the other hand, to admit large volumes of air was to court failure, as it meant insect pests innumerable; our climate was too variable to admit of such treatment, and sufficient atmospheric moisture must be maintained to promote quick growth.

ROYAL BOTANIC SOCIETY.

MARCH 23.

A VERY bright and effective display was made on this occasion. The weather was dull overhead, and some bright sunshine was sadly wanting to give life to the floral tints that were so abundant. The annexe to the large tent was full to overflowing, and a great many subjects had to be provided for in the conservatory. The competitive classes were fairly well filled, and, as usual, there were several non-competitive collections of an extremely showy character, Cyclamens being in strong force.

Greenhouse Azaleas were represented by fair-sized pyramidal-trained plants, and in the amateurs' class for six, Mr. H. Eason, Hope Cottage, Highgate, took the first prize, the bright-coloured Stella being in good form; second, Mr. R. Scott, The Holme, Regent's Park.

In the nurserymen's class for six plants, Mr. H. James, nurseryman, Lower Norwood, was the only exhibitor. Some good plants of Chinese Primulas were staged, compact in growth, and carrying fine heads of bloom of good quality. Mr. John Odell, Gould's Green, Hillingdon, was first, Mr. D. Phillips, Langley Broom, Slough, being a close second. Messrs. Paul and Son, The Old Nurseries, Cheshunt, were the only exhibitors of six forced Roses, and took the first prize with excellent specimens of Heinrich Schultheis, Violette Bouyer (a charming white variety that forces well), Celine Forestier, Cheshunt Hybrid, Mme. Hoste, and Comte de Paris. Deutzias were a fine feature, large shrub-like plants, finely grown and bloomed. Mr. J. Douglas, Great Gearies, Ilford, was first, and Mr. H. Eason second with smaller, but well-grown and bloomed specimens.

In the class for twelve Cyclamens there was a very spirited competition. Mr. D. Phillips was placed first with some large plants finely grown and bloomed, the flowers of high quality, some of the deep-coloured varieties especially, and there were from fifty to seventy blossoms on each specimen. Second, Mr. W. Mowbray, Fulmer, Slough, a few of the white-flowered varieties being of very large size and carrying immense heads of bloom. The best six pots of Lily of the Valley came from Mr. W. B. Morle, 283, Regent Street.

Hyacinths and Tulips were very gay. With twelve pots Mr. J. Douglas was placed first, his plants being finely grown and bloomed. Mr. H. Eason was second. In the nurserymen's class for twelve plants, Messrs. H. Williams and Sons were first, their leading varieties being Goliath, Czar Peter and Captain Boynton, blue; Koh-i-noor and Lord Macaulay, red; and La Grandesse, white. Messrs. H. Williams and Sons had the best twelve pots of Tulips, which included such fine varieties as Vermillion Brilliant, Van der Neer, Proserpine, Ophir d'Or, Cerise gris de lin, Keizer Kroon, Hector and Rosinante. Second, Mr. H. Eason, with similar varieties. Mr. Douglas was placed first with twelve pots of Narcissi, showing the Polyanthus varieties. Messrs. H. Williams and Sons were second. The pans of Crocuses were singularly fine and formed striking masses of bloom. Mr. R. Scott was first with varieties of high quality; second, Mr. J. Douglas. Mr. J. Douglas was the only exhibitor of twelve pots of Freesias, showing F. refracta alba. The only collection of twelve Scillas came from Mr. T. S. Ware, who had sibirica biflora, with its white and rose-coloured varieties, and puschkinoides. The only collection of twelve pots of bulbous plants also came from Mr. Ware, who had illustrations of Iris reticulata, I. alata, I. persica, Chionodoxa Lucilæ, Galanthus Imperati, the white Grape Hyacinth, &c.

Amaryllises formed a fine feature; two collections of twelve plants were shown. The first prize was awarded to Messrs. Paul and Son, who had Violet Queen, deep crimson, flushed with violet, deep in colour and very distinct; and Strawberry Queen, which has the tint of crushed strawberry formerly so popular. Mr. J. Douglas was second with a very fine collection.

Foremost among the miscellaneous exhibits was a large collection of Hyacinths, Tulips, and Narcissi in pots from Messrs. Williams and Sons (silver medal). Messrs. Paul and Son, Cheshunt, had a collection of Roses, such as Hybrid Perpetuals Gustave Piganeau, J. D. Pawle (deep crimson, fine in colour, and a good forcer), Duchesse de Dina, Mme. Victor Verdier, &c.; with such Tea-scented varieties as Alba Rosea, Souvenir de S. A. Prince, Elise Fugier, Innocente Pirola, with Bourbon Mrs. Paul, &c.; also Lilacs and Azalea mollis (large silver medal). Messrs. J. Laing and Sons had a large group, including new Caladiums, such as Mme. Marjolin Scheffer, Aida, Sanchoniatum, Aristides, Mrs. Harry Veitch (very distinct), Album Luteum, Jules Duplexis, and Luddemann, some handsome Bertolonias, Begonia Arthur Mallet, with reddish bronze foliage, Palms, &c. (silver medal). Messrs. W. Cutbush and Son, nurserymen, Highgate, had a fine group of miscellaneous plants, including Boronia elatior, B. megastigma, Richardia Little Gem, Epacris in variety, Clivias, &c., all charmingly arranged (silver medal). Messrs. W. Paul and Son, nurserymen, Waltham Cross, had several new varieties of Roses, including Danmark, Lady Henry Grosvenor and others; Camellias in pots and twelve boxes of cut blooms of Camellias, which included Mathotiana, Princess Charlotte, white; Beauty of Waltham, blush; Montiron, white, slightly flaked with pink, and also its pure white form; L'Avenir, rose; alba plena, Adelina Benvenuti, deep blush, striped with deep rose; Rose de la Reine, brilliant rose; C. M. Hovey, dark crimson; conspicua, Marchioness of Exeter, &c. (silver medal). Messrs. B. S. Williams and Son, Victoria Nurseries, Holloway, had a large collection of Clivias, grandly grown and bloomed; some showy Amaryllids, standard and dwarf Azalea mollis, &c. (large silver medal). Mr. J. James, Farnham Royal, Slough, had a remarkably fine strain of Cinerarias of superior quality and dwarf in growth (large silver medal). The St. George's Nursery Company, Hanwell, Mr. John Odell, Gould's Green, Hillingdon, Mr. P. Pestridge, Boston Park Nursery, Brentford, and Mr. T. Walker, nurseryman, Hounslow, had collections of Cyclamen persicum of very fine quality, and were each awarded a silver medal. Mr. T. S. Ware, Tottenham, had a large collection of double and single Daffodils in pots (silver medal). Bronze medals were awarded to Mr. C. Edmonds, Hillingdon, for

a collection of Cyclamens, and to Messrs. Barr and Son, King Street, Covent Garden, for a collection of Daffodils of varied character and other spring-flowering bulbs. Mr. H. Eason exhibited some well-grown Lachenalias.

A full prize list will be found in our advertising columns.

BOOKS.

LES FLEURS A PARIS, CULTURE ET COMMERCE.*

THIS book, coming from the hand of a member of the great house of Vilmorin, of Paris, besides being of interest to the general reader, is of special use to the grower of cut flowers for market. The author, speaking of the greatly increased demand for flowers among all classes, gives us a brief glimpse, with suitable illustrations, of the flower markets in the principal capitals of Europe, and a more detailed account of the Paris markets, and of the way they are supplied; how the flowers are sold by auction in the early hours, sold again in many cases by enterprising dealers, and finally find their way to market stalls, shops and street barrows.

The description of the orderly manner in which the daily operation of receiving and disposing of the masses of flowers is conducted appears to be a model of good management. Two auctioneers only have a right to sell, holding their right by a deposit amounting to the value of £400. Forty agents receive the consignments of flowers from a distance, and classify them according to value and quality, from 1000 to 1200 baskets of flowers passing daily through their hands. In addition to this quantity, some 800 baskets are brought in daily by the market growers in the outskirts of the town. Another class of official undertakes the unloading of carts, and carries the goods into the market, giving the owner a ticket showing where his cart is to stand in a neighbouring street. The carts and horses are in their charge, and they are responsible for the safety of the flowers till the hour of sale, which is finished by 9 a.m.

Large consignments of flowers reach Paris from the south, lengthening by several months the supply of such favourites as Roses, Anemones, and Carnations, while every facility for rapid transit is afforded by the railway.

Suburban growers are mostly specialists, aiming at perfection in the production of a few kinds of plants only, and a whole neighbourhood will cultivate the same class of plant.

These are the parts of the subject treated of in the introductory chapters.

The body of the book consists of a clear description, with an illustration and a short cultural note of the flowers and plants in all classes that are desirable for cultivation for market, and, therefore, comprises stove, greenhouse, and hardy plants, bulbs, shrubs and trees, Ferns and foliage.

Erythroniums (Dog's-tooth Violets).—Here-with I send you flowers of three species of Erythroniums. E. Nuttalli is very fine. A potful growing here has eight spikes with twenty-three flowers. E. Hendersoni is one of the best, and albidum v. coloratum is also a very pretty acquisition.—T. SMITH, Newry.

* * The yellow E. Nuttalli is a charming and most graceful flower.—Ed.

Names of plants.—G. Grimshaw.—1, Dendrobium Devonianum; 2, Cattleya Trianae (ordinary form); 3, Lælia cinnabarina; 4, Cypripedium Dayanum.—W. T. W.—1, Lycaste Youngiana; 2, Maxillaria picta; 3, Odontoglossum maculatum.—H. Berril.—1, Dendrobium Wardianum (very good-coloured variety); 2, D. nobile (light variety).—H. Laing.—1, Odontoglossum hebraicum; 2, a form of O. luteo-purpureum; 3, O. Harryanum.—Vanda.—1, Vanda suavis; 2, V. tricolor; 3, V. Denisoniana.

* "Les fleurs à Paris, culture et commerce," par M. Philippe L. de Vilmorin. Paris: MM. J. B. Bal-lière et fils.

WOODS AND FORESTS.

HEREFORDSHIRE OAK TREES.

THE first observation which a visitor to Herefordshire makes is the great size to which not only its Oaks, but all its timber grows. Its soil and climate appear specially suited for the production of large trees. The whole district must have been densely wooded in old days, and many a patch of woodland, many an extensive thick wood still remain.

Yew trees abound in the churchyards and hedgerows of Western Herefordshire, on the borders of Wales; indeed the district of Ewias, round Ewias Harold, is by some said to have been so called from its Yew trees. The Cusop Yews are famous, and so is the Yew in Peterchurch Churchyard; while one in Kentchurch Park is no less than 30 feet in circumference at 4 feet 6 inches from the ground.

Elms are equally fine, whether in single specimens or planted as avenues. Of the latter, those in Moor Court should be named, of which the best measures 14 feet 4 inches in circumference; whilst the King's Acre Elm and those at Holm Lacey and Stretton Sugwas are grand specimens, ranging from 18 feet to 21 feet in circumference.

Noble trees as are all these, they are far exceeded in numbers and majesty by the Oaks of the county. The nave of Southwell Cathedral and the Manchester Canal alike were indebted to Herefordshire when huge oaken beams were required. Many districts of the shire were, until the last fifty years, thickly covered with Oaks. It was possible, had one been a monkey, to have gone westward from Ross in those days for miles over the tops of the Oaks. Old parks abounded with them. They sprang up spontaneously in every hedgerow. Since those times the needs of railways and other large industries, the rage for gambling among young scions of county families, the love of building fine houses, above all agricultural depression and lowering of rents, have made sad havoc among the timber. Some proprietors have sold many thousands of pounds worth of Oak trees. It is not merely the gap the loss produces in the scenery which grieves the lover of trees, but the reflection that it takes at least a couple of centuries to grow anything like a large Oak. Some thrifty men never have one cut down without ordering another to be planted. Others do better, and for every Oak made over to the timber merchant replace it with two.

Many of the largest Oaks in Herefordshire have been pollarded in long past years. This causes the bole to swell and look disproportionate to the cloud of shining foliage which such a tree bears. In all probability, want of firewood and the impossibility of obtaining coal at reasonable prices led to these piteous injuries on Oaks. No Oaks ever grow so fine, and do themselves such justice, as those which are suffered to grow from the acorn where they are eventually to stand. Any moving of a young tree too often destroys the tap-root, and thereby maims the strength of the tree for ever. For this reason Gilbert White was wont to carry acorns about with him and plant them wherever he found a suitable position for Oaks. It is obvious (to compare the Oaks of Herefordshire with those of the New Forest) that the former are much finer and more numerous as a rule, although the trees of the New Forest are occasionally grander in their outlines. Vast quantities of old Oaks have been cleared away in Duke Williams's forests, and young plantations made; but the Knightwood Oak, 17 feet 4 inches in circum-

ference, and one at Boldrewood, 24 feet 9 inches, are fine specimens of the old timber. The Oaks of Sherwood Forest obtained great renown in the past, but the axe has been busy here, too. Much of the forest has been reduced into cultivation—8248 acres during the last century—so that, with the exception of the districts of Birkland and Bilhay, and some aged trees which had been left in different parks and properties, but few ancient Oaks remain. The best known of these, the Major Oak, reaches a girth of 30 feet at 6 feet from the ground. It possesses a grand, well-balanced head, but is (like so many old Oaks) quite hollow.

The Oak grows luxuriantly upon the red clay of Herefordshire. Perhaps the peroxide of iron which gives this colour to the soil is one cause of the fineness of the Oaks; stiff clay, however, appears to suit the Oak as well as the Rose. Famous trees occur in every district of the county, but Moccas Park is pre-eminent for the beauty of its Oaks. They grow on the grassy slopes amid beds of Bracken, under which rabbits dart, and when seen, even on a dull day, amid sheets of rain, are of striking majesty. Among the most famous are the Club Oak (so called from the Woolhope Naturalists' Club, which has measured many of the nobler trees of the county), 19 feet 5 inches in girth; the Tall Oak, now blown down, 18 feet 7 inches; the Moccas Oak, 36 feet; and the Promontory and Riven Oaks, which are each of them 30 feet 9 inches in circumference. All the measurements here given are taken at the height of 5 feet from the ground. It is worth while appending a few more accurate measurements of some celebrated Oaks, chiefly from the records of the Woolhope Club, by way of affording a chance of comparison with the Oaks of other counties:—

Name.	Year.	Ft. in.
Haywood Forest Oak	1870	20 7
Tibberton Oak	1868	23 9
Eardisley Oak	1867	28 2
Colwall Oak	1867	16 2
Harewood Oak	1867	23 9
Monarch Oak	1867	21 10
St. Devereux Park Oak	—	19 5
Rosamaund Oak	—	34 0
Crump Oak	1870	14 4
Gatley Oak	—	13 4
Witley Hall Oak	—	22 0
Croft Oak	—	34 0
Battlefield Oak (Mortimer's Cross)	—	14 2
St. Katherine's Oak (Home End)	—	20 7
Laugh Lady Oak	—	31 0

The Crump Oak was reputed to contain 10 tons of timber in 1870, and £80 was refused for it, while £150 was vainly offered for St. Katherine's Oak in 1872. One more must be named, John of Kent's Oak, in Kentchurch Park. In 1886 this fine old pollarded tree measured 32 feet 5 inches in circumference. It is impossible so much as to guess at the age of such a gnarled tree as this. Notwithstanding the fables ordinarily repeated about the Druids and the cutting of Mistletoe from an Oak with a golden sickle, the occurrence of Mistletoe on the Oak tree is a rarity. There are, however, five instances of it known at present in Herefordshire. Can any other county show as many? Beautiful as are many of the Conifers and other trees which have been lately introduced and largely planted throughout England, it is sad to see the destruction which a severe winter or protracted gale works among them. Little does the Oak care for such vicissitudes, and from the depth to which it sends down its roots it is seldom blown down, as are most of our other forest trees. If he is a benefactor to the species who causes a blade of grass to grow where there was previously none, how much more gratitude does he not deserve who diligently plants acorns?

And how much more do fine Oaks set off a park than *parvenues* from Japan and the Yosemite Valley, *Cryptomerias* and *Eucalypti*! When Nature gave England the Oak, she gave, taken all in all, the finest of trees.—M. G. WATKINS, in *Field*.

THE WOODLANDS OF GREAT BRITAIN.

PROBABLY never before has so exhaustive an inquiry into the extent of British woodlands been taken in hand as that of 1891, and which is now made public in the agricultural returns for that year. In 1872, in 1880 (with amendment in 1881) and in 1888 returns of a similar kind were also sent in, but in these cases the totals were confessedly defective, owing in the main to the great difficulties encountered in each of these attempts. The present returns are, therefore, of particular interest, valuable data having been placed in the hands of the compilers—a change that is wholly or in great part due to the very extended ideas of forestry that have of late years been promulgated, and which have caused a much greater interest in that hitherto neglected branch of agriculture to be shown by landed proprietors and estate managers generally.

It may be of interest in making comparisons to give the gross acreage of woodlands in Great Britain for the appended years:—

1872	2,187,000 acres.
1881	2,458,000 "
1888	2,561,000 "
1891	2,695,000 "

From this it will be seen that about 134,000 acres of woodland have been added since 1888, but this amount, as before stated, has been considerably augmented by a more accurate survey of the land, as also from more trustworthy information that has on all hands been supplied. Of this 134,000 acres, fully 96,000 occur in England, 31,000 acres in Scotland and about 7000 acres in Wales. Four English counties—Devon, Hants, Yorkshire and Northumberland—would seem to have added considerably to their wooded surface during the last few years. Hants alone possesses 122,574 acres of woodland—an extent not exceeded by any other county of England, although Sussex with 122,073 acres approaches it rather closely. It is also worthy of comment that the four counties of Hants, Sussex, Surrey and Kent possess between them about one-fourth of the wooded surface of England, showing about 11 per cent. of their surface under timber crop, as compared with 4 per cent. for the rest of the country. Nearly one-fifth of the total woodlands of Scotland is returned from the county of Inverness, it containing no less than 169,000 acres.

In the returns for Ireland, now amounting to 311,351 acres, planting does not seem to be making much headway, and by adding this amount to that of the Channel Islands, the Isle of Man, &c., we find that, including England and Scotland, the total amount of woodlands in the British Isles is fully 3,007,000 acres. A. D. W.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols., price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with direction for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

No. 1663. SATURDAY, April 2, 1892. Vol. XL1.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

CHRYSANTHEMUMS.

RAISING CHRYSANTHEMUMS FROM SEED.

As Chrysanthemum growers in England are apparently becoming more interested in raising seedlings, it may be of interest to note a few details of American practice which do not seem to have been noticed in your columns. The great drawback to the growing of these plants from seed is the difficulty of securing those which will produce a fair percentage of good kinds. The percentage may be increased, however, very materially if one carefully selects the flowers and properly fertilises them in a common-sense way. It is a disputed question as to whether the Chrysanthemum can be hybridised with any certainty. Many of us think it can be, but it is not proposed to argue that matter here. Let growers experiment on the following lines, and the matter may be settled in a few seasons. The Chrysanthemum is, of course, a composite flower, and the ray florets, as is usual in such flowers, are the most highly developed. If striving for further development, attention should certainly be confined to the ray florets, avoiding as far as possible any progeny from the disc florets, the ordinary tendency of which would be to produce single flowers. Select plants of such kinds as are desired for seed-producers and remove them to a light and somewhat dry position. Before the flowers fully develop cut off all the petals in the centre quite down to the disc, but not so short at the outer circle. Before the pistils of the disc florets can possibly mature, sterilise them by covering with a solution of resin (as shellac) in alcohol. If the ray florets have been trimmed carefully, light and air will have access to the organs of generation, allowing them to mature as they would not otherwise do. It is then a simple matter when pollen is ripe to fertilise and attempt such crosses as are desired. When special crosses are made, of course a gauze covering will be desirable. The plants should be kept as dry as possible in a dry atmosphere, as seeds ripen slowly. Usually they may be gathered in January, and here it may be said that it is not always the fairest-looking seed which gives the best flowers. The best growers only separate the coarse chaff and sow the fine chaff with such seed as it may contain, and it is often difficult to find a well-matured seed. It is well to sow the seed in January in a greenhouse, temperature. It germinates quickly, and the seedlings should be pricked out as soon as possible into good soil and be kept moving in a moderate temperature, with plenty of fresh air. A cold frame suits them in early April,

where they may have abundance of light. In May they are usually fit to plant out in the open ground, and in good soil will grow away very vigorously, rather overtaking plants from the same season's cuttings. Chrysanthemum growers usually have no spare room in the flowering season, and it is a great tax on ordinary space and patience to have to use valuable room for flowering seedlings, a large proportion of which is worthless. But this is a difficulty easily avoided. In June or early in July the plants should be numbered, and a few, say three, test shoots taken from each and struck in gentle bottom-heat. These can be grown on into 5-inch or 6-inch pots, and will each give a single bloom of a character to show whether the variety is worth saving. If worth further trial, it is a simple matter to find the correspondingly numbered plant, usually a vigorous one with plenty of stock. The poor plants have given a minimum of trouble, and perhaps in an open season will give a crop of flowers useful for some purposes.

Until one has grown seedling Chrysanthemums, he has never secured the greatest pleasure which may be had from this wonderful family. It may be a very profitable pleasure in more ways than one, new varieties being things of price at present.

JNO. N. GERRARD.

Elizabeth, N.J., U.S.A.

New Chrysanthemums.—To those cultivators who have been hoping to find a reduction in the novelties announced for distribution, I can offer no consolation. Several new seedling raisers have entered the ranks and are promising great additions to our already over-burdened lists. Besides these, the old raisers, upon whom we have hitherto depended, seem unlikely to restrict their number, and the year 1892 bids fair to see more new Chrysanthemums offered for sale than any of its predecessors. It is far too early yet to say what the exact number will be, but up to the present time I have received from the Continent no fewer than 470 names and from America about 100. These are only preliminary announcements, and what the total number of new varieties will be is at present purely a matter of conjecture.—C. H. P.

The Desgrange family.—Those who have not grown this section of the early flowering varieties to bloom in the open should lose no time in making preparations to do so for next autumn. The four kinds composing this family, viz., Mme. Desgrange, white, G. Wernig, pale yellow, Mrs. Burrell, primrose, and the latest addition, Mrs. Hawkins, golden yellow, are undoubtedly the most useful of all for supplying early flowers, coming in as they do at a time when the regular occupants of the herbaceous borders are on the wane. Instead of inserting cuttings in the usual way I lately pulled to pieces the old stools which flowered last year in pots. They had been standing in a cold house since November near to the glass and had thrown up abundance of stocky cuttings; thus I was enabled to make a lot of plants from one root. Each piece having a root attached was planted into some sandy soil in cutting boxes about 2 inches apart. This will save pots and economise space as well. By keeping them cool and pinching the point out of each shoot when they commence to grow, in about ten days' time we shall have abundance of plants for out-of-door growth this season in addition to the old roots now in the borders. Although the time when this section flowered last year was so wet, it was surprising how long the plants lasted in bloom; also the

flowers after they were cut. Grown as a hedge, the white variety makes a fine show throughout September. A fairly rich soil will grow them best, and abundance of water, should the weather be hot and dry during August, will be the means of not only giving finer flowers, but the plants will last much longer in good condition. Stopping the shoots once to increase their number is all that is necessary in this direction.—E. M.

CHRYSANTHEMUM NOTES.

YOUNG plants are now making rapid progress, and if a successful flowering period is to be the end of nearly a year's work, they should on no account receive a check in their early stages. Therefore promptly give the later struck, and in fact all which by the quantity of young roots show that they require it, a shift into larger pots. At this time of the year they quickly get pot-bound. Many a promising lot of Chrysanthemums has been stunted through the potting being delayed even a week after the plants have reached the proper stage, when the roots want more room. It is not safe perhaps in any locality to stand the plants entirely out of doors thus early in this month, but still they ought now to be treated as slightly protected hardy plants. The lights may be taken off during the day and only returned at night, and to ward off heavy showers of rain or cold, cutting wind. Exposure and sun may cause some of the leaves to flag a little, but this will do no harm, and I would not advise sprinkling the plants in the middle of the day to prevent it. I have had the leaves scorched from no other cause but this in my anxiety about the same looking a bit distressed. Nor do I favour syringing the plants from this time; there is always plenty of moisture about them through watering in the ordinary way. Especially in low-lying districts should excessive moisture be avoided. Mildew generally comes soon enough without aiding its advent. Green and black aphides are sometimes troublesome at this season, but they are easily killed by a dusting of tobacco powder. The same powder will also destroy thrips, which in some collections do a great amount of harm. It is well to wash this off with the syringe the morning after using it over-night before the sun reaches the plants. As overcrowding is a prevalent error in plant cultivation, it may be timely to again mention how advisable it is that young Chrysanthemums should have plenty of room to grow, light and air playing among them being so essential to success. Continue to pinch out the tips of the shoots of those plants that are to make bushes and place a little stick to those that are to have one stem.

A point in connection with the latter is the number of flowers that each plant should carry. The orthodox number appears to be three. In a former note I named a few kinds that pay for cultivating for the small number of one, or at the most two, but I am equally well satisfied that in the case of many sorts, especially of the Japanese varieties, better results than obtain would follow if each plant were allowed to perfect from four to six flowers. I believe I am right in saying that many ill-formed buds owe their origin to growth that is concentrated upon too few shoots. Size of blossom is so much in our thoughts, that strength in the plant is overdone. The same as in animal life, however, hardly two Chrysanthemums have a like constitution. For example, Sunflower, W. H. Lincoln, M. Bernard, Gloire du Rocher, Puritan, Violet Rose, E. Molyneux, Avalanche, W. W. Coles, Mlle. Marie Hoste, Meg Merrilies, Bouquet des Dames, to name a few, cannot well be grown too strongly, and the three flowers may be quite as many as the plant will bring to perfection. But on the other side may be named such excellent sorts as Viviani Morel, Florence Davis, Etoile de Lyon, A. H. Neve, Stanstead White, William Tricker, Mme. John Laing, Sarah Owen, Anna Hartzhorn, which must not be overdone. I take this as a guide in the case of a new variety. If it possesses in its what may be called ordinary or undeveloped state an extra number of florets, and in all cases comes full to the centre, then allow plenty of

shoots to grow, but if the opposite to this show itself, concentration must be the order of the day. In the matter of incurved sorts again, three blooms have been the number for each plant to carry, and believed in so long, that one almost seems afraid to recommend a larger number. However, I have for some time observed the ways of the *Chrysanthemum* in other collections as well as my own, and have often noticed in a plant, say of *Empress of India*, that the weakest shoot supplies the most comely bloom. It is exactly the same with the family of incurved sorts that have sprung from the variety *Princess of Wales*, most beautiful flowers certainly. I always attempt to get strength and substance in the plant by striking early and so on, but allow each to give from four flowers, otherwise a bud will contain too many florets to develop a perfect bloom. Some of the incurved class, which must, however, have strong shoots to get anything approaching a large and full flower are the *Princess of Teck* family, *Barbara*, *Golden Eagle*, *Refulgens*, *Nil Desperandum*, *Mr. Brunlees*, *Princess Beatrice*, *Novelty*, *Mr. Bunn*, and so on.

The new class for thirty-six distinct incurved *Chrysanthemums*, which will appear in the schedule of the National Society this year, will no doubt induce some growers to cultivate again old sorts that have been discarded. This is well perhaps, for although small, many of the kinds of past days are pretty. Among them may be mentioned *Aimée Ferrière* (renamed *Mme. Gayral*), white, tipped purple; *Baron Beust*, chestnut-red; *Cherub*, orange-bronze; *Isabella Bott*, pearly white; *Lady Carey*, rose-lilac; *White and Pink Venus*; *Nonpareil*, lilac Beauty, blush-pink; *Eve* and *Mabel Ward*.

H. S.

SEASONABLE CULTURAL NOTES.

FOR whatever purpose the plants are cultivated much attention is needed just now to have all in the best condition, and as work in other parts of the garden is abundant, *Chrysanthemums* stand a chance of being neglected. One essential point to observe is not to overburden one's self with too many plants. Plants intended to give large blooms require the most attention. The present method of allowing them to produce but three blooms each, so as to obtain increased size, necessitates their being grown in large numbers. Although it may seem to some persons a waste of time to cultivate plants so long for the sake of three blooms, it is, nevertheless, a fact that if the front rank is to be obtained, a limit on the number of flowers each plant is to carry must be exercised. With but few exceptions, and these only in the case of certain Japanese varieties which naturally come into flower at an early date in a natural manner, the plants are best when allowed to grow with but one stem only until they make their first natural break. So variable is the time at which this first break is made, that it is difficult to define the exact period when it will take place, so much depending upon the variety and the date when the cuttings were rooted. From early in April to the same time in June this stage will be reached. At this period many plants are ruined from not knowing how to deal with this surplus growth. The three shoots which spring from near the point where the flower-bud forms are those generally selected. A light stake should be placed in the centre, and to this the shoots should be loosely tied. By removing all others the energy of the plant is concentrated into the growths selected, and which will in time give the necessary blooms.

The plants should occupy a position close to the glass in a cold frame where the growth will be stocky. Avoid cold draughts from the east if the position is at all exposed in that direction, as this is a sure forerunner of mildew and pale-coloured foliage. Supply the plants with sufficient water always in a tepid state. When growing in small pots, *Chrysanthemums* quickly suffer if the soil is allowed to become dry. Shift the plants on into larger pots directly those in which they are now growing are full of roots. Cramping them in small pots checks that free growth which is so desirable

in the early stage of their existence. It is not possible to grow the plants too strong at this time of the year, provided they receive abundance of space during the remainder of their growth, so that the wood is matured as it progresses by the aid of sunshine and a free exposure to air. The compost in which the plants revel at this stage should have as its chief component good fibrous loam, partly decayed. If this is heavy in texture, partly decayed leaves, horse droppings, charcoal and wood ashes should be freely added. Loam inclined to be sandy needs less of these, although wood ashes is good even for that class of soil, as it contains potash, which *Chrysanthemums* require to assist in the solidifying of the wood. This is absolutely essential to produce well-formed and deeply-built blooms of the incurved section. Soil deficient in nutriment cannot command success. Loam which has been taken from poor land needs assistance either in the shape of horse or cow manure in quantity, or by adding bone-meal, dissolved bones, or any of the various chemical manures advertised, applied at the rate of 1 oz. to 2 ozs. to a bushel of prepared compost. Firm potting during all stages of growth should be practised, as this induces the formation of fibrous roots.

Single varieties, pompons, and the *Anemone*-flowered pompons which are now largely grown for decoration will require attention in the matter of pinching out the point of the single stem to induce a bushy foundation, this being by far the best method of cultivating this section. The advantage of growing these kinds is considerable to those who are not overburdened with glass space.

Small pots will suffice as compared with those necessary for the Japanese and incurved sections. Pots 7 inches and 8 inches in diameter are large enough for any sort in the sections named. Two classes of plants may be cultivated, one with but few branches from the base, the result of pinching the shoots but once. Such plants produce long spikes branching freely in a natural manner, and are much superior to those which are continually pinched until the middle of June or even later. These latter may be of greater width, but they take up so much room and do not give such useful material for cutting as those whose branches are clothed with side shoots and flowers fully 2 feet long.

By pinching the shoots a second time when 4 inches long, a greater number of branches is secured, and from these the latest batch of flowers can be had. I strongly advise this method over that of continually pinching in the new growth as fast as it is made. Thoroughly sweet and good compost, though not too rich, is required for these plants owing to their being grown in small pots. A position near the glass in a cold frame is best, avoiding draughts of cold air. Prompt remedies should be taken to check the first spread of mildew, nothing being better than dry sulphur sprinkled on the leaves affected and maintaining the air sweet about the plants. If the plants are crowded, the growth will be weakly and the decorative value of the plants lessened.

E. MOLYNEUX.

PLEASURE GROUND WORK.

THE weather experienced during the greater part of March, rendering all kitchen garden operations well-nigh impracticable, has thrown additional strength into the pleasure ground and allowed some special work to be carried out in this department. Occasionally, as time permits, old brakes of *Laurel* that have weathered the storms of some scores of years have, where they were fairly in the open and away from the shade of forest trees, succumbed to the axe and saw, to be replaced by *Grass*, by deciduous flowering shrubs, or by herbaceous subjects, as the situation will admit. The removal of these old brakes takes a lot of time; the cutting down is but a trifle in comparison to the labour essential for working out the old stems and bastard-trenching the ground. As a rule, the replanting has to stand over until the following autumn. There is an advantage in this, especially if herbaceous plants are to be employed in the replanting, for there is then

time to decide on those things likely to be most at home in such quarters, on the heights of individual members of the different families that are to form the groups, on probabilities as to the future necessity for lifting and dividing, and so on. In selecting plants for such borders where a somewhat wild and altogether natural style may be safely adopted, and where the different families are not likely to be disturbed for some time, it may be borne in mind that many things of rambling root-action that monopolise too much space in small borders may here find a place; such, for instance, as *Alstrœmerias*, *Hemerocallis*, the Japanese *Anemones*, rosy *Yarrow* and other things of similar habit. They are beautiful as border plants and valuable for cutting, and so should be included in the list. At the same time these and other ramblers are just as well at one side or portion of the border, reserving other parts for such "stay-at-home plants" as *Pæonies*, *Pyrethrums*, *Pentstemons*, *Spiræas*, and the like. So far as the herbaceous borders in the kitchen garden are concerned, I for one must plead guilty to non-systematic arrangement. Little bits of choice things are often coming to hand, and the idea always is to put them in a suitable spot where they are under constant supervision, and this goes on until the many things that constitute the border form as a whole a very miscellaneous collection. But with large borders in remote parts of the pleasure ground the case is different. Here the best system to adopt is to make bold and effective groups of the different families, keeping as much as possible in touch and harmony with natural surroundings, so distributing, however, the various material to hand, that no great portion of the border shall be absolutely bare of flower for any length of time throughout summer and autumn. In all calculations as to subjects for such situations, I generally reserve two or three plots for *Daffodils*. We have them naturalised on *Grass* in bold clumps in many situations, and here we like the flowers to remain in all their beauty as long as possible, but in borders devoted to herbaceous things, cutting is constantly resorted to, and the sacrifice of the *Daffodil* flower here is not so noticeable. The question of the most suitable varieties for extensive outdoor planting has been often discussed, and I need not enter into it at any length. I should, however, like to throw out the suggestion that before planting largely mainly for cutting, two or three considerations must come prominently under notice, the particular time when the flowers are wanted, special taste of those interested, and particular purposes for which they may be required. Touching this last point, *Telamonius plenus* gives the grandest, heaviest mass of colour; the double *Gardenia*-flowered white *poeticus* is admirable for button-hole and bouquet work, the long-stemmed, big-flowered trumpets for large vases, and the delicate varieties of the many families that constitute the incomparabilis group for small vases, bowls, and table glasses. A few sorts that do well with us on *Grass* or in beds, besides the two doubles above named, are *obvallaris*, the *Scotch Garland*, *princeps*, *spurius*, and *Golden Plover* in the trumpets, and *Autocrat*, *Figaro*, *John Bull*, *Cynosure*, *Stella*, and *Barri conspicuus* in the star section. The majority of our borders, formed where the old *Laurel* breaks previously existed, are on the slope, and we have to exercise a little care in our planting arrangements to properly balance the relative heights of different things, especially if many varieties of one family are included. As in the case of *Daffodils*, I have a strong partiality for *Starworts*, and the planting of these in order on our last slope has been thus arranged: First groups, the dwarfiest of the family, as represented by *alpinus* and its varieties, by *dumosus* and *glaucus*; next, the somewhat taller varieties, as *acris*, *diffusus*, *horizontalis*, *ericoideus*, *linosyris*, *ptarmicoides*, and *vimineus nanus*; a third series of groups by the dwarf members of the *Novi-Belgii* family, as *Astrens*, *Lady Trevelyan*, *Juno*, *punicus*, *sagittifolius*, and *Shorti*; whilst yet a fourth series are composed of the tallest *Novi-Belgii* and *Novæ-Angliæ* forms and *lævis*. A selection of this description is equally applicable to the front, centre and back of a large border on

the level as it is to a slope, and I have, therefore, given a list of names which can be relied on not only to represent the various heights of the family, but to furnish a successional display. The varieties may not in all cases be the best of their class, but they indicate the required heights, and would provide as a whole a lengthened flowering season.

E. BURRELL.

Claremont.

ORCHARD AND FRUIT GARDEN.

FLAVOUR IN FORCED STRAWBERRIES.

THERE are many who object to forced Strawberries owing to their being flavourless and deficient, to a great extent, of that fine aroma and full flavour outside fruit obtains. I fear this want of flavour, in early fruits especially, has often deterred employers from forcing largely. The Strawberry when forced slowly and provided for dessert in May and early in June forms a welcome addition to the somewhat limited dessert obtainable at that date. If carefully ripened it is very little inferior to fruit from the open. Many years ago the question of flavour did not receive the same attention as it does now, as I cannot remember a single instance where the plants were removed to a cooler house. In many instances the fruit was ripened in Pine houses, and no thought was given to removal, lowering of the temperature, or more air.

I have heard it remarked that we have made great strides in new varieties that are of quicker growth and less liable to insect pests, but I have not found it so. If tied to three varieties, my selection would include two of the oldest and, I feel sure, the most reliable. In Strawberries, as in other fruits, there is a wide difference in quality, and as quality and flavour should be the first considerations for the private grower, he will not have so wide a selection as the market grower, with whom size and colour are everything. In very early forced fruits it is almost impossible to get both these qualities, viz., size and good flavour, so that to some extent gives the early fruit a bad name, as large fruits are sadly deficient in flavour, and small ones are objected to on account of size. Early in March I saw some fine ripe fruits that had been produced at some cost. They were flavourless, whilst fruits of the smaller Vicomtesse Héricart de Thury were of excellent flavour, and the weight in the aggregate equal.

If flavour is desired in early fruit, size must not be the first consideration. Of late years the large growers (to some extent) have wisely given up very early forcing and do not get the Strawberries ripe till late in April or May. By so doing, the larger fruiting kinds which are best for market, and when sent in good condition in the season find a ready sale, can be grown. The large grower uses what are termed Strawberry houses, which are generally filled at once, so that when the fruit is ripe or nearly so, a lower temperature is maintained. This improves the flavour of the fruit and causes it to be firmer for travelling. In many gardens it is not always practicable to give a whole house to Strawberries, but late in the season cold frames may be utilised and the flavour of the fruit much improved. I am aware of the labour this involves, but I question if it is much greater in the end, as the plants when removed to a cooler house or frame absorb less moisture, the fruit keeps longer, and the hotter house may be put to other uses, while there is less discomfort in attending to the plants.

The question of moisture is a wide one, and often is the chief cause of the want of flavour. I do not like the saucer system, as it causes the fruit to be insipid. Saucers are no doubt good as far as labour saving is concerned, but if there is a spell of dull weather the flavour of the fruit is much impaired. I prefer to use turfs placed on the shelves or standing space grass side downwards, as these check the loss of moisture and prevent flagging in hot weather. There are also various means to prevent dryness at the root. I have used a thin board to shade the front of the pots and covered the shelves in some instances with cocoa fibre or decayed leaves where it can be done without being untidy in the house. In frames the pots may be partially plunged in the cool material and much labour saved. Whatever material is used, the drainage should be perfect to allow the water to get away freely. If only a few plants are grown, I have used a second pot a size larger, placing the fruiting pot in the empty one, this keeping the roots cool and preventing evaporation. When late fruits are grown in frames, much can be done to get flavour by giving plenty of air and attention to moisture. Liquid manure should be omitted at the right moment, as this greatly deteriorates the flavour of the fruit. If it is impossible to lower the temperature when ripening commences it will well repay the cultivator to remove to a cooler house, doing the work carefully so as not to bruise the stalks or fruit.

G. W.

Gooseberries and caterpillars.—When sending a note on the above (p. 245), it was to recommend those who suffer to adopt a few simple remedies at this season instead of waiting till the foliage was attacked. I mentioned that a little labour now saved much time in the summer months, so that I am at a loss to understand "S. D.'s" remarks (p. 270), where he states it is better to prevent than to cure, as my note distinctly went to the root of the matter, and though I did not mention the lime as an infallible remedy, I did name lime and soot in case of summer attacks. Though I do not in the least object to the lime being applied as "S. D." advises in the winter, some soils do not require it. The remedy I gave of removing the surface soil and top-dressing is practical and advantageous in most cases. If "S. D." saw the quantities of manure used for these bushes in market gardens he would not object to surface dressing.—S. H. B.

Bullaces.—In Kent and Hertfordshire great numbers of the trees are raised, and in the first-named county they are grown in quantities for the markets. The Bullace, or *Prunus insititia*, is closely allied to *P. domestica* and *P. spinosa*, and therefore may often be found growing in various parts of the kingdom, more especially in the Plum districts. Some of our leading fruit growers grow them largely, and when marketed good prices are obtained, many persons preferring them to Damsons. In country districts Bullaces are grown largely and are often gathered for sale, as they command a good price. They frequently bear when Damsons fail to crop. They are excellent for tarts and making into preserve. In Hertfordshire the large greenish yellow round kind is more grown than the black. The green kind is often known under various names, but in nurseries it is cultivated, I believe, under the name of Shepherd's Bullace. In Kent the black is commoner and goes under the name of Black Bullace. I have never seen any trees fruit more regularly than the old type of Bullace in a somewhat neglected or wild state. The black kind is very late with a rough taste, but valuable for late preserving and cooking. In some fruit districts Bullaces have been largely planted of late years, as they travel well. The country people say Black Bullaces are best after a frost, as they do not seem to suffer, and, being much later than other kinds, do not come in with

the glut of stone fruits. I may be wrong, but am of opinion that the Bullace may be greatly improved by budding on suitable stocks. There is one kind of Bullace I have omitted to mention and that is the white variety, an excellent table fruit, sometimes grown as the White Damson. This is cultivated in Kent and is of good flavour.—G. W. S.

ON GRAFTING.

THE following notes on this subject by the celebrated Thos. Andrew Knight, President of the Royal Horticultural Society of London in 1816, may prove of interest to those who are under the impression that objections to indiscriminate grafting are of recent origin. No man of his time, or of any other time, carried out so many practical experiments on fruit trees as did Knight, so that his impressions deserve attention, albeit that they were written three-quarters of a century ago.

An American professor named Bailey has recently asserted in *Garden and Forest* that grafting is as natural a process as raising plants from cuttings or layers or seed, so that Knight's views may interest him and others sceptical as to Nature knowing how best to do her own work. The main point is that if our modern views as to vegetable physiology are correct, then grafting "is always a makeshift and very often a fraud," a statement as yet quite uncontroverted:—

The practice of propagating fruits of different species by grafting upon stocks of other species has been so extensive both in ancient and modern times, that the good and ill effects of it can scarcely be supposed to have escaped the observation of gardeners. Accurate information upon this subject can, however, only be acquired by experiments accurately made, and closely attended to during many successive years, upon the comparative good and ill effects of stocks of different species when growing in soils of the same and of different qualities, and no such experiments have, I believe, ever been made in this country, nor, to a proper extent, in any other. Duhamel has pointed out, with his usual ability, the erroneous opinions entertained by his countrymen upon this subject, and has given some valuable information, which I have cited in a former communication, but he admits that, relatively to some very important points, he only details the opinions of others, and he laments that he has not himself made the experiments necessary to decide the questions which he wishes to investigate. I also feel that I am not by any means master of the subject upon which I have taken up my pen to write, but I believe that I have made and seen the result of more experiments during the last thirty-five years than any other person, and I venture to hope that my experience enables me to draw a few conclusions which may prove useful to the members of this society and to the public.

Whenever the stock, and graft, or bud are not perfectly well suited to each other, an enlargement is well known always to take place at the point of their junction, and generally to some extent both above and below it. This is particularly observable in Peach trees which have been grafted at any considerable height from the ground upon Plum stocks, and it appears to arise from obstruction which the descending sap of the Peach tree meets with in the bark of the Plum stock, for the effects produced both upon the growth and produce of the tree are similar to those which occur when the descent of the sap is impeded by a ligature or by the destruction of a circle of bark in the manner recommended by Mr. Williams in the "Horticultural Transactions" of 1808. The disposition in young trees to produce and nourish blossom buds and fruit is increased by this apparent obstruction of the descending sap, and the fruit of such young trees ripens, I think, somewhat earlier than upon other young trees of the same age which grow upon stocks of their own species, but the growth and

vigour of the tree and its power to nourish a succession of heavy crops are diminished, apparently, by the stagnation in the branches and stock of a portion of that sap, which in a tree growing upon its own stem, or upon a stock of its own species, would descend to nourish and promote the extension of the roots. The practice, therefore, of grafting the Pear tree on the Quince stock and the Peach and Apricot on the Plum where extensive growth and durability are wanted is wrong, but it is eligible wherever it is wished to diminish the vigour and growth of the tree, and where its durability is not thought important. The last remark applies chiefly to the Moorpark or Nancy Apricot.

When great difficulty is found in making a tree, whether fructiferous or ornamental, of any species or variety produce blossoms, or in making its blossoms set when produced, success will probably be obtained in almost all cases by budding or grafting upon a stock which is nearly enough allied to the graft to preserve it alive for a few years, but not permanently. The Pear tree affords a stock of this kind to the Apple, and I have obtained a heavy crop of Apples from a graft which has been inserted in a tall Pear stock only twenty months previously in a season when every blossom of the same variety of fruit in the orchard was destroyed by frost. The fruit thus obtained was externally perfect and possessed all its ordinary qualities, but the cores were black and without a single seed, and every blossom had certainly fallen abortively if it had been growing upon its native stock. The experienced gardener will readily anticipate the fate of the graft—it perished in the following winter. The stock in such cases as the preceding promotes, in proportion to its length, the early bearing and early death of the graft.

The authority of Duhamel gives us reason to believe that the defects of particular soils may be remedied by a proper selection of stocks, and that cases may occur in which it will be eligible to bud the Peach and Nectarine upon the Apricot or Plum. My own experience induces me to think very highly of the excellence of the Apricot stock for the Peach or Nectarine, but wherever that or the Plum stock is employed, I am confident the bud cannot be inserted too near the ground when vigorous and durable trees are wanted. The opinion of Mr. Wilmot, in a former part of our Transactions, is upon this point opposed to mine, but I speak upon the evidence of long experience and of experiments accurately and purposely made with my own hands.

The form and habit which a Peach tree of any given variety is disposed to assume I find to be very much influenced by the kind of stock upon which it has been budded. If upon a Plum or Apricot stock, its stem will increase in size considerably as its base approaches the stock, and it will be much disposed to emit many lateral shoots, as always occurs in trees whose stems taper considerably upwards, and consequently such a tree will be more disposed to spread itself horizontally than to ascend to the top of the wall, even when a single stem is suffered to stand perpendicularly upwards. When, on the contrary, a Peach is budded upon the stock of a cultivated variety of its own species, the stock and the budded stem remain very nearly of the same size at, as well as above and below, the point of their junction. No obstacle is presented to the ascent or descent of the sap, which appears to ascend more abundantly to the summit of the tree. It also appears to flow more freely into the slender branches which have been the bearing wood of preceding years, and these consequently extend themselves very widely, comparatively with the bulk of the stock and large branches.

When a stock of the same species with the graft or bud, but of a variety far less changed by cultivation, is employed, its effects are very nearly allied to those produced by a stock of another species or genus; the graft generally overgrows its stock, but the form and durability of the tree are generally less affected than by a stock of a different species or genus.

Many gardeners entertain an opinion that the stock communicates a portion of its own power to

bear cold without injury to the species or variety of fruit which is grafted upon it, but I have ample reason to believe that this opinion is wholly erroneous; and this kind of hardness in the root alone can never be a quality of any value in a stock, for the branches of every species of tree are much more easily destroyed by frost than its roots. Many also believe that a Peach tree when grafted upon its native stock very soon perishes, but my experience does not further support this conclusion than that it proves seedling Peach trees, when growing in a very rich soil, to be greatly injured and often killed by the excessive use of the pruning-knife upon their branches when those are confined to too narrow limits. The stock in this instance can, I conceive, only act injuriously by supplying more nutriment than can be expended, for the root which Nature gives to each seedling plant must be well, if not best, calculated to support it; and the chief general conclusions which my experience has enabled me safely to draw are, that a stock of a species or genus different from that of the fruit to be grafted upon it can rarely be used with advantage unless where the object of the planter is to restrain and debilitate; and that where stocks of the same species with the bud or graft are used, it will generally be found advantageous to select such as approximate in their habits and state of change, or improvement from cultivation, those of the variety of fruit which they are intended to support.

PEACH TREES DROPPING THEIR BUDS.

It is to be hoped the remarks by Mr. Crump on page 228 anent the unfortunate trick the Alexander Peach has of dropping its buds wholesale will have induced others besides myself to comment further on the subject. That he is by no means singular in his experience I very well know. Failures, partial or otherwise, are common enough everywhere, and in very many cases it is no disgrace to those in charge of the trees that such is the case. By ventilating the subject a remedy may be forthcoming, and thus good arise out of what may seem an unavoidable evil. My experience with Early Alexander Peach exactly tallies with that of Mr. Crump, and up to the present time no remedy for the bud-dropping has been found. Waterloo, another extra early variety of American origin, behaves equally as bad as Alexander, and Hale's Early is by no means faultless in the matter of bud-dropping. All are of free, yet as a rule not too rank growth, forming long clean shoots with highly-coloured bark and but few secondary growths, and when the leaves fall the prospect of abundance of bloom seems satisfactory enough. Towards flowering time, however, the buds drop wholesale, and the cultivator begins to despair of having any fruit at all. As it happens, a good sprinkling usually holds on, and I have never known the flowers that do open fail to set well, so that a fairly heavy crop is obtained in spite of the anxiety and doubt regarding it early in the season. With me Hale's Early is scarcely so great an offender as the two others named, but I have seen trees in excellent health, and by no means too rankly grown, without a fruit on them, and another season bearing a heavy crop, that sold in July at the rate of 15s. per dozen, so very large and handsome were the Peaches. All three would appear to be of much the same parentage, but what this is I am unable to state. If one of our American friends would enlighten us with respect to the parentage the mystery would, perhaps, be solved, but I am afraid a remedy will not be forthcoming from either side of the Atlantic. This bud-dropping is in my opinion an inherent or constitutional weakness, and what, therefore, prevents premature bud-dropping in other varieties is no remedy at all in the case of those under notice. Not only do the trees in early, successional and late houses cast their buds wholesale, but even those in the open air behave almost as badly. Partially exhausted or comparatively old trees naturally flower the most freely, but neither completely nor partially lifting younger trees will prevent the bud-dropping. At any rate, such is my experience, and Mr. Crump tells a

very similar tale. Without greatly eulogising the quality or lusciousness of the fruit there is yet no disguising the fact of the great superiority of Alexander, Waterloo and Hale's Early over any extra early varieties raised in this country, and for this reason they will be the most extensively cultivated, the defect of bud-dropping notwithstanding.—W. LUGGLEN.

—In the three last issues of THE GARDEN complaints have been made of the dropping of Peach buds. This bud-dropping seems greatly on the increase, and various opinions have been given by different writers, some attributing it to dryness at the roots, others to insects and high night temperatures. None of these I believe to be the true cause. I have had experience of bud-dropping, but not to such an extent as to lose the crop. Several years ago I took charge of a Peach house the trees in which invariably cast their fruit buds to such an extent that the crop failed. In the spring when I took charge the trees were minus the fruit buds; consequently a very strong growth was the result during the summer. In the autumn I determined to lift the trees to see the condition of their roots and to examine the borders. These I found all right, and having replanted the trees, hoped the bud-dropping would cease; but at the turn of the year the buds commenced falling whenever the trees were gently tapped, but not so bad as in former seasons. This bud-dropping went on for several years. I tried several remedies, such as potash, common salt and phosphates, but to no purpose as far as the buds were concerned. During these years I satisfied myself that the roots were all right, the trees healthy and free from insects, and temperatures for night and day correct. What, then, could be the cause?

In a garden I was in the lights were taken off the Peach house when the fruits were gathered, and the trees were subjected to natural conditions. In this state the trees remained until the time came for closing the house. The roof of my Peach house was a fixture, so I took off the side lights and removed one side of the glass, which I thought sufficient for my experiment. The house was a span with trees on either side. In this condition the trees remained until ready for starting, and I was pleased to find very few buds fell, and the following year bud-dropping practically ceased. Herein I believe is the real remedy, namely, exposing the trees to natural conditions so as to secure a complete rest after the fruit is ripe. Many persons will object to have the glass taken out of the roof, especially when put in with putty. In my case labour was cheap, and with a handy man in the garden, a few hundred feet of glass are soon taken out and put in when hard-setting putty is not used. Many Peach houses must be used for wintering plants. When such is the case, I would recommend the temperature to be kept as low as possible, with rather a moist atmosphere. My opinion is that all Peach houses should be built with movable lights. I also consider it a mistake to plant those very early Peaches along with midseason sorts. It is far better to have smaller houses and keep early and midseason sorts apart. For my part I do not consider early Peaches worth growing for home consumption. Starting such kinds as Grosse Mignonne, Noblesse, Stirling Castle, and Royal George a fortnight or so earlier would be far preferable, and the fruit would give more satisfaction.—J. E. NOSTELL, *Priory Gardens, York.*

Apple Betty Geeson.—This is a valuable Apple for kitchen use, keeping well till April and sometimes longer. The fact of its succeeding so well in a strong cold soil renders it all the more worthy of a place. The growth is of medium strength, bears freely, thus rendering it suitable for small gardens.—E. M.

Ants and Peach trees.—From "A. D.'s" remarks in THE GARDEN, March 19 (p. 252), one would imagine that ants do no harm, and are in no way injurious to the coming crop of Peaches. But if the trees are attacked when in bloom, I find if the ants are not checked, they do a great deal of mischief to the flowers. The best remedy I found for keeping them from preying on the blooms was the use of tobacco powder, dusting it round the stems of the trees, and following this up every morning.—E. R.

FLOWER GARDEN.

A USEFUL WHITE PRIMROSE.

THE grower of a large batch of seedling Primroses of a good strain may always expect some pleasant surprises. Among seedlings of white and yellow bunch Primroses a few years ago appeared one of the plant of which a small group is shown in the annexed woodcut. Though from Polyanthus seed, it is a true single-stalked Primrose, of a clear white colour with yellow eye. It was at once conspicuous from its very early and dense bloom, a character that its divisions always maintain, and it has proved one of the best for massing for spring effects. It is known as Munstead Early White.

Wallflowers.—Late-planted breadths of these for cutting over directly have stood through the winter fairly well, the chief sufferers again having

tentive for the Wallflower, which always seems most at home on gravel.—A. D.

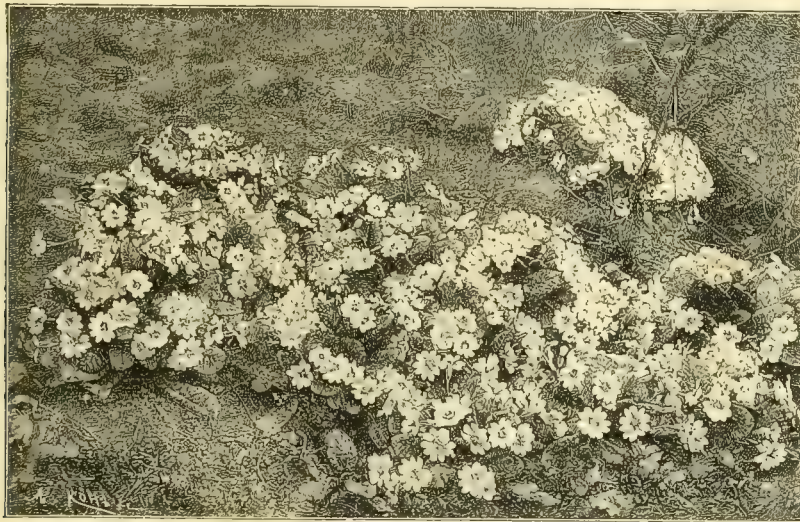
WATER GARDENS.

THE picture of my little water garden, an engraving of which appeared in *THE GARDEN* of Dec. 12, 1891, was sent as a suggestion for small growers, or those whose available space may be limited. It may be helpful to someone who is inclined to make an experiment with these fascinating plants to have a few details on less broad lines than those given in "K.'s" interesting and exhaustive article. As a rule, aquatic plants are of the simplest possible culture; planted in rich earth in a southern or south-western exposure, they practically require the slightest care, aside from the removal of decaying leaves. They certainly require a certain amount of warmth, hardy *Nymphæas* starting off at about 50° and tropical ones at 65° Fahr. With such a requisite it is of the first

of one half heavy loam and one half good horse manure partly rotted. The earth is rounded up and made firm and the rhizome planted with crown showing. The earth should be covered with an inch of clean sand to keep particles of manure from rising. It will be seen that when the box is sunk in the tank, the crown will lie within 7 inches or 8 inches of the surface and catch every glint of sun. With plants in boxes it is not necessary to draw off the water when a new plant is obtained, and they may be shifted around, taken out for propagation, &c. I have taken large plants from my tank to a flower show, and it would be quite feasible to take the whole outfit to an exhibition and arrange a temporary water garden. The simplest possible garden may be arranged in half casks sunk to the level of the garden, but these are close quarters for *Nymphæas*. Puddled tanks will leak more or less, and leakage means constant filling up, with reduction of temperature. With me the frost threw the tanks out of shape in a short time.

A good solid tank of concrete or of bricks laid up and lined with Portland cement will prove the most satisfactory and permanent. By having the excavation made on lines as seem desirable, it may be possible to induce a mason to follow their direction. It is well to have the borders of cement 3 inches under the adjoining level, so that the turf may be planted over them. An overflow pipe should be set and connected with a sewer or cesspool before the bottom is cemented. It is possible to give a list of aquatic plants which will fill acres. In a small way perhaps the best small list for a start would be *N. alba candidissima*, *N. chromatella* (Marliac), *N. odorata rosea*, *Nelumbium speciosum*, *Cyperus Papyrus*, *Sagittaria sagittifolia* fl.-pl., *Limncharis Humboldti*, and *Eichornia* (azurea or crassipes). No one but a hotel-keeper speaks well of the climate, and presuming that the English weather is not so very bad as your correspondent represents it, perhaps in some sections success may be had with some tender *Nymphæas*, of which I find *N. zanzibarensis* the most satisfactory in growth and flowering, with *N. Devoniensis* a good second, though handsomer.

When planting, no time should be lost in stocking water with a liberal number of gold-fish, for a tank of this kind must practically be treated as an aquarium, with a proper balance between animal and vegetable life. In practice, even under our sometimes hot sun, I find that the water remains limpid during the season, only adding water to replace evaporation, except in case of a long spell of very warm weather. At such a time the Alge will sometimes increase beyond the ability of the fish to consume them, and in such cases it is necessary to reduce the temperature by fresh supplies of water—a simple matter where a garden hose is available. The sand in the boxes furnishes a nice spawning bed, and in August my fish give me an interesting crop of small fry. The borders at the north and east sides of the tank may be



Primrose Munstead White.

been the very early planted breadths, the growth of which was very robust. There can be no doubt whatever but that the natural character of the Wallflower is distinctly opposed to high culture. That it is needful to sow seed in good time and get the plants out in June to secure an early bloom there can be no doubt. Still, for several years the weather has so crippled the plants just as they were about to show bloom, that early planting has been much discounted. Neither for Violets nor Wallflowers have we now ever such favourable seasons as used to be found twenty years ago, when few things in market culture were more productive of profit. The comparative decadence of the bloom-production of these plants early in the year may be due both to very high culture and inclement winters and springs. The dwarf compact plants of Wallflowers yet found in such abundance in the fields on hard and half poor soil, whilst blooming freely enough later, never produce flowers of such rich colour as do the earlier plants, because the late bloom is soon spoiled by the warm sunshine. But even with these late plants seed is now far from being so plentiful as used to be the case; indeed, in many gardens no seed whatever was saved last year, the plants, after developing seed-pods, being attacked by a fungus which soon killed them. That is probably the product of high culture, as Wallflowers growing in poor soil seldom suffer in the same way. Naturally, much of the market garden soil is too stiff or re-

importance that they be planted under conditions where they may have the advantage of all available warmth. It is understood that they should have the sunniest spot in the garden, but it does not seem so well known that they may be grown more satisfactorily in shallow water than in the deep tanks usually recommended. A slight reflection will show that as water is a poor conductor of heat, it will take much solar warmth to make an impression on a body of water 3 feet deep. Reduce the depth one-half, plant the crowns near the surface, and every ray of sunlight has an effect. With a small water garden, temporary planting in shallow water will be found the most satisfactory. My tank is 20 inches deep and holds 19 inches of water, at which height the overflow pipe is set. The plants are in boxes and pots set on the bottom of the tank. The *Nymphæas* are planted in deal boxes of suitable size. A strong plant of *N. chromatella* grew satisfactorily last summer in a box 18 inches long, 12 inches wide, and 9 inches deep. Such a box is filled with a mixture

planted with such plants as are in harmony with such a spot. My present fancy is for Grasses, Bamboos, Eulalias, &c., with Kämpfer's Irises and a few broader-leaved plants, Sumach, &c., for contrast, with an undergrowth of Ferns. The tone of a water garden is quietness, and violently coloured flowers and many variegated-leaved plants are out of place. Around a natural pond one may grow a large range of plants, small and large, which delight in moisture, but bog plants and things of that character cannot be done well on the borders of a tank. As there is no leakage, and it is in the warmest spot in the garden, it will be found that the borders are the driest, warmest ones on the place, and it will be necessary to trench them deeply and prepare them well, so that they may retain naturally as much moisture as possible.

In October, before the first hard frost, the *N. zanzibarensis* should be taken out, and if no tuber is found, it must be stood in a tank to be wintered at about 60°. *N. Devoniensis* makes tubers freely, and these may be wrapped in damp (not wet) Sphagnum and kept under a greenhouse bench. Papyrus may be kept in a pot, keeping the soil moist in a greenhouse temperature. This plant usually gives a crop of seed from which a new stock can be rapidly raised. *N. zanzibarensis* also seeds freely. The seeds germinate freely at 75°, and if sown in late autumn, the seedlings will flower the next season—they are at their best the second year. The hardy *Nymphæas* may be left in the tank. In districts where the climate is severe, with long-continued low temperature, the water should be drawn off and the whole covered with 3 feet of hard leaves (extending beyond the walls) and then tightly covered with boards to throw off the winter rains. In milder climates (as in this neighbourhood—a few miles west of New York City) it answers to protect closely with boards, and over these to place a covering of leaves. Another plan is to store the boxes of plants in a cold cellar from which frost is excluded. The soil is to be kept just moist. This is a good place for plants which it is desired to propagate early in the year after they have had some season of rest—necessary to their welfare.

From my point of view, there seems to be no reason why the smallest garden, if possessed of a sunny spot, may not have a few at least of these most interesting plants. I may say universally interesting, for young and old are, without exception, interested in some phase of the water garden, which, in my experience, cannot be said of any other class of plants, even the showiest.

JNO. N. GERRARD.

Elizabeth, N.J., U.S.A.

Centaurea candidissima. In your issue for March 5, "A Hint" was an exception to a note of mine, which appeared in an early issue, on striking slips or cuttings of the above-named plant, his reason for doing so not being very apparent. If I get as good results by striking the slips in November as he gets from striking them in September, I hold that it is an advantage to do so, especially when

an increase of stock is desired from beds supposed to be at their best in the autumn, as taking the slips tends to disfigurement of the plants, and the longer this is postponed the better, the more so when used in conjunction with scarlet Lobelias or such plants as will flower well on into the autumn. Of course one would not water them in any circumstances except when dry; my meaning, which seems to have been misapprehended, was that they are not so liable to injury from water when struck in the way mentioned as they are when put in a close pit or frame to strike, and I thought I put this plainly. I am surprised, however, to find that "A. H.," in spite of his dread of water on the foliage or the crowns, advises that they should be well watered through a rose. This I should never do.—J. C. T.

BEGONIAS IN THE FLOWER GARDEN.

THERE is no mistaking the value of tuberous Begonias, more especially for bedding out, but, beautiful and effective as they are, they are yet by no means so plentifully and well grown as the remarks on page 205 would lead us to expect. It is a matter for regret that this should be the case, though the reason is not far to seek. All the while the trade continues to supply such wretchedly small packets of seed for 5s. say, it is only those who are in a position to take extra pains in sowing and attending to this that can feel certain of raising a number of plants, and it is almost needless to point out that the choicer the strain the less vitality the seed appears to possess. Raising a dozen or two plants where hundreds were expected is most disheartening, and inevitably gives the scarlet Geranium yet another chance to reign supreme. The following year probably the inexperienced Begonia grower decides to trust to his own seed, with the result, may be, that a goodly number of plants are raised, but which do not pay for the trouble taken with them. A considerable amount of judgment must be exercised in the matter of saving Begonia seed, the first proceeding being the weeding out of all inferior varieties, an act of apparent self-denial very few growers are equal to. Yet unless they do this, their seed is not worth 1s. per ounce, at any rate from an expert's point of view. The worthless forms are always the freest seeders, and they literally ruin the character of all the seed that may be saved on a place. Professional growers undoubtedly deserve much credit for the great pains they take in saving seed, many of the strains in cultivation being improved to a remarkable extent, but all the same, I maintain there is no excuse for making such very tiny packets. No fault is found with them for mixing seed saved no longer ago than in 1890 with that of 1891, for, as it happens, that saved in the former year has with me germinated more surely than the newer and apparently less well ripened seed. The seed, however, may be plentiful, perfectly sound, and the vitality of the best, and yet failure to raise a sufficiency of plants result owing to the faulty methods practised. Seed-sowers are far too fond of using silver sand in all their seed-sowing operations, but there ought to be none in the fine compost used in the seed-pans intended for Begonias, a surfacing of it being about the worst preparation that can be made. The tiny seeds not only must rest on something constantly moist, but the first delicate sprout they make should be able to lay hold of a supporting substance at once. Silver sand actually keeps them away from the more congenial soil underneath, and a great percentage sprout only to die prematurely. Nor is leaf soil a safe material to use, souring too readily taking place, or, what also frequently happens, fungus overruns it, this causing wholesale destruction to the delicate plants rooting in it. Nothing answers better than a mixture of fine peaty soil and fine cocoanut fibre refuse, as this can be kept constantly moist without any fear of souring or fungus. This should never be watered overhead, but the moistening at the outset and as often as the least signs of dryness are discovered, must be from below, the pans being soaked very carefully

and not quite to their full depth in luke-warm water. Let those who have already tried other plans and failed try that I am recommending, and they will most probably succeed surprisingly well. I ought, perhaps, to add that the pans should be set in a brisk heat, but not on a hotbed for fear of worms, and be closely covered with squares of glass till the seedlings are seen, sunshine afterwards being rigorously excluded. Thus treated, the seed should germinate in about nine days, and although it may not now be possible to grow the plants to a serviceable size by bedding-out time, they will yet be strong enough for affording a late summer and early autumn display, and in any case a capital lot of bulbs, arranged if need be according to their colours, will be available for storing.

It is my good fortune to be able to point to four large pans of seedlings raised this season, and the seed being saved from one of the best collections of single Begonias in the country, a grand display should finally result. Not less than a thousand plants will be prepared for the flower-beds and borders, but not one of them will ever see the inside of a pot. Small pots would never turn out such plants as we shall otherwise grow, and I hold they ought not to be used in their preparation. Directly the seedlings are large enough to move with the aid of the point of a label and a pair of tweezers made of a thin strip of soft deal one-quarter of an inch wide and doubled so as to bring the ends together, they ought to be pricked out either into square pans, or, still better, into shallow boxes. Especially should pricking out be early resorted to if there are signs of damping taking place, fungus sometimes causing wholesale destruction among crowded seedlings. Fill the pans or boxes rather firmly with a fine sandy and not too poor compost, a free use of good leaf soil and fine cocoanut fibre refuse being advisable, and prick out the seedlings 2 inches apart. Kept lightly shaded for a time, constantly moist and in a fairly brisk heat, the first rough leaf and tiny bulbs are quickly and almost simultaneously formed. Small batches of plants might well be transferred to larger boxes before they crowd each other, and if the soil used is fairly rich and the plants still kept in gentle heat, they will attain a serviceable size by the time hardening off and bedding-out should take place. Where they have to be prepared by hundreds or thousands, either pits or frames ought to be given up to them for a few weeks. They might be planted in succession to early Potatoes, or, as in our case, after double Violets can be cleared out of a good-sized unheated pit. A gentle bottom-heat, a good layer of partially-exhausted leaves and stable manure answering well, is needed, and on this ought to be placed a layer 6 inches or rather less in depth of good fine soil, silver sand and plenty of the best leaf-soil being used, and all be within 8 inches of the glass. When the lights have been put on long enough for the soil to become well warmed through, the Begonias should be transferred to it, and arranged from 6 inches to 8 inches apart each way. They invariably move with a good ball of soil and roots, and therefore quickly take to their fresh quarters. Being kept rather close, shaded from bright sunshine, frequently sprinkled overhead, and the lights closed early, progress will be fairly rapid, and a grand lot of plants be got ready for the flower-beds by the end of May.

Before this class of Begonias had reached their present state of perfection, the foliage was as a rule, somewhat poor, but the best bedding strains now have grand foliage, and require no groundwork of any other kind of plant to show them off to advantage. Prepared as I have advised, the leaves are particularly well developed, and if they have the benefit of a fairly rich, well-worked root run, the plants may be put out at least 9 inches apart, and the bed present a well-filled appearance from the first. Of the various carpeting plants I have used among Begonias, the preference is given to the *Mesembryanthemum cordifolium variegatum*, this quickly covering the ground and keeping it cool, while it does not rob the Begonias of either moisture or fertility. Begonias being sufficiently

plentiful may well have the beds entirely to themselves, but they ought to have a liberal mulching of cocoa-fibre refuse, leaf-soil, or well-decayed tanner's bark, water also being freely supplied in hot weather, as they are decidedly moisture-loving plants, and will not attain perfection without plenty of it. By far the best effect is produced by the erect flowering varieties, those with well-formed medium-sized flowers being preferred by me.

Compared with the tuberous-rooted forms, the fibrous-rooted species are unattractive. I have at different times tried several of the latter, and of the lot much prefer the good old, but now not often met with, *B. weltoniensis*. This species flowers beautifully in the open, the flowers and foliage being alike attractive. *B. semperflorens* thrives well enough, but the flowers present an under-grown, starved appearance, and very different to what young plants in a greenhouse will produce during the summer and autumn. M. H.

GENTIANA VERNA.

THE ease with which this beautiful alpine may be grown and the comparative scarcity of it in gardens must be my excuse for troubling you with another note upon the matter (following Mr. Ewbank's note of a fortnight since), for the controversy as regards its culture has been prolonged, in desultory fashion, to a length not justified by any real or solid difference of opinion between the many writers on the subject, authoritative or otherwise.

I wish to point out that there is a general agreement that all that is necessary to success is perfect drainage, abundance of summer moisture for the roots, complete exposure, firm planting, and fairly deep soil; and since my opinion (as that of a grower of this plant on some scale) has been cited, I wish to correct the wrong impression, which I fancy my friend Mr. Ewbank's last note would, perhaps unintentionally, convey, that I dissent from the above general finding, that I claim to have made discovery of a necstrum for the culture, and that I preach that the plant cannot be well done without chalk or lime in some shape. None of these things are so. For a reason which I will repeat once more, I uphold the great value of a chalk soil for this and for many other alpine. But, in the first place, I have certainly never been so absurd as to claim even this as a discovery. I have always fancied it to be matter of almost common knowledge among those who had studied the habitat of and grown the plant.

In the second place—and this is a point far more important—it seems necessary again to accentuate the difference between saying on the one hand that certain treatment is good and valuable, and on the other, that it is the only one by which success can be assured. I hold to the view that a chalk soil is of great value in growing the plant, but I am not aware that I ever dissented from the wider view above expressed as to the sole essentials to success.

All is clear enough, if only it be borne in mind, first, that it is the moisture-holding property of the chalk which probably makes its chief, perhaps its sole, value for the purpose in hand; and secondly, that this medium may be supplied in several other ways; in

none better than in that almost daily attention to the thirst of the plant during summer drought, which it is doubtless the delight of Mr. Ewbank, as of other enthusiasts, to give.

I have before stated that, so far as my observation of the plant extended in the Dolomite region (where limestone hills alternate curiously with granitic), the plant, while abounding on the first, ceased to be found as one passed to the second. But it by no means follows, I imagine, that *G. verna* could not be grown even over such a granitic sub-soil. If Mr. Ewbank would but fill a summer chaplaincy at, say, San Martino in Castrozza, and employ his week days in watering colonies of *G. verna* transplanted from Dolomite on to granitic slopes (other conditions being the same), I should expect that he would score a complete success. He, like chalk, would be supplying the constant moisture which the plant exacts, but which Nature, in the case put, fails to maintain with sufficient constancy upon many soils not calcareous. Whether chalk has generally a value for these plants outside the mechanical quality referred to is, I believe, a very moot question, on which we sadly want guidance if such is to be had. But with a single important exception (to which, as I am upon the subject, I will presently refer), I am not aware of any phenomena which "the mechanical theory" will not sufficiently "satisfy." The exception is that of the plants (not a few), into the very constitution of which lime quite evidently enters when present in the soil in which they are reared. My attention was recently drawn to this subject by Mr. Lindsay, the able curator of the Edinburgh Botanic Gardens, apropos of a specimen of the great Pyrenean Saxifrage sent to him from the adjoining nursery, which chances to be upon chalk (a fact of which he was at the time, so far as I know, unconscious). He wrote remarking upon the unparalleled beauty of the specimen (which he thought worthy of being taken to the next meeting of Edinburgh botanists), not on account of its large size, but on that of the abundant presence of encrustations of lime on the foliage. This gives to the plant so grown a rare glistening beauty, and often a rigidity of form greatly enhancing its charm. I imagine that a similar result will be found to ensue in regard to the rest of the "encrusted" Saxifrages, and perhaps to most of the silvery-leaved alpine. All these are certainly beautiful as grown on chalk, but I have not had time to observe widely (since Mr. Lindsay's observation started me on inquiry) whether, off it, many of them are not quite equally so.—H. SELFE-LEONARD, *Guildford*.

— There is, alas! much truth in what "Delta" says (p. 185), and many (who had deceived themselves by believing they had at last succeeded with this dainty plant) have found it to dwindle after flowering once or possibly twice. As a matter of fact, it is not only a plant slow to become established, but slow to die. The object of this note is to testify that the plant may be had in a flourishing state in our gardens even near big towns like Leeds. Within a few feet of where I write this note there is a patch 8 inches or 9 inches across in the most flourishing condition. It is thickly clothed with

closely-set foliage and bristling all over with fat buds. I take no credit as a plant cultivator for this success. I not only cannot tell what I have done for this plant that has not been done for the many that I have failed with, but I do not pretend to say what the accommodation is that the plant has found for itself. All I can say is that near where it grows now I used to have many healthy patches, and the present plant sprang from seed. In my small garden I cannot afford to grow many plants of one kind. I have little doubt, however, that if other plants were set near to this they would grow as well. Of course, I have formed an opinion as to the cause of success in this particular part of the garden. The border is fully exposed to sunshine, is quite flat, and I daresay it gets above its share of moisture from the fact that it is at the base of a slope sheltered from the north. No manure is ever used in this border, but I attach most importance to the fact that the loam is of a fine silky texture, having a somewhat strong calcareous property. This loam does not belong to my district, but forms part of several railway truck-loads that I imported for special purposes. Though diffident in claiming any secret for the management of this plant, I have not experienced so much difficulty in growing the plant as is implied by "Delta's" remarks. I have planted scores with success, such success as is to be seen by the plants thriving and increasing for many years together. Much may be due to accident in the way of local conditions. One might try and never succeed in some gardens, and in others, though perhaps few, one could hardly fail. I have seen the plant well grown in peaty soil, but, as a rule, such plants have a short course of life. Their foliage and flowers for a time are almost double the normal size. One thing I do for my plants which I am sure is for their benefit: they are thickly mulched every autumn or even in summer, and it is pleasing to see how in a short time they respond to this treatment with a deeper green foliage and more sturdy habit. This little plant has enormously long roots, and if well-established pot plants are had for a start, and planted in silky loam somewhat deeply in a flat, moist position, I do not think that there would be much further difficulty. Firm planting is essential. I believe many fail from an omission of this. In many cases I have vexed friends by what they have considered a ruthless act. I have seen their plants with sprawling bare stems, and somewhat raised above the ordinary level of the ground—a state inviting failure—when I placed my foot on the plant and sent it down as much, or even more, below the surface; rains then wash the soil over the bare stems, and the plant has a much more cosy appearance. If there is one cultural point about which I am certain, it is the annual mulching of the plant, because the stems are always lengthening.—J. WOOD, *Woodville, Kirkstall*.

HARDY PRIMROSES.

WE are now in the season of bloom for these plants, as also for sowing of seed. It is true that generally all hardy flowers, Primroses included, are somewhat later than usual in blooming this spring, but almost invariably I have found that the beautiful hardy garden sorts bloom from the beginning of March to the end of April, though a little later sometimes, as is the case this year. In sowing seed, it is best to do so in shallow pans or boxes or else under a handlight. Preferably it is best to sow thinly in pans, because the warmth invariably found in a frame or greenhouse at this time of the year assists to promote even germination, and if the pans be shaded during the day the germination is all the more regular. All sorts of *Primula* seed seem to make the best growth when it is covered, and there is the additional advantage that less watering is needed. The seeds have rather hard cases, and should the soil become quite dry, even for a short time, it is almost certain that most of the seed will die. When raised in pans under glass the seedling plants make much more rapid growth than results outdoors, so that they are much earlier fitted to plant

out into the open ground, and thus make all the stronger plants to bloom the following spring. When raising Primroses by hundreds, I always sowed seed early in the autumn. I still think, for many reasons, it is the best plan, because the longer the seeds are kept, the harder or tougher do the skins become. However, it is useless to advise autumn sowing now, but it is worth bearing in mind Nature sows seeds of Primroses so soon as ripe, and under ordinary conditions they germinate at once. But for that fact, it is not probable that we should find the hardy Primroses of the woods so plentiful as they are, for the most of the plants are usually one and two years old. In garden culture it is easy to follow Nature, especially as it is not difficult to find the seeds if sought for. No mere cursory glance suffices for the detection of Primrose seed-pods. These oddly curl down beneath the leaves and close to the ground, just as though striving to hide from the gaze of the seeker after them. Collectors of seeds must with one hand carefully lift the leafage, whilst with the other they pick off the pods. These are usually ripe about midsummer, much, however, depending upon the earliness or otherwise of the spring. The finest seed-pods usually come from the later flowers, as those produced very early are seldom fertile. Slugs often prey upon the pollen, for which they seem to have great partiality. Where such is the case these pests should be sought for at night and be gathered up by hand. To dust the flowers with lime or soot would be to at once destroy all their beauty. Primroses even of the finest strains require only ordinary culture. They do well almost anywhere in deep holding soil, and where there is some shade during the warmest part of the day. Dribbled out a foot apart each way as early in the season as possible, the plants become very strong by October, and very often will bloom from November until the following May. Wonderfully pretty are they grown in pots in a cool greenhouse, and not less beautiful are they grown in boxes for window decoration.

A. D.

THE FLOWERS OF SPRING.

Up to about a week ago, one might have said a good deal about winter, or winter climate. We had, indeed, plenty of spring flowers locked up in the frost and snow, but we have had to await the spring weather and the genial sunshine, until now we are indeed past the middle of March and the Daffodils are fully a fortnight past their usual time of blossoming.

During the past few days of genial warmth, however, everything has made great progress, and there is the gleam of Crocus everywhere. Here is *Dondia* (*Hacquetia*) *Epipactis* in a setting of Siberian Squills, and there are *Hepaticas*, rosy and white and blue, beneath the scented bushes of *Mezereon*, both purple and white. *Chionodoxas* of several kinds are happy along with *Elwes' Snowdrop*, and the two-leaved Squill is mixed amongst them just as it is on the *Nymph Dagb* range, behind *Smyrna*, whence our collected bulbs came. Our first Daffodils were the dainty white *Hoop-petticoat* (*N. monophyllus*) from near *Oran*, and *N. minimus*, the smallest of all the trumpet Daffodils, from Spain. Just now expanding in the open borders are *N. (Ajax) Henry Irving*, *N. pallidus præcox* from *Bayonne*, *N. nanus*, *N. Telamonius plenus* or *Van Sion*, *N. Ta zetta præcox* from *Algeria*, *N. Scilly White* (= *White Pearl*), *N. Ard-Righ*, *N. odoratus* (*Campernelle Jonquil*), *N. minor* and its double form called *Rip van Winkle* and several others, including the wild Italian Daffodil with a deeper stripe down each of its perianth segments, yclept *Regina Margarita*. So far we have very good promise for a showy season of *Narcissi*, and I see none of the frost-nipped leafage or the brown-tipped leaf-points which were noticeable after the hot and dry summers of former

years. Those free, sturdy and best of kinds, *N. John Horsfield*, *Empress*, *Emperor*, *Sir Watkin*, *Countess of Annesley*, *Golden Spur*, *General Gordon*, and *Glory of Leyden* are particularly strong, as also is the *Rev. Mr. Gabbett's* striking frilled-trunk variety now pretty well known as *Crom-a-boo*.

In the greenhouses, all through the cold and frost, we had a fine show of *John Horsfield*, *pallidus præcox*, *Saragossa*, *North Star*, *princeps*, and others in pots, and in this way all the Daffodils are particularly showy and readily grown. The main point is to pot up the bulbs early, say not later than the middle of September. They should then be plunged under coal ashes in a warm and sunny place. Here they root freely, and they then force splendidly and their flowers last well.

In very cold northern climates or on heavy, wet soils or near smoky towns, pot culture enables one to get a good show of these lovely flowers—clean and fresh, and several weeks at least in advance of those grown outside in beds or borders. Again, such dainty kinds as *N. triandrus*, *N. cyclamineus*, *N. juncifolius*, *N. (Corbularia) monophyllus*, *N. citrinus* and *N. conspicuus*, &c., are never seen so fresh, clean and happy-looking as when grown in sandy peat and loamy soil in a sunny greenhouse or frame. The splendid manner in which the late *Rev. A. Rawson*, of *Fallbarrow*, *Windermere*, used to grow *N. triandrus* in pots in this way was a delightful surprise to his many bulb-loving friends. The choice *N. calathinus*, from the *Isles de Glennans*, off the *Brittany* coast, is another exquisite gem as grown in a pot of sandy soil indoors, where the bulbs are safe from heavy storms of wind and rain. One charming way of enjoying the many lovely hardy bulbs and spring flowers is to pot them at suitable times so that they can be brought near the eye in the greenhouse, or even in the sunny window of a room. The invalid more especially is benefited by the cheering presence of such things, and the culture of such plants as *Primroses* and *Saxifrages* and of easily-grown bulbs should form a part of all children's education at a time when they are most quick and eager to learn.

A good beginning could be made with such easily-reared bulbs as *Roman Hyacinths*, *Crocuses*, *Narcissi* and *Tulips*, or with such *Irids* as *Iris alata*, *I. persica* or *I. reticulata*. The main difficulty in teaching plant culture to children is not in the actual doing of the few necessary operations, but in teaching them the self-restraint necessary for them to leave well alone. After all, it is often the exercise of masterly inactivity or the art of hastening slowly that comes last as a blessing even to the best of us who profess to love the garden and its flowers. If I were asked to name the best plant for a child to grow, first of all I should say the *Chinese Narcissus*. This, once submerged in a bowl of water with stones to hold it firmly in its place, can better than most things be watched without disturbance. It grows well and rapidly in a sunny window, only wanting a freshening up with tepid or lukewarm water every evening. The next best things are a few *Hyacinth* bulbs, each placed in a plain white bulb glass of water containing a nodule or two of charcoal. Here all the root and top-growth can be seen and explained, and an object lesson of the best in plant culture is thus readily afforded.

The *Snowdrops* are nearly over, but *G. nivalis virescens*, *G. Scharloki*, *G. plicatus elegans*, *G. caucasicus Gusmisi*, *G. plicatus maximus*, and *G. plicatus Chapeli* of *Boyd* are still fresh and fair to see. The quaint flowerets of the *Wych Hazels* have shrivelled in the wind, but

the silvery catkins now grace the black and purple *Osiers*; there are pea-green catkins on the *Alders*, which remind one of those shown on the old willow pattern plates; the treacle-like coating is glistening on the big *Horse Chestnut* buds; the *Mignonette*-like flowers of *Acer macrophyllum* are also nearly ready to burst from their soft brown sheltering bracts, and the berries gleam on the green and golden *Aucubas* like masses of coral beads. *Cornus mas* is golden with its little flower clusters, so is *Shepherdia argentea*, and the weeping *Kill marnock Willows* are like fountains of pearls. Here and there the gold stars of the *Coltsfoot* appear, and its first cousin, the winter *Heliotrope* (*Tussilago fragrans*), scents the air, while the brown buds of the *Elm* and the black ones of the *Ash* trees show out against the sky.

Here on the sunny borders *Iris stylosa* is now throwing up its fragile, but lovely and odorous blooms, and there is the bold up-spearing of the *Eremurus robustus*, that giant amongst the *Asphodels*, and signs of bold resurrection amongst the *Lilies* and their first cousins, the great *Crown Imperials*. On the walls are signs of new life and outbursting growth. The golden winter *Jasmine* is well-nigh past, but its place will soon be filled with *Forsythia suspensa*, the clustered flowers of which look like a swarm of golden bees, and there are pearly buds of the *Chinese* and other *Plums* showing, and of *Nuttallia*, and the hoary bud clusters of the *Almond* already show a rosy lining in the midday sun.

But brightest and warmest and best of all the flowers just now are the myriads of *Crocuses* in lines, masses, groups, and clusters everywhere on Grass, border, bed, and bank alike; their orange glow in full sunshine is brighter than molten gold, and the Daffodils even look pale beside them—purple, lilac, orange, and pure white, they are all here by the thousand, and more. Most perfect of all perhaps is a broad band of the pure white kind, having a fiery stigma like a bit of fire in a vase of alabaster. Wherever *Crocuses*, *Snowdrops*, *Aconites*, *Squills*, and *Daffodils* grow and thrive really well, one can never have too many of them; especially lovely, fresh, and clean are they as seen on the verdant and shade-chequered turf of the early spring days, when the morning sun is warm and genial and when new life and strength expand each bud and stem. All periods of the year are in their own peculiar way enjoyable, but after the fogs, the mists, the rains, storms, frosts and snows of winter, one of life's most precious seasons is the spring.

F. W. B.

GLADIOLI IN BEDS AND POTS.

THOSE cultivators of this grand autumn flower who grow the choicest kinds, mostly of the *gandavensis* section, for exhibition, recommend that the ground should during autumn be deeply trenched and heavily manured for the reception of the corms or bulbs this month. They mark the selected spot of the garden into narrow beds 3 feet or 4 feet wide, with paths between. Each bulb is allowed about 1 foot of space and planted 3 inches deep. As soon as growth is observed above ground the beds are mulched with rotten manure, which is left on the surface all the summer. Tying is attended to and liquid manure is applied to aid development. After flowering, when the leaves begin to fade they are taken up, left in the open for a few days to expel moisture and are stored away with care, as many may be valued at half a guinea apiece. Bulbs of the commoner, but by no means less useful sorts may be had, however, at a much cheaper rate, and, besides exhibiting it, there are other uses for this plant which make it invaluable in any garden. In hardy plant borders, in front of the green foliage of *Rhododendrons*, between standard *Roses* massed in

beds, or in clumps at intervals near kitchen garden walks, these are positions in which Gladioli serve a useful and showy purpose. To grow them in the ordinary way any soil will do, but a little manure will greatly assist and should be dug in where a clump of bulbs, say five or six, are to be planted. A handful of some approved fertiliser will answer the same purpose and is more easily applied, being scattered in the hole made at the time of planting. *Brenchleyensis*, the well-known scarlet, may be bought at 1d. per root, and mixed hybrids of all colours from 10s. per 100. Gladiolus flowers are most excellent for cutting, and when wanted in this state should be cut at an early stage and allowed to open in water. It will be found that their beauty is not so fleeting as when left on the plant to open.

In pots these are useful for conservatory decoration and also for anticipating the outdoor flowers. Plant about three of the large-flowering section in an 8-inch pot, using any ordinary potting soil. Cover them with cocoa fibre till the sprouting growth comes through this material, then allow them to grow on in a cold pit. Feed them constantly with manure water and never allow the soil to become dry. It is well to leave the pots plunged until flower-spikes show colour, when they will be ready to give brightness to arrangements of Ferns, Palms, and so on.

The miniature Gladiolus, *G. Colvillei albus* The Bride, is, for its distinct character, beauty, and simple culture, one of the choicest of greenhouse bulbs, so small that it is wonderful what charming spikes spring from the same. Begin at once with this sort, as it is said the bulbs deteriorate after March. Ours are now about 3 inches above the soil, but by planting it in the pots about Christmas, it may be had in bloom if gently forced by June. From eight to ten bulbs should be placed in a 5-inch pot, and use the lightest soil obtainable. We have found to our cost it is not hardy, and requires some protection even in a cold frame during frosty weather. Yet we know of a large patch in an open garden which has been left undisturbed for several years, and goes on increasing every season. This, however, is on a slope where the soil, which is naturally of a light nature, becomes drained, therefore dry; and the bed is also protected with loose litter during winter. H.

NOTES ON HARDY PLANTS.

Pyxidanthera barbulate, or the North American Pine-barren Beauty, is rarely seen in this country in a flourishing state. It is more than possible that there is something peculiarly adapted for it in its wild habitat, as indicated by its popular name. No doubt the shelter and the humus of Pine forests will help to protect and render comfortable this charming evergreen creeper. It is, however, because I believe it can be successfully grown in this country that I venture a cultural note on a plant hitherto, according to my experience, as difficult as most European alpine I ever tried. The plant somewhat resembles in habit our flattest-growing Thymes, only the little leaves are ciliated. The flowers are snow-white and dotted all along the miniature trails. It has reached me in tufts of *Epigaea repens*, and it has been grown in a cold frame, which in the very severest of weather has had a mat over it. I do not suppose that the mat protection would be essential in the case of well-established plants; but as my few specimens were not so, I took such precaution, and I believe it has been helpful, because now the plants are very fresh and beginning to flower. I plant in peat Moss, sand and burnt loam. Nothing can be more beautiful than this plant grown in pots without heat; they run over the sides and become very graceful objects whether in flower or not. Grown more exposed and later in the season, the flowers assume a pink tint; this, however, only comes with age, owing to the individual flowers lasting for a week or two. The plant is quite safe if grown out of doors in a moist corner of the rockery not too exposed to the sun, and a liberal top-dressing of old

Pine needles given during the autumn will keep it fresh and verdant all the winter.

Dwarf Willows.—I have before referred to these most interesting and beautiful objects as used in alpine gardens. They are coming very much to the front, and I should be pleased to hear if anyone can mention suitable species other than *reticulata*, *herbacea*, *serpyllifolia*, *lanata* and *pyrenaica*.

***Faxifraga peltata*.**—Some people grow this plant as a bog subject, and I should say that is right where it answers. I grow it on the highest portion of a mound raised 2 feet or 3 feet above the natural level, and I have never anywhere seen plants grow either more quickly or more strongly.

Woodville, Kirkstall.

J. WOOD.

***Stokesia cyanea*.**—This is a very beautiful and distinct perennial, and as such deserving of extended cultivation. Unfortunately, however, the season at which it flowers naturally out of doors is



Old Cluster Rose on a wall.

so late, that it is rarely one sees the plant in good condition. Unless it be in a much favoured locality or very favourable season, very few, if any, of its flowers expand properly in the open ground. August is the stated time of its flowering in some of the text-books, but I have known the plant well-nigh twenty years, and never knew a season that it ever began to flower before late in the month of October in the open ground; and at so late a date there is little chance of the blooms coming good. In the winter garden or conservatory it would, of course, flower earlier. The plant is usually a difficult one to increase in the ordinary way by division, owing to the way in which the growths crowd together on the summit of the roots. Seeds of it are anything but plentiful, because of its late flowering. But where a stock is required, any quantity may be raised by means of root cuttings inserted in sandy soil in gentle heat. In this way a plentiful supply may be obtained in one season. The roots should be cut into lengths of an inch or so, taking care always to keep the uppermost portion in its right position. The making and inserting of the cuttings are very simple: the former by

cutting in lengths merely, then three-parts fill a well-drained pot with sandy soil, and place the portions of roots a little way asunder round the inside of the pots, three dozen pieces of roots being easily accommodated in a 5-inch pot. Another good and useful plant whose flowers can be had in excellent condition in the open ground, and to which this mode of propagation applies with equal force, is *Senecio pulcher*.—E. J.

ROSE GARDEN.

ROSES ON WALLS.

How to have Roses in bloom for as long a portion of the year as possible, and in all sorts of positions, is a matter worth serious consideration. There are two classes of Rose growers, besides those who grow for sale; the one has for his principal object the production of blooms for exhibition, while the other grows them for decoration and the production of flowers for cutting. Now there are so many families of the Rose, and so many varieties belonging to each family, that suitable Roses may be found for almost all kinds of uses and positions in a garden where flowers of any kind can be used. The following are some of the uses to and positions in which Rose plants may be put in a garden, viz., beds, borders, shrubberies, poles and pillars, arches, arbours, walls (north, south, east, or west), hedges, screens, &c. Before entering into any particulars, however, as to the different kinds of Roses adapted to the various purposes just mentioned, I should like to make a few remarks on the more or less important subject of soil. I say "more or less" here, because if only the commoner kinds of Roses be grown, the kind of soil is a matter of small importance. The old summer-blooming climbing Roses belonging to the Boursault, Ayrshire, and sempervirens classes, as well as most of the varieties belonging to the Gallica, Hybrid China, Hybrid Bourbon, Austrian Brier, and many other summer-blooming families are not at all particular in the matter of soil. Where the best kinds of continuous-blooming Roses are required to thrive and repay the cultivator, there the soil must either be naturally good, or adapted to the purpose by artificial means. For poles, pillars, arches, arbours, walls, sides of houses, and high buildings, &c., only those Roses are suitable which have more or less of what is called a climbing habit of growth. Roses which make long rambling growths, whose shoots are unable to stand up without support, are the kinds which do duty as climbers. Before, however, determining on the kind of climber to plant, the height the plants are required to attain to must be considered. Most of the vigorous Hybrid Perpetuals and Teas will reach a height of from 8 feet to 15 feet if the soil be good, and on warm sheltered walls 4 feet or 5 feet or more. The extra strong growers of the same classes, with the Noisettes and Hybrid Noisettes, will cover well up to 15 feet or 20 feet or more. The Banksian Roses are excellent as climbers, but should only be planted against walls in rather sheltered positions; they are only summer bloomers. The old blush and crimson China Roses will also run up a wall freely to a height of 30 feet, and, as before stated, for continuous blooming qualities they are unsurpassed by the varieties of any other family of Roses. The old-fashioned summer-blooming Roses before alluded to are capable of almost anything in the way of height.

They completely cover themselves with flowers during the blooming period if rightly treated, and all the treatment they require, if in good soil, consists in tying them to their supports, pruning out weak and exhausted wood, and encouraging to the utmost such vigorous young shoots as may be required. No growths need be shortened except to keep them within the bounds allotted to the plant and to take off un-ripened ends.

Climbing Roses may be used to screen unsightly buildings and other objects by training them to galvanised wire or other fences or supports, and, except when the leaves are off, they answer this purpose admirably. All the above methods of growing Roses not only produce beautiful effects, but give supplies of flowers for cutting. T. W.

TEA-SCENTED ROSES UNDER GLASS.

THERE can be no two opinions as to the great value of these when well grown, as they are certainly the finest of all Roses for forcing. When their requirements are understood and they are properly treated from the first, I venture to say there are few if any plants that are more satisfactory. It matters little whether they be grown in pots or planted out in prepared borders; both systems of cultivation have their advantages. When grown in pots they are more readily ripened, and will consequently be better suited for early forcing. Planting out is calculated to produce blooms of greater substance and also secures a greater immunity from drought at the roots. Although in many borders the roots of Roses are much drier a little way under the surface than is generally supposed, still they are not exposed to the drying air at the same time, and it is this fact which works so much injury among pot plants. It is very necessary to thoroughly soak the border occasionally. In the open air the ground gets a thorough soaking during winter and spring, whereas under glass the borders are really getting drier than ever. Enough consideration is not given to this point when starting the Roses early in the year. If growers would give their plants a sufficient supply of water to penetrate freely to the main roots, they would find their Roses thrive much better. Constant dribbles of water only excite the main roots and serve to feed the smaller ones that are near to the surface. The Rose is naturally rather a deep-rooting plant, and in the case of pot culture the bulk of the roots will be found in the lower portion of the soil. Too often the plants do not receive sufficient water to penetrate to and fully satisfy these roots, and more especially among amateurs we find stunted and unsatisfactory growth. Given a well-drained soil, it is not often that one can supply the Rose with too much water while in active and vigorous growth.

There are two points in the cultivation of Roses under glass that are not sufficiently attended to, viz., a copious, but judicious supply of water and the more efficient ripening of their wood previous to a short term of complete rest at some period of the year. These have much more to do with the satisfactory culture of Roses than many apparently seem to imagine, if one may judge by the condition the plants are often allowed to get into after their main crop of flowers has been secured. At this time plenty of superb blooms can generally be obtained from sheltered positions in the open air, and pot Roses are apt to be rather neglected during what is a very critical time as regards their future flowering. Watering is neglected, and they are too often stood in some odd corner where they cannot receive the necessary attention to secure clean and well-ripened growth.

Roses are, unfortunately, troubled with many insect pests, and in attempting to get rid of these in too hasty a manner, the growth is often severely checked. It is by giving too strong a fumigation and by using strong solutions of insecticide that the greater part of the mischief is done where these

flowers are cultivated unsuccessfully. Impatience in this respect is almost certain to have disastrous results, and many a promising lot of plants has been much injured by such treatment. When treating upon Roses under glass, Maréchal Niel—the grandest of all yellow Roses—naturally receives more attention than any other variety. In this paper, however, I wish to call attention to the fact that there are other good yellow Roses that are equally suited for indoor culture, and which are not so subject to that greatest enemy of the Maréchal Niel—canker. Mlle. Henriette de Beauveau and Duchesse d'Auerstadt are a couple of yellow Roses of comparatively recent introduction, and which will climb to perfection. Under the same treatment as Maréchal Niel, these two Roses are excellent; they also possess the merit of being more continuous bloomers than the old favourite, and, better still, they are not so subject to canker.

Some time ago I gave a description of a grand plant of William Allen Richardson. Last spring at this time there was a crop of some 700 blooms upon this specimen, and during the summer it made a splendid lot of growth from which I trusted to get a grand crop of flowers again this spring. To my great disappointment, canker commenced late last autumn, and as a result of this the lateral growths are very puny; whereas they should and would be each carrying a healthy bud but for the rapid development of the disease since the plant was started into growth. I intend to secure the few best flowers from it, and then cut the plant out and replace with a younger specimen. When this grand variety is treated upon the long-rod system and similar to the Maréchal Niel, there are few more pleasing Roses. This Rose, like Maréchal Niel, is very subject to canker, and it is also very erratic in growth and constitution. One may plant several healthy specimens of these varieties, and although they are apparently in the same soil and receiving exactly the same treatment, one plant will often grow well while the other is a complete failure. This is all the more strange, seeing one may plant another specimen of the same kind without removing the soil or altering the treatment in the least, and yet the second plant is quite likely to thrive to perfection. RIDGEWOOD.

THE EFFECTS OF THE WINTER.

Now that the third spell of wintry weather—each succeeding one more severe and destructive than its immediate predecessor—is passing away, one naturally looks around to ascertain as far as possible the damage done, and from my own observations here I fear this is considerable, more so even than in the disastrous winter of 1890-91. Owing to the very cold and wet summer, and the fact that some plants were seriously crippled during that memorable winter, more injury is the result during the present one. Here almost all vegetation fully exposed to the easterly winds shows unmistakable signs of distress, and it is evident we have far more to dread from these than from still frosts, however severe, that are likely to occur in this mild, humid spot and at this elevation.

What has surprised me most and what I was least prepared for are the Wellingtonias, for they have an unhappy and withered appearance. I presume something in our soil does not suit them, for at the best they have not as thriving and vigorous an appearance as other conifers. Certain it is that other kinds of trees reputed to be far less hardy, such as *Pinus insignis*, *Cupressus macrocarpa*, *Cryptomerias*, &c., have not suffered to any perceptible extent. *Sequoia sempervirens* is another that has suffered considerably, the tips of the shoots being quite brown. No other conifer shows signs of any serious injury. *Rhododendrons* and American plants generally (unless fully exposed to the east winds, in which cases the portions so situated have the foliage scorched

and cut) are safe and carrying splendid loads of buds. *Laurustinus*, *Bays*, and *Camellias* are also bright and cheery in their greenery, not a seared leaf to be seen. It is surprising why the latter are not much more extensively grown in the open as bushes and on walls, for they are so hardy, and when in bloom are attractive and distinct from the ordinary run of spring-flowering shrubs. Where partly sheltered, *Berberis Darwini* and several others, *Escallonias*, &c., are untouched; in less favoured positions the tips of the leaves are slightly injured. *Berberis japonica* appears to stand full exposure better than most, the leaves taking on charming shades of colour, and is withal a plant of noble aspect, well worth growing.

The *Arbutus*es are a puzzle to me, for in the previous winter (1890-91) some of them passed through without the loss of a leaf or bloom, while others were seriously crippled; it is the same this, but the mystery is that many of the latter are, to all appearance, in far more comfortable, sheltered, and in every way more favoured positions, yet such are the results. Why is this?

Aristotelia Macqui variegata is at the present time the most miserable-looking object on the place. It has retained the foliage, which looks as if parboiled. I have no fear as to its ultimate recovery.

Buddleia globosa has lost the main leaves, but is even now breaking out anew. *Olearia Haasti*, *Griselinia littoralis*, *Veronica Devoniana*, *Diplopappus chrysophyllus*, *Azara microphylla*, *Elæagnus*, &c., look as if they revel in such arctic winters, and various *Palms*, *Corypha australis*, *Chamærops Fortunei*, &c., and green *Dracænas* are as unchanged in their bold and effective greenery as if they had enjoyed the protection of a spacious Palm house, while *Cordyline australis* is again (as last year) cut down to the ground. *Arundinaria falcata* is again leafless, but all the other *Bamboos* have not a leaf discoloured, and prove worthy subjects for extended cultivation, so beautifully graceful and tropical in appearance. Another plant of a tropical aspect is *Aralia Sieboldi*; it is also untouched, green and fresh. I wish the same could be written of *Berberis nepalensis*; but, alas! the east side has a woeful, dejected look, every leaf as if a fire had passed over it, and I fear the flower-buds are destroyed, but the wood is, I believe, uninjured. The other side of the specimen is perfectly green. The same remarks apply to *Benthamia fragifera*, and the most tender of the *Euonymuses* are sufferers to the like extent. As I have previously notified, *Eucalyptus globulus* was terribly cut up in 1891, but during last summer the trees broke out strongly all up the trunks and made fine vigorous shoots, which, however, proved too soft and tender to withstand the recent severity, for most, if not all, are killed. I am as yet unable to say positively if even a pair will live, these being a little better sheltered from the cutting blast. Roses are fresh and plump, a few shoots only of some *Teas* being a little spotty, but not to such an extent as to cause permanent injury to the bushes or the crop of bloom.

Of plants on walls, *Myrtles* are the greatest sufferers, but nothing more serious than the withering of the leaves. *Aloysia citriodora* (Lemon plant) comes next, and is cut down to well-ripened wood, so both will ultimately recover. All others—and they are many—are as healthy as ever, thanks to our splendid old buttresses, which effectually break the force of the hurricanes and partly rob them of their bitter intensity.

Snow (although we have had far more in volume and frequency than has to my own knowledge been the case for the past fourteen

winters, and old inhabitants inform me that there has been nothing like it in this district for much over double that time) has caused us but comparatively little damage, repeated heavy falls only splitting down an occasional branch and a few huge limbs of Rhododendrons here and there.

The herbaceous borders are less interesting now than I have seen them at even the duller time in other years, and by this date in ordinary seasons there are generally some bright spots of colour in them; but now even all the tender growths that ventured above ground have been quickly dried up and browned, so that even healthy greenery is scarce, let alone blooms. Carnations, Iceland Poppies, and Doronicums are about all that have uninjured foliage. Carnations have stood better than last year. Autumn-planted layers also look extremely well and healthy. I trust the Dahlias, Gladioli, Lilies, &c., left in the ground unprotected are, as usual, safe. Of rock plants and their behaviour I can as yet say nothing, for the surroundings are too saturated with the fast thawing snow and heavy rains to examine them closely; from a distance they appear to have survived fairly well. Fruit trees have as yet scarcely made a sign of a move, for yesterday was the only spring like day we have had. Being so late, it is to be hoped the blooms will be safe; if they are destroyed this year, it will not be owing to precocity at all events.

In the kitchen gardens Globe Artichokes have suffered greatly, the usual protection of leaves and litter having proved useless or worse, for I believe that those left unprotected came through the ordeal much the best. I never had great faith in thus covering up the crowns, and have less now after this winter's experience.

Celery also has kept badly, and no wonder, for the ground was sodden and the leaves saturated whenever sharp frosts occurred. We grow no Broccoli for winter use, excepting the Sprouting (Purple and White). These, as a matter of course, have stood well. For late spring use we grow Model, but we sow these so late—end of May—and plant in rather deep drills, that as yet they are but small and close to the ground; indeed, to all appearance not much larger than the July-sown Cabbages (Ellam's) that occupy the other part of the quarter; still, these will turn in nice heads in due time—no blanks. I have long advocated this late sowing of Broccoli, &c., for late spring use, and again take the opportunity of recommending it. Brussels Sprouts, Borecoles, &c., have stood much better than in the previous winter; so have Parsley, Chervil, &c., but Sage, Lavender, Rosemary, Thyme, &c., are as dry as chips. Beetroot, of which half our crop was left in the ground and ridged up, is in splendid order—sound and plump; so are August-sown Turnips (Veitch's Red Globe and Silver Ball).

Such, in brief, are at present the most noticeable effects of the severity on vegetation generally in this district, and long may we be spared from experiencing another such, for never do I remember a winter in which it was so difficult to make progress with outdoor operations, for cultivating the ground, carrying out alterations, planting shrubs, and such-like work have been almost a hopeless task, as it was either rain, snow or frost the whole winter through.

Tan-y-bwlch, Merioneth, March 24. J. R.

Rooting cuttings in saucers.—Of such plants as Nerines, Coleuses, Petunias, and many similar things, the wood of which is soft and soon emits roots in warmth, Mr. Swan, at Castle Hill Gardens, strikes large quantities, not in ordinary pot-ware saucers, but in ordinary china-ware

sauces filled with a mixture of cocoa fibre refuse and sand. The mixture is, of course, kept quite moist and the saucers are stood about on the soil in which Cucumbers and Melons are growing. When the cuttings are rooted sufficiently for potting, which happens in a very short time, the mass is slipped clean out of the saucer, and these are again filled with fresh cuttings. Verbenas and Lobelias also root freely in this way, the ware not being so absorbent of moisture as is the ordinary pottery, and to that virtue this quick rooting seems to be largely due.—A. D.

KITCHEN GARDEN.

GLOBE ARTICHOKE.

BEING but ill-prepared to withstand the rigours of a severe winter, it is not very surprising that Globe Artichokes should cut up badly. In my case they were heavily mulched or banked up with strawy litter, but although this proved ample protection during 1890-91, it was not sufficient during the past winter. The plants are not killed outright, but they are in a very poor plight, and at present give few signs of recommending active growth. Where neither litter nor ashes were banked up around the clumps last autumn, and two such cases have already come under my notice, some of them are evidently quite dead, and the rest, if they do recover, will not be serviceable till late in the season. In my case, at any rate, extra trouble will have to be taken with Globe Artichokes this spring, as there must be no failure with this very important and high-class vegetable. A few of the strongest crowns have escaped destruction, and from these we hope to have a fairly early supply of strong heads. They will most probably take a strong lead or more than hold their own against a mass of weakly shoots that doubtless will be pushed up before very long. In all cases where the clumps are still alive, but are not furnished with from one to three strong or fairly strong crowns, an early opportunity will be taken of freely thinning out the weakly growths that we shall get in April. If left to themselves, that is to say, no thinning out of young growths is done, the chances are none of them will take a decided lead, and as a consequence of so many trying to assert themselves, very few, if any, will become sufficiently strong to produce serviceable heads. It is not possible to grow the best forms of Globe Artichoke too strongly. A few extra strong growths not only produce the finest and most succulent heads, but they also branch freely and may well be allowed to perfect a portion at least of the flower-heads they show. Starvelings never produce other than small dry heads, and are the first to collapse in dry, hot weather. In addition, therefore, to freely thinning out the young growths on old clumps, the latter ought also to be well manured now. It is a simple matter to fork the soil away well down to the roots and to a distance of 2 feet from the clumps, returning the soil on to the top of a liberal dressing of fairly rotten manure. If this can further be supplemented by a good soaking of liquid manure occasionally, there is little likelihood of an early breakdown of the plants, but, on the contrary, they may go on producing till severe frosts intervene in November.

The question now arises, what ought those to do who have lost the whole or the greater portion of their stock of Globe Artichokes? Stereotyped oracles advise raising a fresh batch from seed, but those who frame this advice have evidently had but little experience with seedlings. If either the Purple or Green Globe varieties would come true from seed, then sowing would

be a simple way out of the difficulty, but as it happens, seedlings vary surprisingly, a great percentage of them being worthless. A few may produce extra fine succulent heads, these presenting a very marked contrast to the rest, most of which produce a great profusion of comparatively small heads with thin scales surmounted by sharp spines. What few are good cause the grower to wish there was a possibility of raising the varieties true from seed, but as yet nothing reliable appears to be in the market. Those who may wish to try the experiment should sow two or three seeds in 3-inch or rather larger pots and place them in brisk heat to germinate. The seedlings come up quickly enough, and before they spoil each other reduce the number of plants to one in a pot. Do not reserve the strongest, as these might ultimately attain a height of 6 feet or more and be of no value whatever, but prefer rather the less robust, and thereby secure what may probably prove to be superior, or at any rate serviceable forms. Being naturally very strong rooting, the young plants must either be given an early shift into 6-inch pots, a rich loamy compost being used, or else be hardened off and finally planted out before they become badly root-bound. The former plan is most desirable if seedlings are depended upon to give the earliest or only supply of heads for cooking. The seed will also germinate readily in the open ground, and may be sown early in April with every prospect of the seedlings resulting arriving at a productive size before the autumn. It is almost needless to add that the ground should be well manured, deeply dug, and got into a finely-divided state for this crop, the seed being sown thinly, or the plants in pots put out 18 inches apart in drills 3 feet apart. The seedlings should be first thinned out to about 18 inches apart, and left thus comparatively thick till it is seen which are worthless and which are of some value, the former being unhesitatingly rooted out the better to enable the rest to become fully developed. At the time fruit and vegetable shows were held at the Alexandra Palace, Muswell Hill, Globe Artichokes was one of the best dishes in a first prize collection of vegetables I there staged at an August show, and these were cut from seedling plants. Seed can be had of both green and purple forms, but I much prefer the former.

In order to have a supply of good late heads and vigorous plants for producing early the following season, the plan usually adopted is to take off a number of strong young growths with a short portion of brittle underground stem attached, and to plant these in threes 3 feet apart each way on well-prepared ground. This spring, in many cases, these shoots will either be very sparingly produced, or late and weakly, and it would be a considerable gain if two or three of the strongest clumps available from a friend's garden were lifted and started in gentle heat, or say a newly-started vinery. The growths could be taken off when not more than 6 inches long, each having a short length of old root or stem attached, and be then placed singly in 4-inch or larger pots if extra strong and quickly rooted in the same house. Thus treated, they ought not long to remain in heat, but should be early hardened off and planted out before they become enfeebled or starved in the pots. Being firmly planted in good ground and not allowed to suffer from want of water, they will quickly take to their fresh quarters, surpassing most probably any that may have been detached from old stools and planted direct in the ground. Most of the plants put out in a small state this spring would most likely produce flower-heads

but unless particularly wanted, the flower-stems should be early cut out with a view to greatly strengthening and preparing them for producing extra good crops next season. GROWER.

KIDNEY BEANS IN POTS.

CONSTANT supplies of Kidney Beans are indispensable in numerous cases, and being fully appreciated as an extra choice vegetable, private gardeners do not as a rule begrudge the amount of labour and valuable space necessarily devoted to their culture. It is my firm belief, however, that they are not nearly so liberally treated as they ought to be, the consequence being a rather weakly growth, a plentiful supply of red spider, and light crops of Beans. No amount of overhead syringing and atmospheric moisture will prevent the spread of red spider over half-starved plants, and at least a third of the pods that show on starvelings turn yellow and drop off. In my younger days I have three parts filled hundreds, I may say thousands, of pots with very poor mixtures of soil, anything being thought good enough for Beans, and when the plants were high enough for staking this was done, a top-dressing of fairly rich compost being given at the same time. Similar treatment is common enough at the present day, but is not worthy of being designated good culture. The Beans are simply starved before the top-dressing is given, while the latter puzzles or misleads those who water the plants, and is of little real service in any case. Instead of using such poor soil it pays well to give the Beans a compost consisting of two parts of light loam—if fibrous so much the better—to one of flaky manure or old Mushroom bed manure, adding a sprinkling of lime rubbish, wood ashes, and well-charred garden refuse.

The requisite number of 9-inch pots should be nearly filled with this light compost, pressing or jarring this down only moderately hard, from nine to a dozen seeds being sown in each and covered with about 2 inches of soil. Enough space should be left for watering. Crowding the plants is unwise, and the number should early be reduced to about seven in each pot, these being lightly staked up before they are far advanced in growth. The best places for these Beans are the back shelves in three-quarter span-roofed forcing houses, and the walls and front stages or beds in the fronts of similar houses, a strong heat and plenty of light being desirable, though they can be brought on slowly, but profitably from this state in intermediate temperatures. When a tempting compost is provided, the roots quickly overrun this, while the plants grow healthily and sturdily, quickly coming into full bearing. Before they give signs of requiring liquid manure, soot water, answering well at first, should be given, and when the pods are growing the plants should be fed up daily, never once being allowed to become dry at the roots. Thus liberally treated, they retain a healthy, clean appearance up to the last and the crops are most satisfactory. Mixing a little lime instead of lime rubbish with the compost has frequently been tried with good results, this apparently causing a more sturdy growth, the leaves of the plants being of a dark green hue, while the productiveness is all that can be desired. M. H. F.

Early Broad Beans.—I fully agree with Mr. Shepherd (p. 143) as to the value of raising Broad Beans under glass in order to get an early supply. At page 187 "R. D." also depreciates the Early Mazagan. Why it was called early I fail to understand, as it is not so early as other varieties. I know years ago it was the practice to sow Early Mazagan in the autumn for an early supply, but it was labour lost to a great extent. Very few people plant in the autumn, as Broad Beans can be so readily raised by those with only moderate means and in a very short time. The value of Beck's Dwarf Green Gem for early produce is considerable, as it occupies so little space, being very dwarf and compact, while those who like this vegetable may get much later

supplies if a few rows of this variety are sown in July on a north border. There are other varieties that may be sown under glass, such as Seville Long-pod, which gives a nice sized Bean very early, and is a good cropper. There is also the Early Long-pod, a good early kind of good quality. One great advantage of raising Beans under glass and planting out is the dwarf habit they assume, as they soon show bloom and set. The tallest kinds do not come above half the usual height of those planted in the open and grown in the usual way, so that they may be planted more closely together when hardened off.—G. WYTHES.

Tomato Acquisition.—This is an excellent Tomato for summer fruiting in the open and invaluable for house work where room is a consideration. I have grown it in quantity for two seasons and was much pleased with its dwarf habit and free-fruited qualities. This variety differs much from others in the foliage and habit being very dwarf and rarely exceeding 3 feet in height. The growth, though very robust, is very compact and sturdy. The fruit is of a bright red colour, of handsome shape, nearly round and smooth, and, as far as I have seen, of excellent quality. I tried it in various ways last season. In 8-inch pots it gave a good return and came very early. It was also planted out and grown against a wall, also in the open, and was less subject to disease than some of the older kinds. I strongly recommend it for growing on a south border planted in rows and trained as cordons, as it gives so little trouble and bears a heavy crop. If seed is sown early in April, the seedlings kept moving rapidly, and shifted on as required, they will make strong plants by the early part of June for planting in the open ground.—G. W.

KIDNEY BEANS FOR FORCING.

OPINIONS vary considerably as to the best form of kidney Bean for forcing, though Ne Plus Ultra would appear to be the most generally relied upon. When I first grew this variety it proved somewhat disappointing, and on expressing my opinion of its merits, was informed through the press and also privately that I could not have been supplied with the true variety. A friend who was and still is a firm believer in the great value of Ne Plus Ultra for forcing kindly sent me some seed of his own saving, and I also procured some from another source. It turned out that I did not get the true form at the first attempt, and with such a number of varieties differing only slightly in the colour of seed and habit of growth, it was not very surprising if something very like Ne Plus Ultra should be substituted for it, all probably being importations. I had hitherto depended principally upon Osborn's Forcing for early forcing, the later supplies being had with the aid of Canadian Wonder; but one is of much too feeble growth and the other too robust for either our crowded houses or heated pits. Osborn's was completely eclipsed by the true Ne Plus Ultra, and though a very excellent variety, it has not been grown by me for the past eight years. Ne Plus Ultra has had a good run, but two seasons ago we were short of seed and procured, locally, the best possible substitute, this being none other than the good old Syon House. So remarkably well did the latter succeed, that this season nothing else has been gathered from, though quite new sorts are being grown on trial. Syon House is of sturdy growth, being stronger, no taller than Ne Plus Ultra, and quite as early as that variety, while the crops are heavier. The pods are of medium length, very solid, and of excellent quality when cooked. Why it should have been discarded in favour of any other varieties for pot culture is somewhat of a mystery. There are a few of the older school of gardeners who still give the preference to Syon House, and if given a fair trial, it is my belief it would once more become generally popular. M. H.

Scarcity of Spinach.—Where exposed to north-easterly winds, the winter Spinach is badly damaged. Not a green leaf is to be seen, and

what the severe spell of frosts in December and thereabouts failed to do, the winds have accomplished. It may be the hearts are uninjured, and with a change to mild showery weather a fresh growth of succulent leaves will perhaps be forth, coming, but it is now when Spinach is most wanted, other green vegetables being anything but abundant. The earliest sown is also coming up badly, and in all probability the frosty winds also caught the first to germinate. All things considered, there is likely to be a scarcity of Spinach for several weeks longer.—SOMERSET.

GARDEN FLORA.

PLATE 851.

PAULOWNIA IMPERIALIS.

(WITH A COLOURED PLATE.)*

THE untimely frosts that so often play havoc with our fruit trees are mainly responsible for depriving us of the handsome flowers of this otherwise hardy Japanese tree. Formed during autumn, the brown fur-like buds swell rapidly in the early spring months, and unless the season is unusually favourable, they stand a poor chance of ever attaining maturity, the nipping frosts usually causing them to fall off wholesale long before the time for expanding has arrived. By the seaside the Paulownia is more favoured, but inland, the seasons when the purple Foxglove-like flowers have become fully expanded are few indeed. In 1866, and again in 1873, the seasons were unusually favourable for the perfect development of the flower-buds, and many were the notes sent in of the rare occurrence and of the beauty of the tree when laden with its peculiarly interesting and showy flowers. Few trees, it is readily admitted by those who have been favoured to see the Paulownia in *fl.*, can surpass it in richness of foliage and in the almost indescribable beauty that the myriads of flowers present when at their best, and which is usually the case during the latter days of June and beginning of July. In its leaves alone the tree is one of unusual appearance, some of these being as much as 25 inches long and thickly covered with a greyish woolly tomentum, which imparts a feature that is rather uncommon and seems as if to soften the general aspect either of the sapling or fully developed tree. Purplish-violet describes best the colour of the flowers, which are produced in panicles and slightly fragrant. The fragrance is most noticeable when the flowers are expanding, and much less so when they have arrived at full maturity.

The Paulownia is in this country a tree of strong and rapid growth. A vigorous specimen which I lately saw is growing in light peaty soil, where Kalmias, Azaleas and Andromedas luxuriate, and has suffered but little from the low winter temperatures that have been so prevalent during the last two or three years.

The Paulownia is wonderfully recuperative, an amputated stem throwing out stout shoots of fully a couple of yards in length in a

* Drawn by Mrs. M. S. Dalglish in the garden of Miss Colbert, Pau, Lower Pyrenees, May 5, 1887. Lithographed and printed by Guillaume Severeys.



PAULOWNIA IMPERIALIS

season, and though the main stem be killed back by intense frost, its place is soon taken by stout and well-formed saplings. These shoots produce enormous leaves, many exceeding the length given above, and are in this respect far ahead of those usually produced by the tree even when in the most vigorous health.

Some of the largest specimens of the Paulownia in this country are in the southern English counties, particularly in seaside districts, but even in Kent there are a few large trees, one in particular growing at the Vicarage, Bromley Common, being fully 35 feet high and girthing 3 feet 11 inches at a yard from the ground. Judging from the amply produced leaves, this tree is in perfect health and does not seem to have suffered from the effects of frost. At Bishopstoke, near Torquay, the grounds of the Bishop of Exeter, there was, and may be now for aught I know, a fine specimen of the tree, and another fair example adorned the lawn at Vellore, the Rector of Bath's residence.

Usually the Paulownia forms a round-headed tree of about 30 feet in height, but examples are not wanting of specimens, growing under very favourable conditions, having attained to fully 40 feet.

A. D. WEBSTER.

THE WEEK'S WORK.

HARDY FRUITS.

FIGS.—Where unprotected, much harm has been done to the trees by frosts, and there will be very little fruit. Unless the old wood is also damaged, it would be unwise to cut the trees hard back, as this severe pruning is invariably followed by extra strong sappy shoots which are neither productive nor hardy. Once seriously crippled by frosts they are several seasons before they regain a productive state, owing to the difficulty experienced in saving the soft wood through succeeding winters; therefore, prune injured trees as lightly as possible and they may then become well furnished with fresh, short-jointed, fruitful wood. Trees that have been bundled together and roughly protected ought now to be uncovered, as there is little likelihood of extra severe frosts being experienced at this late date, but the pruning and training may well be deferred till it is seen which growths are the most fruitful. Crowding the branches is a great mistake, allowing the young wood and foliage good room being the surest way to keep the former short-jointed, hard and fruitful. Some of the longest and most naked branches should be sawn out or cut back either to near the main stem or base of the tree, or else to well-placed younger branches, this being the best method of keeping the centre of the tree well furnished with bearing wood. Sucker growths are far too sappy to be suitable for laying in. Some of the extreme ends should also be foreshortened to inner growths with a view to keeping the principal portion of the bearing wood nearer home. Especially is it unwise to allow the shoots to extend beyond the walls. Any growths springing out from the walls should be cut off and the rest of the young wood, which ought soon to be showing fruit near the points, be laid in thinly and evenly all over the tree.

NEGLECTED FIG TREES.—It happens in many cases that Fig trees are pruned and trained regularly for a few years and then allowed to grow wild. This certainly has a tendency to promote productiveness, the young shoots when they get away from the warmth and shelter of the walls

becoming short-jointed and sturdy and more fruitful accordingly. Only in the warmer districts, notably the south coast, however, do neglected trees long survive destruction by frosts, and even where they do thrive uninterrupted, the trees would most probably bear finer fruit and quite as many in number if the plan of thinly training to the walls had been persevered with. When left to themselves, Figs are apt to form quite thickets of wood, and in this condition only the outside branches bear presentable fruit. The least that can be done is to freely thin out the branches and to keep the suckers from gaining an ascendancy. In order to prevent the trees from breaking wholly away from the walls, fasten up the main branches with strips of leather, or something much stronger than ordinary shreds, using stout nails as well. Another form of neglect consists in utterly ignoring the possibility of the trees requiring assistance at the roots. It is certainly most unwise to feed them in the earlier days, as this would cause a rank, unfruitful growth; but after they have arrived at a full bearing state they ought to have the benefit either of fresh soil to root into or else be manured in some way. Root-pruning, carried out with moderate severity in the case of strong-growing trees, tends to make them more fruitful, while if larger productive trees are lightly root-pruned at least every second year, the opportunity also being taken of working in a few barrowloads of fresh loamy compost, this will answer the double purpose of keeping the roots within bounds and providing something to sustain fertility. The least that can be done is to avoid cropping in front of the trees and to top-dress annually with a compost consisting of good loam and solid manure in equal parts, adding mortar rubbish freely every third year. These top-dressings will be more quickly effective if the surface soil is forked away down to the roots and the fresh compost substituted.

PLANTING FIG TREES.—In all inland or comparatively cold districts it is useless to plant Figs in other than the hottest places available. They will succeed well in the angles or curves formed by the junction of a west with a south wall, and with somewhat less certainty on high south walls or buildings facing south. The Brown Turkey is the most reliable variety for open-air culture, and being of superior quality should be most extensively planted. Brunswick is not nearly so productive, but the fruit is larger than that of the Brown Turkey and the quality good. White Marseilles is a small green-fruited variety, and perhaps the most delicious of the three. Added to which it is of free, yet very productive growth. All things considered, it is not nearly so much cultivated as it deserves to be. Trees are usually supplied in pots, and may be ordered from the nurserymen now and planted at once. As before intimated, a rich root-run is not desirable at the outset, this favouring a rank and unproductive growth. Nor ought the other extreme to be resorted to, or large serviceable trees may never be grown. What suits them well is a mixture of two parts of turfy or fresh loam to one of old mortar rubbish and a little "burn-bake" added. If chalk is available, substitute this for the mortar rubbish. Figs thriving admirably in the chalky soils along the Kentish coast. If the subsoil is of a heavy or clayey nature, excavate to a depth of 2 feet and place in the bottom of the hole a layer of mortar rubbish or chalk 6 inches deep, and fill up with the fresh compost. Plant rather above the ordinary level, and in this and all other cases make the soil as firm as possible. Prune the young trees sufficiently often to secure enough shoots to lay the foundation of a good specimen, after which thinning out will be all that is needed for several years.

GRAFTING OPERATIONS.—The first week in April will be quite soon enough to commence grafting operations, as it is a mistake to attempt it before the sap is well on the move upwards in the stocks, but it must be done while the scions are still dormant. Now is the time, therefore, to change the character of orchard trees by grafting them all over with fresh varieties. Stunted ends of branches of wall trees may also be given a fresh start by

being grafted with a healthy scion, and the whole or only part of the branches on horizontally-trained trees be similarly treated. Strong Plum stocks may be grafted with approved varieties of either Peaches, Nectarines, Apricots, or Plums. Graft Crab and Paradise Apple stocks with choice Apples, Quince and Pear stocks with Pears, and Mahaleb and wild Cherries with choice Cherries. In all cases where the stock is larger than the scion adopt the method known as crown grafting, and when there is good room insert several grafts. Whip-grafting is desirable when the stock and scion are of about equal thickness.

W. IGGULDEN.

ORCHIDS.

APRIL is one of the fickle months, and so very changeable, that we may have a terrific snow storm one day, and genial weather with bright sunshine the next; and as the sun sometimes bursts out with scorching heat, the cultivator will need to be more upon the alert than he has been at any time during the last six months. Piercing winds may be blowing, and yet the temperature of the houses may be well kept up by sun heat; but we must ever remember that the leaves of Cattleyas and most other Orchids are exceedingly sensitive, and become scorched by exposure to the sun, the scorching being developed in the form of blotches, which remain for years as evidence of the carelessness of the cultivator in allowing the sun to shine too long upon them. The scorching is caused a good deal by the want of air and direct sunshine combined; it is not safe to give much air with cold east and north winds, even if the sun may be shining brightly. By-and-by, when warm weather sets in and the ventilators are freely open night and day, the danger of injury from the effects of sun-heat is not great. It would be still necessary to use the hot-water pipes freely as long as the days and nights are cold, for the plants, especially in the warmest house, would be likely to become chilled by the sun being clouded over during the day. The beginner in Orchid culture and even the experienced grower are both more likely to err in allowing the plants to be too freely exposed to sunshine than in the reverse treatment. In autumn, rather free exposure to sunshine is beneficial to nearly all Orchids, but especially so to Cattleyas and Dendrobiums. In spring the same treatment might be positively injurious.

Before beginning to write this calendar of operations I looked carefully over the entire collection of Orchids in all our houses, being fearful lest insect pests might appear after the late frosts, as much artificial heat had to be applied to keep up the temperature. Aphides have appeared on the Dendrobiums of the D. Farmeri, D. Paxtoni, and D. Brymerianum types. These plants are to all appearance perfectly free from parasites of any kind until the flower-spikes push out from the top of the pseudo-bulbs, and almost before they can be observed the young buds are clustered with aphides; evidently they are lying in wait, but unobserved by the cultivator. A fine brush with some tobacco powder will dispose of them in a few hours. I ought also to observe here that any plants which may be supposed to be difficult to manage, such species, for instance, as are constantly on the border-land of success or failure, owing to their lack of vitality under cultivation, may grow and produce their flowers moderately well as long as they are kept clean, but an attack of thrips, yellow or black aphides, or red spider may quite ruin the plants. At this season dip all plants that are usually attacked by thrips in tobacco water, sufficiently diluted so that no injury may accrue to the plants, but strong enough to kill the thrips or other parasites. After dipping, lay the plants on their sides and sponge them over with warm water in which a little soft soap has been dissolved. The Cattleya house may be fumigated with tobacco smoke, as Cattleyas, Lælias and Cypripediums do not suffer from it. Red spider is easily sponged off with warm soft soapy water after dipping. Such plants as Lycastes are frequently attacked by this pest on the under sides

of the broad plaited leaves, and many choice plants of *L. Skinneri* get into bad condition, owing to its being unobserved. They may now be repotted if they have passed out of flower. I believe the plants last longer in a healthy condition if planted in the usual peat and Sphagnum compost, but they make for a time a more vigorous growth in leaf-mould and peat. Drain the pots well in each case, and in repotting be careful not to injure the healthy roots. The repotting of Orchids should not be hurriedly performed, and such plants as do not require it may be surface-dressed. Any plants that have been repotted must be carefully watered until the roots have begun to run freely in the new material, an excess of water causing the injured roots to decay and the new material to become sour. A rather warmer and moist atmosphere is the most suitable after plants have been repotted. The long-bulbed *Cattleyas* and *Lælias* require careful attention at this season, as they require rather more heat than such plants as *Cattleya Mossiæ* and *C. Mendeli*. They are likely to be injured in a low temperature, at least such of them as have started into growth and are now in process of development. The day temperature at this season for such things would be better at 70° and the night minimum 55° to 60°. If the plants are making roots freely, they should have a fair supply of water. The *Cypripediums* in the *Cattleya* house are now either in bloom or the flowers are in process of development. They require a good supply of water if the pots or pans are well filled with roots. *C. villosum* is a very showy species, and the flowers last at least two months in good condition. Any Orchids that are now in growth require careful attention as regards watering, and the plants should also be placed in the position where it is known that they not only make the best and healthiest, but the best flowering growth. The *Pleiones*, for instance, grow very freely on the side stages at a considerable distance from the glass roof, but they do not make healthy flowering growths in such a position. I have placed the flower-pots in which they are growing in open teak baskets, and suspended them so that the leaves are within 12 inches of the glass roof. I like the appearance of the plants much better this year than I did last when they were grown on the side stages. Small growing *Cattleyas* and *Lælias* should be grown in the same position, and the larger growing *Cattleya Dowiana*, *C. gigas*, &c., do better in the lightest position that may be available. Having now passed through a good resting period, they will do best in the same temperature as the long-bulbed *Cattleyas* and *Lælias* alluded to above. The latter may occupy the centre stage of the house, and the others the lighter side stages. J. DOUGLAS.

PLANT HOUSES.

FORCED PLANTS.—THE TREATMENT OF AFTER FLOWERING.—It is necessary to allude to this subject at this season of the year, drawing attention to the unnatural treatment which plants (although hardly under the usual conditions of culture, are not so when forced and for the time being) receive at the hands of some growers. It may be urged that want of room is the chief excuse why they are, after having yielded a good crop of flowers, either turned out of doors or otherwise so treated as to take the life almost out of them. If want of room is the real reason, then undoubtedly the extent of glass is accommodating more plants than it has any business to do, or should reasonably be expected to turn out in good condition. Far better add to the glass or reduce the numbers of plants so as to make it more satisfactory all round both to the present grower as well as to the firm who may have supplied the plants in the usual course of trade. Such plants as *Azalea mollis*, *A. pontica* (both in their numerous varieties), *Spiræa confusa*, *Deutzia gracilis* and other kinds with *Prunus sinensis* fl.-pl., *Lilacs*, and other plants of a deciduous character should be all carefully looked after for a few weeks. When cutting the *Azaleas*, or after the flowers are faded upon them and the seed-pods picked off, any stray shoots should be removed to keep the plants fairly compact. Then

they should be encouraged to complete their growth in a fairly light house with a little warmth, hardening off as growth ceases. *Spiræa confusa* and the *Lilacs* should at once be pruned back so as to keep the plants from becoming of too straggling a character; these should then be encouraged to break afresh in a growing atmosphere, hardening off in due course. The best way to treat *Deutzia gracilis* is to pick off all remaining flower-trusses, thin out weakly wood and encourage the rest to finish the growth in progress in a fairly brisk temperature, as a vinery tolerably advanced. In such a house, with frequent syringings, the growths will soon be completed, when the plants may be hardened off, being first stood outside in a sheltered place. When given this treatment all of this class of plants will give good returns for several years, the best crops from the *Azaleas* being each alternate year.

Evergreen plants, as *Rhododendrons*, *Kalmias* and *Andromedas*, are of a more enduring nature, having made but little fresh leaf-growth, but these even should not be turned out of doors until there is a favourable and more settled turn in the weather, when they can be planted out in congenial soil, which will be a better course to adopt than retaining them in pots, as with the *Azaleas*, *Deutzias* and *Spiræas*. *Lilacs* and *Guelder Roses* pay for planting out in good soil, these, like the *Rhododendrons*, &c., requiring a year's interval before flowering again. *Roses* (in pots) that have been forced early must also receive due consideration; if these are now neglected, it need not cause any surprise if later on they do not make a sufficiently good growth to flower another season. A cool house will be quite enough for these plants, so that the foliage (still tender, although perhaps looking hardy) is not ruined with a consequent check to the vitality of the plants.

Early forced *Lilies of the Valley* if still retained for a time in cold frames will after one year's rest prove useful out of doors, or for potting up once more for midseason flowering. Those for the earliest bloom cannot be grown in a satisfactory manner in many localities; therefore a fresh stock is the better and safer course. Other early bulbs that are likely to prove useful again another year in the open border, as *Hyacinths*, *Tulips*, &c., should not be too much exposed where out of doors. These it will be possible to accommodate in some sheltered corner until the foliage dies down in a natural manner. *Daffodils* that have flowered in pots will put up with a fair amount of exposure, being now safe enough in any average position; these had better be planted out in a few weeks time when the ground works well. This advice should also be followed in the case of *Solomon's Seal*, *Dielytra spectabilis*, and the herbaceous *Spiræas*. Where *Lilium Harrisii* has flowered, the plants should be kept moderately dry until the foliage dies off, when but little water is needed. It will not be advisable, however, to stand the pots out of doors for a few weeks; then they may be laid upon their side or be placed where no excess of water will reach them.

Gladiolus The Bride now coming into flower should receive a generous treatment, weak manure water being an assistance; the latest of this kind should now be starting into growth. Other *Gladioli*, as *brenchleyensis* and varieties of *gandavensis*, should be potted up without delay, keeping the bulbs sufficiently low in the pots to allow for a top-dressing of good soil later on to aid the surface roots. One strong bulb in a 6-inch pot or three medium-sized ones in a size larger will do well; too much soil for *Gladioli* in pots is a mistake; it should be good loam and leaf-mould with some spent Mushroom-bed manure next the crocks and a dash of sand around the bulbs, potting firmly. Afterwards place in a cold frame until growth is fairly started, giving meanwhile a top-dressing of cocoa fibre to save the soil from drying up so as to require otherwise unnecessary waterings. Plants in pots of *Hydrangea paniculata grandiflora* should now be all pruned hard back so as to prevent bleeding when growth commences. Those already started in a steady heat will require all the light possible, being kept near the glass at

all times. This is a plant that must not be hurried, otherwise the results will be far from satisfactory; in such cases the blame should not be attached to the previous condition of the plants.

J. HUDSON.

THE KITCHEN GARDEN.

MAIN-CROP PEAS.—The season has been very unfavourable for the germination and free growth of early Peas, but the beneficial change will soon mend matters and the various sowings will come on apace. The season has been an ideal one so far in getting the soil into fine condition for sowing. With the ground in fine condition, and also stored with the elements necessary for the crop, there will not be any difficulty in securing good returns. It must be remembered that the best results are had from well-worked ground, as it is on this that the Peas are less likely to feel the ill-effects of drought. I have invariably noticed that in those instances where the watering-pot has had to be called into use it has been the fault of the soil not having been previously well worked. In those soils where hitherto the Pea crop has not been satisfactory, a little fine bone-meal or superphosphate would be of marked benefit, as also would wood ashes and soot. The above has special reference to all gardens which are often what are termed worked out, and which, although having a superabundance of humus, are yet deficient in other constituents. A dressing of lime even on these black soils would also prove of inestimable benefit.

SOWING THE SEED.—The rows must not be arranged too closely together, for it has been proved that where the rows are far enough apart to allow a free access of light and sun right to the bottom of the haulm, these have proved the most satisfactory. Very often the lower parts of the haulm are in semi-darkness, and also perhaps smothered up with Spinach. Where room is not scarce the rows may well be far enough apart to allow free exposure, but in those cases where the most has to be made of the ground the rows may be distributed so as to allow of dwarfier crops being planted within 2 feet or 3 feet of the Peas. By working on this principle no room is wasted, and there is also the certainty of the rows of Peas receiving full justice so far as light and air are concerned. On the more holding soils where sowing in trenches is not necessary, in fact, an evil in one sense, the rows should be drawn out, taking care that they are both wide and deep enough. The drills should be formed with a flat bottom, not V-shaped, as often adopted. By making the drills not less than 3 inches deep the seeds are kept in a more uniform state of moisture; consequently they germinate, and also appear more evenly than they otherwise would do if sown shallow, and if a dry time should follow. On very light soils it is beneficial to sow in prepared trenches. The trenches are taken out about a foot in depth, taking care to fork up the bottom; over the bottom is placed a layer of well rotted manure and wood ashes, the best of the top soil is placed over the manure, and the seeds are then sown and covered over. The trenches after they are finished would be slightly below the ordinary level, thus rendering the application of water easier. Close attention must also be bestowed on advancing crops, timely hoeing directly the young growths appear through the surface being an incentive to free growth. Drawing the soil up to the rows must not be neglected. Early staking must also not be neglected.

ASPARAGUS FROM SEED.—The practice of raising Asparagus from seed in private gardens might be more adopted than it generally is. Some people sow the seed for permanent beds in place of planting crowns. In these cases of course the site would have been prepared ere this; all that is now necessary is to draw the drills and either sow the seed very thinly, or, what is better, to drop a few seeds at intervals along the drills, afterwards thinning them out as they become large enough and it is seen which are likely to form the strongest plants. Good crowns for forcing may be secured by sowing the seeds on well-tilled sandy ground, taking care that the soil is in a fertile state, as Asparagus can-

not be expected to thrive on poverty-stricken land. By sowing some seed annually the plants would be fit for forcing in three seasons if well tended, and a supply of good crowns would be forthcoming.

TURNIP-ROOTED BEET.—The Turnip-rooted Beet is valuable for an early supply, this coming to maturity quickly. Another advantage is that it is not apt to run to seed like the long-rooted when sown thus early. Select an open spot where the soil is in a high state of fertility and not very recently manured. A dressing of burned refuse worked into the surface previous to sowing would be of marked benefit for this crop, also a slight sprinkling of salt. The drills should be drawn quite 15 inches apart, also $1\frac{1}{2}$ inches in depth. Thin sowing and early thinning with a free use of the hoe will produce a satisfactory growth.

SUBSTITUTES FOR SPINACH.—During the heat of summer, when the conditions are not favourable for a free growth of ordinary Spinach, the New Zealand variety is excellent. The seeds should be sown two or three in a 3-inch pot, and placed on a gentle hotbed to germinate. Afterwards thin out to one plant, harden off and plant out at the latter end of May. Spinach Beet may also be raised from seed sown in the open on a well-manured plot. Mercury or Good King Henry may be raised likewise. A. YOUNG.

FINE-FOLIAGED PLANTS.

ONE of the most beautiful foliaged plants at this time of the year is *Helleborus corsicus*, a semi-shrub with dark green tripartite leaves. The whole plant grows thick and strong and fleshy. The sturdy, leathery texture of the foliage makes it useful for decoration, as the leaves will last a long time in water after gathering. But they are quite inflexible, and so stiff that they require a little management to get them in their right places. Just at the present time this fine plant begins to flower, as it belongs to the section of Lent Roses. The flowers come in a large bunch at the head of the stems, and are coloured a delicate green, very much the same as the inside of a pod of Peas. There is something singular and striking about the whole plant at this time of the year especially, and as it will do anywhere and bears any amount of cold, it seems to me to be a useful thing to grow in some corner where it is hard to get anything else to grow, or in a large rockery, or on the borders of a shrubbery. It seeds readily and copiously, and the seedlings soon grow away into nice flowering plants. The leaflets are deeply serrated like the edge of a saw, and this adds a great deal to their beauty. The whole plant dies down after the flowers, which last for many weeks, have passed away, and new growth from the ground rapidly takes the place of the old stems. Other members of this beautiful family are apt to be crochety as to their requirements for successful cultivation; this has only to be planted in the ground to ensure healthy and vigorous growth.

The garden in front of Tortworth House last year was wonderfully brightened with a species of *Ricinus*, which had more decidedly coloured leaves than that of any other species I had ever met with before. I am very fond of the Castor-oil as a fine-foliaged plant, and I have tried a great variety of species, but I never got one with such brilliant colouring as this, which was planted about in various beds in Lord Ducie's beautiful gardens. Some years this plant will ripen abundance of its Bean-like seeds. Last season the large hairy balls of seed seemed to rot away with the constant wet. It is necessary to sow the seeds early in January and to grow the plants on quickly in heat, or they will not be sufficiently advanced in May or June, when they are put out, to make a good show. This *Ricinus* is a common plant in Japan, and a great favourite with the artistic race of the Japanese, and I am told it will bear the cold of a Japanese winter well. I have known a plant of Castor-oil to survive a winter in Cornwall, but it loses all its beauty, and the only way to grow it successfully as a sub-tropical plant to decorate the garden in summer is to sow it each year. All hard seeds, like those

of the Castor-oil and Palms, seem to be the better for soaking in warm water previous to being sown. The leaves of the *Ricinus* at Tortworth House were of a light puce or plum colour, and as you looked down at the garden from the terrace above, the plants were very striking and added much to the general beauty of the whole scene. It reminded me of the colours in a Japanese Maple, but the large foliage of the *Ricinus* made it more striking. For rapid growth into immense proportion of leaf and stem scarcely any ornamental plant will equal the Castor-oil. It accordingly requires room, but if the centre bud is nipped out the young plants will spread and look exceedingly well in a large bed or border. When they are allowed to attain their full height they will readily grow to 8 feet or more.

Agapanthus is one of the most ornamental plants we have in autumn, when its fine tufts of leaves contrast so beautifully with the great heads of blue flowers. Large plants of this kind which require protection in winter are always troublesome, but the plan adopted by so many now of growing the *Agapanthus* in tubs makes it easier to give it accommodation in some part of the back premises, where shelter from frost is all that it requires. If rough handles are put to the tub it can easily be carried by two men slipping a pole under each handle. The foliage of endogenous plants is generally graceful, but with the *Agapanthus* it is specially so, the leaves are so long and make such a fine tuft for the stiff sturdy stems of the umbelliferous flowers. It seems to do exceedingly well in tubs, and it can be put in summer into some nook or corner of a terrace where the ugliness of the tub is altogether hidden by the gracefulness of large growing plants of *Agapanthus*.

It is a great pity that we cannot make more use of fine plants of the *Arum Lily* out of doors. But though this plant will live in ponds or sheltered borders throughout the year in the west country, it never attains the grace and beauty which we enjoy at this time of the year in large plants grown in 12-inch pots. On a back ledge in my vinery plants of *Arum* grow to an immense size and are excellent for cutting or bringing into the house in their pots for decoration. They do not require much light, nor after they are in flower do they seem to care about heat. They will flourish in the drawing-room if they have plenty of water, and look exceedingly ornamental with their giant leaves and flowers. When the *Chrysanthemums* are over we are dependent on the *Arum* for flowers to fill the church vases. Fortunately, they last a long time after being gathered. But the leaves of this plant, which are the only green that really looks well with the flowers, are apt to shrivel almost directly after gathering. Splitting up the stems will sometimes help to prolong their freshness, but if they come out of heat even that will scarcely avail. *Aralia Sieboldi* has handsome cut leaves, and will form a pleasing contrast with other things in summer. It makes a good ornament for the staircase, for it only requires protection.

But thoroughly hardy-foliaged plants are, on the whole, the most profitable. They take care of themselves year after year; summer brings out their full beauty, but they are not injured by frost and snow. Such, for instance, is the well-known *Bambusa Metake*, a plant which, when once well established, will grow vigorously and be a fine ornament permanently on the lawn or in the garden. It is a difficult plant to divide, but in order to secure a good success with a piece taken off, it must have a good root. Then, if the soil is deep and somewhat retentive, this Bamboo will quickly attain a large size and send up its beautifully knotted rods to a great height. Snow bends it down for a while even to the ground, but when the thaw comes, it revives and stands upright again as if nothing had happened.

Arundinaria falcata is more graceful in summer, but its long thin rods lose their foliage in winter, and if the cold is at all severe the rods themselves will turn yellow and die. But the plant itself will bear any amount of frost apparently without being destroyed. This beautiful Bamboo looks best, however, when after a mild winter the supple tall rods

begin to be clothed afresh with the delicate foliage at every knot.

Pampas Grass will look ugly in winter when the leaves turn yellow, but it must be classed among our fine-foliaged plants, for it is very graceful long before its feathery flowers appear in autumn. *Arundo donax* is not grown nearly so much as it ought to be. It is said to require a wet marshy ground, but I know a place where it grows exceedingly fine on hot sloping ground facing south. It looks remarkably well there among other large-growing plants in a pinetum. *Arundo conspicua*, too, often gives us fine heads of bloom long before the Pampas has begun to come out. Such plants require more or less space, and yet in small gardens they look well. In a semi-wilderness in Hampshire, Tritomas and Pampas grow together and make a grand show in a deep moist valley as you look down on them from the hillside above.

A garden of any size will never look so well as it ought without some of these large-growing fine-foliaged plants, and as a rule even small gardens are improved by single specimens. In speaking of fine-foliaged plants, I must not pass by one which, though dwarf in its growth, is exceedingly beautiful—the Ribbon Grass. Its pretty striped leaves will make any nosegay of ordinary garden flowers look more piquant, and as a border plant it is always useful.

When there is room for large rocks and a good rock garden, large plants with ornamental foliage carefully placed among them give an appearance of more ample space, while smaller treasures can nestle in among the stones in the foreground.

A GLOUCESTERSHIRE PARSON.

STOVE AND GREENHOUSE.

DECORATIVE PELARGONIUMS.

THESE, so called to distinguish them from the round-flowered or show type, include those known as French spotted and regal, the last named having the petals undulated and sometimes crimped or fringed at their edges, giving them the appearance of semi-double flowers. They differ from the show varieties, too, in possessing a more dwarf, sturdy habit of growth, producing their trusses of bloom with greater profusion, which are also larger, thus making them more showy objects for floral decoration. The show Pelargonium may be an instance, I think, of the deterioration of a flower by being constantly hybridised. Individual pips may be finer than kinds of past days and colours with greater density obtained, but the modern sorts appear wanting in two prime essentials, namely, habit of growth and freedom in flowering. The white eye or centre, again, which is admired in a Pelargonium is not only found among the florists' type, but excellent varieties which come under the heading of these notes, Gold Mine for example, have this trait particularly well defined. From now onwards the progress these plants make is remarkable. May is their natural time of flowering, and it is advisable to purchase them now in preference to autumn, for the reason that the cost is very little more, and the possessor may enjoy the bloom, thus gaining a season. But what is of greater importance, a number of young plants may be propagated early in this to flower the next year. Growers for the markets begin to strike cuttings from now onwards, as it is found that the young green shoots which are plentiful root more readily and make better plants than do the hard ripened cuttings which appear later on after the flowers are over. I was lately told by a grower of a large and choice trade collection that although he has tried for a number of years, he cannot succeed with the latter method, yet I fancy with many gardeners it has been the plan for generations. I have found Pelargonium cuttings strike most readily just as they are coming into bloom, the wood being then in a half-ripened condition; but, of course, this is only done in the case where young plants are particularly required, entirely sacrificing the bloom. Take off the young side shoots then,

and place each in a small pot in any ordinary soil and stand them on the shelf of a cool greenhouse. Sprinkle them occasionally till rooted, when they may be potted into 5-inch pots. Ordinary loamy soil is what these plants delight in, or even the old compost that has grown *Chrysanthemums* for a season may be profitably employed. Two important items are firm potting and small pots. Those of 6-inch diameter will do for large plants and 8-inch for the extra-sized specimens. During the summer months cold pits or frames where the glass may be put on in stormy weather is a good position for them whilst growing. They should be stopped once or twice to make the plants bushy.

The plants when coming into bloom should occupy a cool house where abundance of air may be given them night and day. At all times they require a large supply of water, and as the flower-buds develop they are not easily overdone in the number of times stimulants made weak are given, ammonia in its various forms being capital for the *Pelargonium*. This plant is a well-known prey to the attacks of green aphids, which must be constantly checked by fumigating with tobacco paper or the like. The necessary tying must not be forgotten, and after flowering, the plants may be stood out of doors where the sun can have power in hardening the wood. For this end, too, be sparing with water, and after they are cut down and have commenced again to grow shake away all the soil from the roots, cut these back and repot into two or three sizes smaller than those the plants have occupied. They will now be ready for their winter quarters, at which time no more fire heat ought to be given than is required to keep out frost, and all the surroundings must be kept on the dry side—that is, very little water should be given at the roots, and none should be allowed to touch the foliage. The kinds to be named are first-rate: President Harrison, Princess of Teck, Mrs. Perkins, Edward Perkins, Mme. Thibaut, Princess Maud, Volonté Nationale album, Gold Mine, Annie Hemsley, Duchess of Bedford, Kingston Beauty, Black Diamond, and Triomphe de St. Mandé. H. S.

Gardenias opening green.—Can you tell me the reason for *Gardenias* (enclosed) opening green; they are healthy plants, one and two years old, grown in a night temperature of 65° to 70°, higher during day? During January I got a few good blooms, but since that time hundreds of buds have come like the enclosed. They were treated similarly to those referred to lately by Mr. Ward, except that they have been in the stove since they left the cold frame last October.—G. H.

* * From the particulars given by "G. H.," I should infer that the plants of the *Gardenias* were in a very vigorous condition; the foliage and wood of the shoot sent indicate this. There does not appear to be any disease; on the other hand, nothing could look healthier. Young plants of one and two years' growth will, if treated generously, make shoots more after the manner of Willows with less disposition to perfect their blooms. I have myself observed that the buds upon such plants have frequently opened in a malformed manner. The plants in question have no doubt made wood growth at the expense of perfectly developed flowers. With excess of vigour the chlorophyll in the stems and leaves has also been imparted to the flower-buds; this has probably been further aggravated by the night temperature of 65° to 70°, with no doubt a corresponding increase during the day. If bottom heat has been employed, then this same failing would be all the more likely to occur. A night temperature of from 60° to 65° would have possibly stopped it by equalising the conditions in a more suitable manner. I think this all the more likely, because during January, when the temperature was probably lower, some good blooms were to be had. I see no reason whatever why the plants should not eventually overcome the present failing. I would grow the plants in the same pots until the luxuriant growth is checked; probably they would not require another shift this year. Thus a more sturdy growth will be made,

which will not rush away so soon to shoots and leaves at the expense of the buds. In potting it is possible that the soil was too rich; this would induce a sappy growth, which will not produce flowers to the extent one might infer by the appearance of the plants themselves. I would not use any manure, artificial or otherwise, until the pots are full of roots; mixed with the soil it will often defeat the object in view, and that in the direction afore indicated. In my own case I have taken by far the best blooms of *Gardenias* from plants that were either potbound, when they could be fed without any risk of failure, or else where planted out after they had well laid hold of the soil. What I advise for *Gardenias* is firm potting, using about half and half of peat and loam, the peat being such as is suited to stove plants in general with plenty of fibre in it, and the loam not too heavy nor retentive. To these soils should be added a liberal supply of silver sand. The firm potting will check sappy growth, although possibly the leaves may not look of such a deep dark green colour. Not having seen the plants in question, it is hardly possible to say for certain, but I surmise the failing will soon be overcome, as the luxuriant growth is checked by the plants becoming potbound.—PLANTSMAN.

Hardenbergia Comptoniana.—The rich violet-purple-coloured blossoms of this greenhouse climber are just now freely borne, and in this stage furnish a very pleasing display, that is to say where the structure is not lofty so that their beauty can be seen, as the individual blossoms are but small, and though borne in crowded racemes, they need close inspection to reveal their most ornamental features. It is a slender climber whose wiry stems are furnished with pinnate leaves, composed of three or five leaflets, and where favourably situated will bloom for a considerable time. It is one of those climbers that will obstruct but little light, and consequently is far better suited for furnishing the rafter of a greenhouse than many subjects which are often employed for the purpose. This *Hardenbergia* is also known under the specific name of *Lindleyana*. Another species, *H. monophylla*, has purple blossoms, but the leaves are entire and not divided into leaflets, as in the case of the preceding.—T.

Spiræa confusa for forcing.—The *Spiræa* grown under the above name must find a place in any selection of shrubs suitable for forcing, as it readily conforms to such treatment, and the clusters of pure white Hawthorn-like flowers are borne in great profusion, added to which the young leaves are of a very pleasing shade of tender green. It forms a freely-branched bush, whose slender shoots are studded for some distance with flattened corymbs of blossoms, so that a specimen in full bloom wears a totally different aspect to most shrubs that are employed for forcing. Another species whose flowers very quickly expand when under glass is the Japanese *S. Thunbergi*, whose slender gracefully arching branches are studded for some distance with little white blossoms. The lanceolate leaves of this species are of a bright green when first expanded, while a notable feature in connection with it is, that where treated as a hardy shrub in the open ground, the leaves die off in the autumn brightly tinted. Where required for forcing, no particular treatment is needed by these two *Spiræas*, which should be carefully lifted and potted in the autumn, when, with the advent of the new year, they may be brought on in a little heat as required. In common with all shrubs, intended for forcing, they should be grown in a spot fully exposed to light and air, in order that plenty of flower-buds may be ensured.—T.

New Holland plants from seed.—I should like to note for those readers who take an interest in New Holland plants that 75 per cent. of the seed of some thirty-five varieties received last year has germinated. Of these, *Chorozema cordata*, *Indigofera australis*, *Goodia latifolia*, *Hakea gibbosa*, and *Callistemon rigidus* are now in flower. A somewhat large proportion of the seed had made premature growth, probably from the action of damp, but sufficient came of most sorts

to enable us to pot on a few of each. I thought the chronicle of success might be interesting to admirers of this class of plants, as it is evident that, given friends at the Antipodes who would be able and willing to transmit seeds, a very nice and varied collection might be formed quickly and at a trifling expense. Among the fine-foliaged plants received were two varieties of *Grevillea* and several of *Acacia*. Among the *Acacias*, *A. saligna*, *A. pycnantha*, *A. dealbata*, and *A. Melanoxydon* have germinated.—E. B.

HEATING.

THE present high price of fuel and the prospect of further advance in prices render it necessary to consider the question of how glasshouses can be most economically heated. The number of different boilers offered, each being recommended as superior to all others, makes the choice a little difficult, even to those who have had some experience in such matters. I have had considerable experience in the matter myself, yet should have some diffidence in recommending any particular make as being superior to all others. I find that more depends upon other details than the boiler itself. Good stoking is one important item. The proper setting of the boiler and the levels of pipes make a considerable difference. In the selection of boilers, circumstances have to be considered. In some instances it is difficult to make a stoke-hole deep enough, on account of water being troublesome. It is most important to fix the boiler low enough to give the pipes a good rise; in this matter there will always be some difference of opinion. I like to give a sharp rise to the first few feet of piping; a very slight rise for the remainder of the distance will then be sufficient. Besides giving the flow a good rise, I believe it to be essential that the return pipe should be so arranged as to bring the full weight of the cold water to the bottom of the boiler, for after all it is the weight or pressure below which makes the lighter element rise. A rise in the return pipe, if ever so slight, especially if it is near the boiler, will make a considerable difference in the free flow of the water, and cause a much heavier pressure on the boiler. With regard to the setting of boilers, it is essential that provision should be made for the proper sweeping and cleaning of all parts which come into contact with the fire. The chimney shaft should be of sufficient height to secure a sharp draught. A dull sluggish fire soon coats the boiler over with soot, besides which the fuel cannot be consumed so economically.

In stoking the first thing is to keep everything clean—the flues and boiler regularly cleaned, the ash pit cleaned out not only in front, but right through to the back. The most economic way of using fuel where much heat is required is to well fill up the furnace and leave full draught on until it is burnt up quite clear; the damper may then be put in nearly close and the ash-pit door closed quite close. This applies more particularly to where coke is used. The fires should always be started early enough to get up a good heat before nightfall, and it is equally necessary that the fires should be shut off or checked before sunrise. This is especially applicable to the early spring-time. Much fuel is often wasted through not paying proper attention to morning stoking. I find it is very difficult to get young men to bear in mind that the fire should be burned low before the temperature begins to rise from sun heat. It not unfrequently happens that the fire-heat is at its highest just as the sun is rising, thus wasting fuel and giving too much heat at the wrong time of day.

With regard to selection of boilers, many of the large market growers are in favour of the horizontal tubular ones. Of these there are several makes or patterns. Formerly the very long ones were used, but these are gradually going out of favour, those with the 9-feet tubes being now generally used. The various patterns of saddle boilers are also economical, especially those with the waterway ends and tubular bars. The upright

"tubulars" have their advantages, but these require deep stokeholes, which, as I have previously stated, cannot always be made without causing considerable trouble. I should avoid complicated boilers, and those the chambers of which it is difficult to keep clean and free from soot. H.

BOOKS.

"The number of those who really think seriously before they begin to write is small; extremely few of them think about the subject itself; the remainder think only about the books that have been written on it."—SCHOPENHAUER.

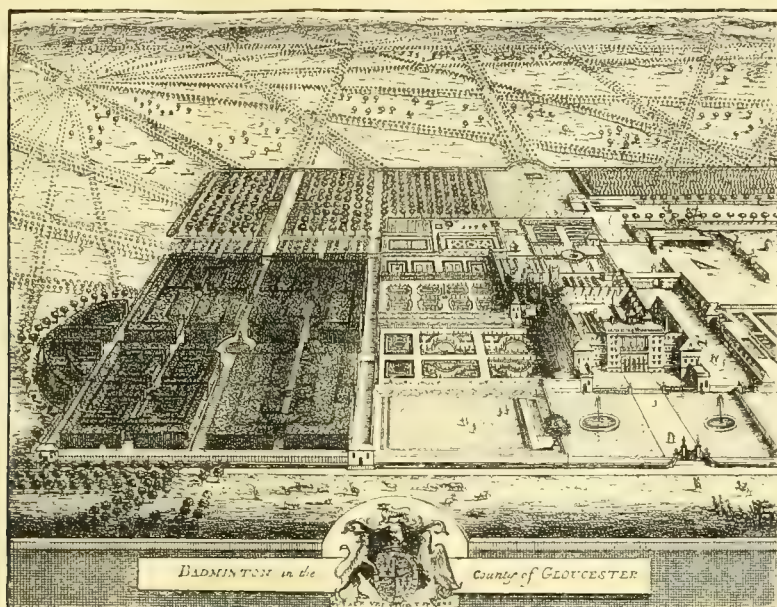
ARCHITECT'S GARDEN DESIGN.*

THIS book is made up in great part of quotations from old books on gardening—many of them written by men who knew books better than gardens. Where its authors touch the ground of actual things, they soon show little

both in wild and cultivated Nature which will guide us well if we seek to understand them simply.

The question of design, of the treatment of the grounds as a whole as well as in detail, is an entirely distinct one, which has been confused with that of horticulture, and finally superseded by it. Horticulture stands to garden design much as building does to architecture. This book has been written entirely from the standpoint of the designer, and therefore contains little or no reference to the actual methods of horticulture.

Throughout the book it is modestly assumed that there can be no "design" in anything but in lines of stone, and clipped trees to "harmonise" with the stone, and to bring in "order" and "balance!" A Longleat, Highclere or Little Trianon, or any of the many English places which are planted in picturesque ways can show no design; but a French town, with its wretched lines of tortured Limes, is "pure"



THE FORMAL GARDEN.—This shows the kind of garden design the authors weep over the loss of. All who ever helped to remove such blotches from the fair face of English landscape are roundly abused.

acquaintance with the present state of the subject; and, indeed, as they plainly say, they see no design at all in landscape gardening, but admit their ignorance of it. That men should write on things of which they have thought little is unhappily of frequent occurrence in literature, but to find them openly avowing their ignorance of the art they presume to write on is new. This would not be worthy of serious attention were it not that many people who read such books are apt to think that such a question as this, or any artistic one, is only a matter for windy argument, and do not see that it can be settled by reference to actual things, as I hope to show. Beneath all art there are laws, however subtle, that cannot be ignored without error and waste, and in garden design there are lessons innumerable

and "broad" in design. The *naïveté* of the book in this respect is often droll.

One amusing passage is on p. 12:—

However rich the details, there is no difficulty in grasping the principle of a garden laid out in an equal number of rectangular plots. Everything is straightforward and logical; you are not bored with hopeless attempts to master the bearings of the garden.

This is the kitchen gardener's view, and that of the market gardener of all countries, but the fun is in calling the idea of it "*grasping a principle!*" At this rate makers of chessboards have strong claims to artistic merit!

As to a natural school of landscape gardening,

A great deal is said about Nature and her beauty, and fidelity to Nature, and so on; but as the landscape gardener never takes the trouble to state precisely what he means by Nature, and, indeed, prefers to use the word in half-a-dozen different senses, we are not very much the wiser so far as principles are concerned.

They make this statement as if all beautiful natural landscape were a closed book; as if there were no stately Yews, in natural forms, on the Merrow Downs, as well as clipped Yews at Elvaston; as if the tree-fringed mountain lawns of Switzerland did not exist; or lovely evergreen glades on the Californian mountains, or wild Azalea gardens on those of Carolina, or even naturally grown Planes in London squares, as well as clipped Lime trees in France.

There are many gardens and parks which clearly show what is meant by the "natural" style; and though, like others, this art is too often imperfect, we have so many instances of its success, that it is curious to find anyone shutting his eyes to them. There are many lessons in picturesque landscape gardening in every country in Europe and in many parts of North America. Then it is seen in gardens, as in the difference between a picturesque landscape like the Emperor of Austria's stately garden at Laxenberg, near Vienna, and the gardens in the same city formed of miserable clipped trees in lines. Mr. Olmstead's work in America and Mr. Robert Marnock's in England teach them; they may be learnt in many English gardens—from Sir Richard Owen's little garden in Richmond Park to Dunkeld—even small rectory and cottage gardens, wholly free of architectural aids, show the principle. It was but a few weeks ago, in the garden of the English Embassy in Paris, that I was struck with the simplicity of the lawn and plan of the garden there, and its fitness for a house in a city.

To justify their idea that there is and can be no natural school of landscape gardening, the authors suppose what does not exist.

They describe

A piece of ground laid out with a studied avoidance of all order, all balance, all definite lines, and the result a hopeless disagreement between the house and its surroundings. This very effect can be seen in the efforts of the landscape gardener, and in old country houses, such as Barrington Court, near Langport, where the gardens have not been kept up.

Here, instead of taking one of the many good examples in Britain, they take poor, beautiful old Barrington, now an ill-kept farmhouse, with manure piled against the walls and the roof of the dining-room propped up with a Fir pole! The foolish proposition here laid down, that, because a garden is natural or picturesque in style, there must necessarily be a *studied avoidance of all order, all balance, all definite lines*, is disproved by hundreds of gardens in England. Why did not the authors take Miss Alice de Rothschild's garden at Eythorpe, or any beautiful and picturesque English garden, to compare with their results in brick and stone?

For instance, because Nature is assumed never to show straight lines, all paths are to be made crooked; because in a virgin forest there are no paths at all, let us in our acre and a half of garden make as little of the paths as possible. Deception is a primary object of the landscape gardener.

This, too, in the face of the facts of the case, of proof ready for the authors, in gardens in

* "The Formal Garden in England." By Reginald Blomfield and F. Inigo Thomas. London: Macmillan and Co.

every country, from Prospect Park at Brooklyn to the English park at Munich. The fact that the Phoenix Park at Dublin is laid out in a fine, picturesque way does not forbid a great straight road through it—a road finer than in any straight-laced park in France. The late Robert Marnock was the best representative of landscape gardening I have known, and I never saw one of his many gardens where he did not make an ample straight walk where an ample straight walk was required—as, indeed, many may remember is the case in the Botanic Gardens in the Regent's Park, laid out by him.

Again, Nature is said to prefer a curved line to a straight, and it is thence inferred that all the lines in a garden, and especially paths, should be curved.

The utter contempt for design of the landscape gardener is shown most conspicuously in his treatment of paths. He lays them about at random, and keeps them so narrow that they look like threads, and there is barely room to walk abreast.

This is true only of the very worst work. The opposite of it is indeed the truth, for many gardens and parks laid out with some regard to landscape beauty are partly spoiled by the size and number of the walks, as in the gardens around Paris—the Parc Monceau and Buttes Chaumont, for instance. The slightest knowledge of gardens would show that walks like threads are no necessary part of landscape gardening!

The axiom on which landscape gardening rests is declared by Messrs. Blomfield and Thomas to be

Whatever Nature does is right; therefore let us go and copy her (p. 5).

Here is a poor sneer at true art, not only at art in landscape gardening, but in all the fine arts. The central and essential idea of the landscape art is choice of what is beautiful—not taking the salt waste in Utah, or a field of weeds, or a Welsh slope of decayed slate, or the bog of Allen, or the thousand other things in Nature that are monotonous and dull to us, even though relieved here and there with beauty, as a wide bog may be. We can have in a garden a group of Scotch Firs as picturesque in form as a fine group in wild Nature, and so of the Cedar of Lebanon and all the lovely trees of the world. We can have bits of rock alive with alpine flowers, or pieces of lawn fringed with trees in their natural forms and as graceful as the alpine lawns on the Jura.

So of all other true art. The Venus of Milo is from a noble type of woman—not a mean Greek. The horses of the Parthenon are the best types of Eastern breed, full of life and beauty, not sickly beasts. Great landscape painters like Corot, Turner, and Troyon show us in their work the absurdity of this statement so impertinently used. They seek not ugly things because they are natural, but seek beautiful combinations, groupings which go to make good composition, and then wait for beautiful effects of light and colour; and, working from great stores of knowledge acquired from study of Nature, give us lovely pictures.

The word "garden" itself means an enclosed space, a garth or yard surrounded by walls, as opposed to unenclosed fields and woods. The formal garden, with its insistence on strong bounding lines, is, strictly speaking, the only "garden" possible.

All other gardens are, or course, impossible to the authors—the Parc Monceau the informal gardens about Paris, Glasnevin, the Botanic Gardens in Regent's Park and at Sheffield, Golder's Hill, Greenlands, Pendell Court, Rhianna, and the thousand cottage, rectory, and other British gardens where no wall is seen! The Bamboo garden at Shrubland, Mr. Wilson's garden at Wisley, the rock and other gardens, which we must keep in quiet places away from any sight of walls, are all impossible to these authors. Such gardens exist in many places. How much better it would be for every art if it were impossible for men to write about things of which they have not even elementary knowledge.

The horticulturist and the gardener are indispensable, *but they should work under control*, and they stand in the same relation to the designer as the artist's colourman does to the painter, or, perhaps it would be fairer to say, as the builder and his workmen stand to the architect.

The men whose business it is to design gardens are heartily abused. How very graceful it would be on the part of one of them to write an essay telling architects how to build, and showing that to build well it is not necessary to know anything about the inhabitants or uses of a house!

Perhaps after the cemetery, the ugliest things in the fair land of France are the ugly old lines of clipped Limes which deface many French towns. Readers who have not seen these things can have no idea of their abominable hardness and ugliness, the natural form of the trees being destroyed, and deformed and hideous trees resulting from constant clipping.

These gouty lines of clipped trees are praised as "noble walls" "pure and broad" in design, while

Such a place, for instance, as Battersea Park is like a bad piece of architecture, full of details which stultify each other. The only good point in it is the one avenue, and this leads to nowhere. If this park had been planted out with groves and avenues of Limes, like the boulevard at Avallon, or the squares at Vernon, or even like the east side of Hyde Park between the Achilles statue and the Marble Arch, at least one definite effect would have been reached. There might have been shady walks, and noble walls of trees, instead of the spasmodic futility of Battersea Park.

Battersea Park, like many others, may be capable of improvement; but here we have men who want to supplant its cricket lawns, its wide grassy playgrounds and pretty retired gardens with Lime trees like those of a French town, and lines and squares of trees like those at Vernon, which I once saw half bare of leaves long before the summer was over!

It is stated that those whom the authors elegantly call "landscapists" have banished the Apple tree from the garden.

Again, the Pear tree and the Chequer tree, the Quince, the Medlar, and the Mulberry are surely entitled by their beauty to a place in the garden.

It is only since Nature has been taken in hand by the landscapist and taught her proper position that these have been excluded.

There are, perhaps, some men who lay out gardens, but do not know their most precious aids to effect. The landscape gardener I knew best, the late Robert Marnock, used many thousands of these trees and their allies in his lifetime! I could show the authors these trees planted by the score, in one place alone. Many thousand trees of the Japanese Apple alone have been sold by English nurserymen within a dozen years. No doubt we should all like to see some lovely trees more planted, but why do sane men seek to support their views by such wild statements? If any "artists" have been against the use of such trees, it is those who design bare flowerless terraces like those of Nesfield and Barry.

The following glaring piece of injustice is due to want of the most elementary consideration of garden design:—

Grass-work as an artistic quantity can hardly be said to exist in landscape gardening. It is there considered simply as so much background to be broken up with shrubs and Pampas Grass and irregular beds (p. 135).

The very opposite of this is the fact. Grass-work as an "artistic quantity" did not exist in anything like the same degree before landscape gardening. One of the faults of the formal style of gardening still seen in France and Austria is that there is little or no Grass. Compare the Jardin des Plantes in Paris with the Parc Monceau, or the many other gardens about Paris in which Grass is an "artistic quantity." One of the most effective reasons indeed for adopting the English landscape garden was that it gave people some fresh and open Grass, often with picturesque surroundings, and hence, now-a-days, one can hardly travel anywhere and not see some pleasant results of this. In England, the landscape gardeners and writers have almost destroyed every trace of the stiff old formal gardens, and we cannot appreciate the ill effects of the builder's garden so easily as in France and Austria. As a rule, the want of rest and freshness in tropical and sub-tropical gardens is due to the absence of those broad and airy breadths of greensward which, in gardens at least, are largely due to landscape gardening. Think of Warwick without its turf and glorious untrimmed Cedars.

"Landscapist" is used throughout the book as a term of contempt. The authors take some of the worst work that is possible, and condemn all in the same opprobrious terms, just as if we were to condemn the noble art of the builders of the Parthenon on seeing a "jerry" building in London. They may be quite sure that there *is* a true and beautiful art of landscape gardening, notwithstanding their denunciations, and it is none the less real because there is no smug definition of it that pleases the minds of men who declare that it does not exist.

The very name of the book is a mistake. "Formal gardening" is rightly applied only to the gardens in which both the design and planting were formal and stupidly formal like the upper terrace of the Crystal Palace,

Kensington Gore as laid out by Nesfield, Crewe Hall, and many other gardens of the same kind; and Shrubland, as laid out by Barry, in which, as in many others of these architects' gardens, strict orders were given that no plants were to be allowed on the walls. The architect was so proud of his design, that he did not want the gardener at all, except to pound up bricks to take the place of flower colour! To old gardens like Haddon and Berkeley, in which the vegetation about the house is perfectly free and natural in form, the term "formal gardening" is quite unfitted.

The authors see with regret that the good sense of planters and garden lovers has for many years been gradually becoming emancipated from the style (as old as the Romans and older) of planting in rows. It was the early and in a very real sense the barbarous way. Since the days when country places were laid out "in a number of rectangular plots," whole worlds of lovely things have come to us—to give one instance only, the trees of California, Oregon, and the Rocky Mountains. For men to talk of designing homes for such things, who say they have no knowledge of them, is absurd.

The place of the architect as to the garden is clear. He can help us best by building a beautiful house adapted to the situation. The better his own work is done, the better for the garden and the landscape. If there be any difficulties of level about the house, he should deal with them. To endeavour to apply any one preconceived plan or general idea to every site is folly and the source of many blunders. The authors are not blind to the absurdities of the architectural gardeners, and say on page 232:—

Rows of statues were introduced from the French, costly architecture superseded the simple terrace, intricate parterres were laid out from gardeners' pattern books, and meanwhile the flowers were forgotten. It was well that all this pomp should be swept away. We do not want this extravagant statuary, these absurdities in clipped work, this aggressive prodigality. But though one would admit that in its decay the formal garden became unmanageable and absurd, the abuse is no argument against the use.

Certainly not where the place calls for it, and all absolutely necessary stonework about a house should be controlled by the architect; beyond that, nothing. To let him lay out our home landscapes again with lines of trees, as shown in the old Dutch books, and with no regard to landscape design and to the relations of the garden to the surrounding country, would be the greatest evil that could come to the beautiful home landscapes of Britain. There is as much bad and ignorant landscape work as there is bad building everywhere, but errors in that way are more easily removed than mistakes in costly and aimless work in brick and stone. At Coombe Cottage when I first saw it, with its useless terrace wall shutting out the beautiful valley view from the living rooms, I spoke of the error that had been made, but the owner thought that as this harmful wall had cost him a thousand pounds, he had better leave it where it was.

It is assumed throughout the book that the people the authors are pleased to term "landscapists" flop their houses down in the Grass, and never use low walls for dividing lines, nor terraces where necessary, never use a wall for shelter or privacy or protection, have no "order" or "balance," and presumably allow the Nettles to look in at the windows, and the cattle to have a fine time with the Carnations!

The illustrations to the book, on which its main interest depends, are careful architects' drawings, deficient in light and shade; not engraved, but reproduced by a hard process, some being mere reproductions of old engravings impossible in drawing; and some simply diagrams of old "knots" and "patterns," with birds and ships perched on wooden trellises, without the slightest reference to any human or modern use. We reproduce one of Badminton, which will show the kind of plant leathers wish to see revived. There is no more real design in such a thing than there is in the laying out of an American town. Some of the illustrations show the evils of the system which the authors advocate, notably one of Levens Hall, Westmoreland, a very interesting and real old garden. Even in sketches of really interesting gardens like Montacute and Brympton, the beauty of the gardens is not well shown. The most interesting drawings, it is not surprising to find, are the informal ones! Many of the others, as may be seen in the two illustrations given from the book, show the *evil*, not the good, of the system advocated.

A word or two on the state of architecture itself may not be amiss. From Gower Street to the new Law Courts our architecture does not seem to be in a much better state than landscape gardening is, according to these writers. It is William Morris—whose design they may respect—who calls London houses "mean and idiotic rabbit warrens:" so that there is plenty to do for ambitious young architects to set their own work in artistic order. As regards "formal gardening," the state of some of the best old houses in England—Longleat, Compton Wyniats, Brympton, and many others, where trees in formal lines, clipped or otherwise, are not seen in connection with the architecture—is proof against the need of the practice; and as regards the best new houses, Clouds, so well built by Mr. Philip Webb, does not want its picturesque surroundings clipped or tortured to meet a senseless craving for "order and balance;" while Batsford, certainly one of the few really good new houses in England, is not disfigured by rows of clipped trees in the fashion the authors wish to see revived. There is, in short, ample proof furnished both by the beautiful old houses of England and by these new ones that have any claim to dignity and beauty, that the system sought to be revived is as needless as it is inartistic.

W. R.

Primula denticulata destroyed.—From Mr. Tallack's description (see GARDEN, March 26) of the clean way in which the crowns of his *Primula denticulata* have been scooped out, I think the offenders are more likely to be the larvæ of one of

the Noctuidæ than either pheasants or mice. If I am right, he will find the enemy (fine fat caterpillars) in the ground within a few inches of his plants and an inch or so from the surface. *Primula rosea* is not proof against attack.—J. S. W., *Workshop*.

ORCHIDS.

ORCHIDS AT THE WOODLANDS, STREATHAM.

On a recent visit to the residence of Mr. R. H. Measures I noted *Cattleya Trianae* in many forms very fine, some bold and richly coloured varieties being exceedingly beautiful, the best of all being a form which bears the name of its owner, *Measuresiana*. In this the rich crimson-magenta lip is very conspicuous, even amongst deeply coloured forms. The beautiful *C. Lawrenceana* is now also coming into bloom. This plant has been flowering earlier every season since its introduction, so that we may set it down as an early spring bloomer. A great number of this species are grown here, and last year I saw the darkest and most brilliant form that I have ever seen. Turning from the flowers to the plants, I saw with regret that the bright sunny weather which succeeded the snow in the middle of March had, through the blinds not being up, imparted to them a yellowish tinge which is not pleasing. There are here some of the finest specimens of *Cymbidium Lowianum* in the country, and four years ago these were profusely laden with their long spikes. These plants were shifted into very large pots, which they have not up to the present filled. They have grown well, but they have not flowered so profusely since. There is now, however, a fine variety very gay, and other spikes on various plants to open. The fine yellow-flowered variety called *Mandaianum* is just about to open its flowers, whilst a few of the pure ivory-white flowers of *C. eburneum* may still be seen. The rare and handsome *C. Devonianum* is showing three of its spikes of bloom. *Lælia cinnabarina* is flowering freely, as also is the rich and beautiful *Ada aurantiaca*. *Lycaste Skinneri* was also blooming in profusion and in many varieties, including the pure white form, these being supplemented by *L. fulvescens* and the very pretty *L. Measuresiana*. *Sobralia macrantha*, a dwarf red variety having very large and deeply coloured flowers, made a fine show, as also did a number of plants of the sweetly-scented *Dendrochilum glumaceum*. A fine dwarf form of *Zygopetalum crinitum* was also very showy and pleasing. For richness of colour, *Epidendrum O'Brienianum* was conspicuous, whilst *Angræcum Sanderianum*, with its long spikes of pure white flowers, was equally so. The display of *Cypripediums*, as it always is here, is very fine, numbers being in bloom. Conspicuous amongst them were some very fine varieties of *C. villosum*, one or two forms being of a rich yellow, almost equal to the variety known as *C. villosum aureum*. *C. Boxalli* was also represented by many beautiful forms. *C. Sedeni* and the variety *candidulum*, *C. calurum*, and *C. Amesianum* were represented in quantity, whilst the following, although less numerous, were equally beautiful: *C. Druryi* appears to bloom naturally in January and February, the yellow flowers having a dark chocolate stripe down the centre of all the outer segments of the perianth. It is a pleasing flower, as also is the hybrid variety known as *C. Winnianum*, a cross raised between *C. villosum* and *C. Druryi* by Mr. Seden in the nurseries of Messrs. Veitch and Sons. It is a fine large flower, with much the appearance of *C. villosum*, but yellow

the various segments of the perianth having a deep dark brown stripe, the dorsal sepal being freely splashed with blackish brown and bordered with white. *C. Argus Moensi* is very beautiful, the sepals and petals being as broad again as those of the common form, beside which it was flowering. *C. Schroederæ splendens* is another great beauty, and worthily dedicated to the Baroness Schroeder. It is a large flower, having pendulous twisted petals, the whole flower being of a bright rich rose colour. *C. Measuresianum*, said to be a cross between *C. villosum* and *C. venustum*, is a large-flowered variety. *C. Morganie*, The Woodlands variety, which I noted some few weeks ago, is still flowering. Other kinds in bloom were *C. Lathamianum*, *C. marmorophyllum*, *C. Haynaldianum*, *C. Amesianum* (very fine), and *C. tonsum*.

AT CAMBRIDGE LODGE, CAMBERWELL.

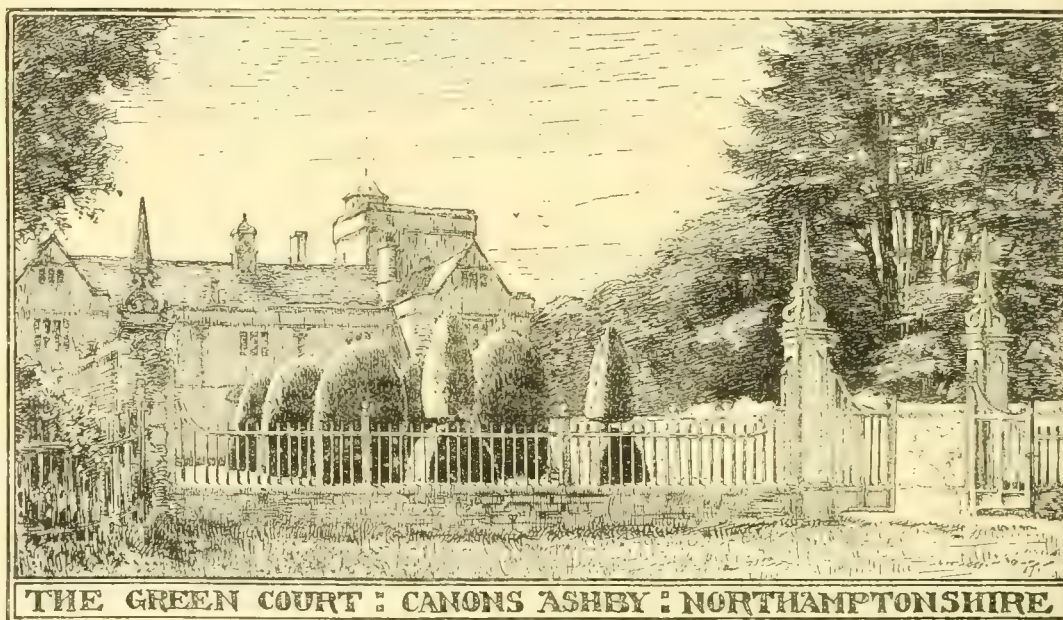
Here, the residence of Mr. R. J. Measures, is this season to be found a large collection of Vandas well grown and beautifully flowered. They are grown quite cool. The plants have well-leaved stems to the pots. *V. suaveolens* may be seen here with light flowers; this is the name of Blume for tricolor, which now takes precedence. There was also flowering *V. tricolor* (Dr. Paterson's variety). It was figured in *THE GARDEN* (Vol. XXIII, t. 375). The sepals and petals have a creamy white ground, profusely spotted with bright brown, the lip being very deep purple with a few lines of white. *V. tricolor*, the Dalkeith variety, is another distinct form with large flowers densely spotted with reddish purple, the lip reddish purple. *V. tricolor insignis* is another fine form, the ground colour of the sepals and petals being of a rich tawny yellow with spots and blotches of reddish brown, the lip near the centre being bright rose, the edges white. *V. tricolor planilabris* is another very fine form, the flowers of great size and substance; the sepals and petals soft yellow, spotted and blotched with rich brown; the large flat lip deep rose-coloured in the middle, bordered with violet-purple and streaked with dark brown. These and several other forms of tricolor were flowering, as also a fine plant of *V. Parishii Marriottiana*, which is still very rare. This has large and full blooms of a rich bronzy brown, tinged with magenta. Turning from these, we come to a quantity of plants of the ever-beautiful *Cattleya Lawrenceana*, even more forward than those at The Woodlands, so that we must include it with the early spring bloomers. *Cattleya Trianae* was also blooming in quantity and in numerous beautiful varieties. There was also in bloom a plant of the rare *Aganisia corulea*, a native of the Rio Negro, and consequently requiring as much heat as those plants from the warmest parts of the East Indies. Here also were to be seen the very rich and distinct hybrid *Dendrobium Ainsworthii* roseum and the magnificent *D. nobile nobiliss.* Old Orchids were represented by an excellent form of *Brassia Lawrenceana*, having large flowers, yellowish, tinged with green, and somewhat sparingly spotted with bright brown. *Oncidium serratum* and *Oncidium undulatum* were also in flower in the same house. The former is a pretty old species, which received

the name of *O. diadema* when it first came into cultivation; the latter is a somewhat rare and showy species belonging to the *Cyrtorchiloid* group, having flowers nearly 3 inches across, the sepals of a rich bronzy brown; the large petals white, blotched and barred in the lower half with purple; the small lip recurved and of a rich purple.

Among *Masdevallias*, the only species at present worth a note is the fine hybrid raised by Capt. Hincks, of Thirsk, in Yorkshire, between *M. tovarensis* and *M. ignea*, and named by Reichenbach (after its raiser) *M. Hincksi-ana*. It has an erect scape bearing two or more flowers of a good size, the colour being clear canary-yellow, the lower tips of the sepals orange-yellow. With age the flowers change to white. Here, as well as at The Woodlands, *Cypripediums* are largely grown. Amongst them may be noted *C. Sallieri Hyeum*, a large handsome form. *C. leucorrhodum* is even purer than *Sedeni candidulum*. It is a plant of much stronger growth than either of its parents.

the margin. The whole flower is pure white except the throat, which is stained with clear yellow. It is the finest variety which has come under my notice since the plant first flowered in this country, now some thirty years ago. Of this kind I recently saw some plants doing finely in the Messrs. Low's nursery at Clapton, in quite a cool house, having made finer growths than some put into warmth from the same introduction. This should induce many to grow this fine Orchid, as it would thrive well with the *Odonoglossums*, liking perhaps more sun and light than those plants.—W. H. G.

***Dendrobium lituiflorum*.**—Closely resembling *D. nobile* in the form and colour of its flowers, this beautiful species differs in blooming on the pseudo-bulbs finished the previous autumn instead of on those a year older. It is also destitute of foliage at the time of flowering. The stems are slender, 1 foot to 2 feet in length, and naturally pendent; they are of a greyish white colour, the flowers being produced in twos or threes from the joints on the upper half. The sepals are almost white at the base, but change on the upper half to amethyst-purple, the petals being much broader and having the apical portions of a richer purple



THE GREEN COURT : CANONS ASHBY : NORTHAMPTONSHIRE
THE FORMAL GARDEN.—In this illustration the ill result of clipping trees is well shown—the emphasising of ugly forms taking away from the beauty of the house. (See p. 309.)

In *C. Lindleyanum* we have a giant grower, but not a very showy kind, the flowers being small, pale green, with brown veins. In a form recently shown before the Horticultural Society the pouch was bronzy brown. It comes from British Guiana, and is one of the discoveries of Schomburgk. *C. Carrieri* is a very handsome French hybrid raised between *C. superbiens* and *C. venustum*, and it seems as if it was a venustum flower much improved in size and colour. *C. Rothschildianum* is a gigantic flower of surpassing beauty introduced by Mr. Sander, of St. Albans. The flowers are yellowish white, thickly lined with blackish purple; the lip large, suffused with rose. In *C. Dayanum* I cannot but think we have a distinct plant from both *C. Burbidgei* and *C. Petri*, the variety called *superbum* being very fine.

WM. HUGH GOWER.

***Dendrobium infundibulum*.**—I have received from Mr. Hughes, gardener to Mr. Woodall, St. Nicholas House, Scarborough, a magnificent flower of this species, the petals being exceptionally broad and full, the lip large and beautifully frilled round

than the sepals. The lip, as the specific name implies, is somewhat trumpet-shaped; the disc is maroon-purple, surrounding which is an area of white, the outer margin reverting to purple. The flowers measure over 2 inches across, and, although not so large as those of *D. nobile*, are equal in beauty and richness of colouring to all except the very best forms of that species. It is a native of the warm valleys of Arracan, whence it was introduced to England and given the above name by Lindley about 1856. It requires abundant light at all seasons, and the most tropical conditions in regard to heat and moisture during the period of active growth. It is at its best during the present month and April.

***Dendrobium Venus*.**—This, I find, is a hybrid raised between *D. nobile* and *D. Falconeri*. The flower I recently described appeared to me like a fine *D. nobile* with a very deep zone of white on the lip. I have a letter from the Rev. C. Handley, of Bath, in which he says the growth is quite distinct from that of *D. nobile*, being long and thin, almost pendulous. It is said to be a good grower, but as yet a very shy bloomer. The flower noted by me in *THE GARDEN* a short time ago was the only one it has produced. I also see that the plant was awarded a first-class certificate by the Royal Hor-

ticultural Society in April of last year, the plant having been shown by Mr. Cookson, of Wyllam-on-Tyne.—W. H. G.

Phalænopsids (*J. B. W.*).—I see no reason why you should not succeed with these plants. The flower you send is *P. Stuartiana*, and a very good variety it is. You say it is one of a batch sent home by a friend who will send you more if you tell him how to pack them. You should get them established upon blocks of wood in their native country, and they should be nailed on to the insides of boxes in the dry season and sent home in this fashion. This is better than having them packed in shavings loosely, as in this way the leaves of such Orchids as *Phalænopsis* are liable to be bruised.—W. H. G.

SHORT NOTES.—ORCHIDS.

Vanda Denisoniana (*C. Brooks*).—This is your plant. It will grow very well potted in Sphagnum Moss, well drained. It likes a fair amount of moisture to the roots and in the atmosphere, and at no season should it be quite dried off.—W.

Cattleya flowers (*Subscriber*).—The flower marked No. 1 is a white Trianae, saving just a delicate flush of lilac in the front of the lip. It is, however, very slight, but it is enough to prevent your calling it alba; this form I have seen called *virginialis*. Your No. 2 is an ordinary form of *C. Trianae*.—W.

Orchids from seed.—Will any Orchid grower give me a few hints on raising Orchids from seed, principally *Dendrobiums*? also the length of time taken in development of the seeds? I have several *Dendrobium* blooms which have been fertilised with the pollen of other varieties, and so feel curious to know whether it is worth while saving them.—W. H. H. T.

Oncidium splendidum (*Thos. Hammond*).—This is not so fine a variety as I lately received from Mr. Gribble. It looks as if the plant had been wintered too dry and too cold. This species, I imagine, should be wintered with the *Cattleyas* of the *Trianae* section, and it should be carefully watched and not allowed to suffer from want of water. During the summer season it requires an abundant supply. I shall be glad to see flowers from this plant another season.—W. H. G.

Cypripedium Sedeni.—This plant the longer it is known, the greater a favourite it becomes. In a letter recently received from "C. S.," I am asked what is the usual number of flowers for this variety to carry upon a spike. I do not remember to have ever seen more than eight blooms open at once, but "C. S." says he now has a plant with seventeen blooms on one spike. He also says the plant grows very freely and will take any amount of water provided the drainage is good.—W. H. G.

NOTES OF THE WEEK.

Tufted Pansies in pots.—We have received from Messrs. Dobbie and Co., Rothesay, flowers of several varieties of tufted Pansies arranged on a background of Maiden-hair Fern. They are very beautiful in this way. Messrs. Dobbie in a note say that they have 200 plants in 6-inch pots coming into bloom in a cold greenhouse. We should expect they would make pretty plants for forcing. Amongst the best sent is our favourite Quaker Maid, which seems to have all its charms in this way.

Primula verticillata from Abyssinia is one of the finest species in flower at present. Its large white mealy leaves and bunches of sweetly-scented bright yellow flowers enhance its value for greenhouse decoration. A few plants will scent a whole house, and as it needs very little attention and may be grown in a warm frame, it need not be so rare a plant as it appears to be at present. *P. denticulata* is opening outside and in full flower in cold frames. It is one of the most easily managed and never disappoints; *P. obconica* and *P. floribunda* are both in full flower as well as the new *P. Forbesi* from Yunnan, where it is found in marshy places near

Tali. We believe it is an annual only, but a very fine one. The flowers, larger and brighter than those of *P. cortusoides*, are borne in three or more whorls and the leaves are not cordate at the base.

Narcissus Countess of Annesley.—For growing in frames for early flowers, I quite agree with "F. W. B." that Countess of Annesley is by far the best *Narcissus* along with Golden Spur and Horsfieldi. Outside here *Narcissus minor* was the first to bloom, and *pallidus præcox* from the Pyrenees the next. Sir Watkin and our own wild pseudo-*Narcissus* promise to follow very shortly.—R. MILNE-REDHEAD, *Clitheroe*.

Saxifraga Malvi.—The original *S. Malvi* is a dwarf form of *S. aizoon*, and as such is well known. The new plant is no doubt *S. luteo-purpurea*, which has been going the round as *S. Frederici-Augusti*, and we have also received it from the Continent as *S. scarellica*. It is annoying, after bestowing time and attention on a plant in coaxing it to flower, to find you already have the same thing in quantity. This plant may have been raised by M. Maly, but if so it only proves that *luteo-purpurea* is a hybrid, as described by Lapeyroux long ago.

Osmunda palustris.—Not almost, but altogether as hardy as *O. regalis*. I found it years ago on a bank, rather dry at the time, near Petropolis, Brazil, growing with *Zygopetalum Mackayi*. For ten years I have had it growing here close to running water side by side with its congener, *O. regalis*, and dying down like that species with the first frosts of autumn; whereas in a conservatory it preserves its reddish stipes and fronds until the fresh green fronds come up in March.—R. MILNE-REDHEAD, *Holden Clough, Clitheroe*.

Draba Mawi.—This, which we lately saw flowering under glass, is certainly one of the most charming of a very interesting genus. The flowers are larger than is usual in a *Draba*, pure white, and the small rosette of bright green leaves forms a close compact tuft. It is a native of Spain, and was introduced about 1873. It will be found a most useful rock plant and perfectly hardy. The old *D. aizoides* is a most attractive plant, which never fails to arrest attention. It is a native of our own island, and is best established by sowing seeds where it is wanted to grow. *Draba aizoon* is a very dwarf free-flowering species. *D. alpina* is also well worth cultivation.

Adiantum capillus-Veneris imbricatum.—We have received from Messrs. Dickson, of Chester, a specimen of the above named beautiful variety. It will be valuable for the cool fernery, because it will stand with impunity the hard weather and cold in our southern and western half of the kingdom. The fronds are rich in colour, beautiful in form and arrangement, and the plant, although strong and robust in habit, is yet very graceful. The plant is superior to the variety *cornubiense*, and we hope to see it become popular. It has been awarded a first-class certificate by the Royal Horticultural Society.

Eccremocarpus scaber.—This proves to be quite perennial in a warm raised border of loamy well-drained soil at the foot of a wall, for during the past two severe winters it has not been protected in the slightest. The seeds, too, appear to retain life and power to germinate under full exposure, for at the present time there are hundreds springing up all round the base of the old plant. This is a valuable plant where climbing things of annual character alone are needed. Its flowers are pretty, profusely and continuously produced over a prolonged period.—A. H.

Acacia pulchella.—In a small state and when grown in pots, this *Acacia* is not found to be so useful as *A. armata*, *lineata*, *Drummondii* and some others. It appears to be only when planted out and when it has been allowed to reach a height of 6 feet or more that its full capabilities are displayed. Judging by a plant about 15 feet high in the temperate house at Kew, it is, in horticultural value, second to none amongst the *Acacias*. Not only are the profusion and beauty of its flowers remarkable, but combined with them is foliage as feathery and elegant as that of an *Adiantum*. Un-

like so many of the Australian *Acacias* whose foliage consists of flattened petioles (known to botanists as phyllodes), the leaves are fully developed, being pinnately divided and sub-divided into minute leaflets. The flower-heads are globular and of a bright rich yellow. The cultivation of these *Acacias* when planted in the conservatory border is of the simplest kind. Success may be said to depend on their having a sunny position, a well-drained soil, and a regular moistness at the root throughout the year.

The garden at night.—I was much pleased with Mr. Burbidge's account of the garden by night, but surprised to find that he omitted all mention of the *Yucca*. That can only be seen in its full beauty at night. It was made for the moon as the *Heliotrope* is for the sun, and its bells become stars at night. They open to welcome their own moth (*Pronuba yuccosella*), but it is far away in Texas, and no British moth seems able or willing to take its place. See a striking account of the *Yucca* by night by Margaret Fuller, quoted in "A Year in a Lancashire Garden," page 91.—HENRY N. ELLACOMBE, *Bitton Vicarage*.

Violets from Gunton.—I enclose bunches of Comte de Brazza, Marie Louise, Neapolitan, and De Parme Violets. De Parme is a welcome addition to the other and better-known varieties, being very vigorous and free flowering. Neapolitan is still a decided favourite; none can surpass or hardly equal it for sweetness. Artificial heat from fermenting material or hot-water pipes is entirely superfluous in the hardest winters, a cold frame lined with dry straw, Furze, or Fern, and covered over with bass mats and straw hurdles being all that is necessary. Thus treated in sharp weather the plants keep in robust health, giving flowers with far more size, substance, and colour than those that have been treated to a higher temperature.—WILLIAM ALLAN, *Gunton Park*.

** We have not seen any Violets so beautiful.—ED.

Camellias at Tayside Gardens, Perth.—By this post I forward a photograph of one of the *Camellias* in the gardens here. It is not so well taken as I would wish, but the enclosed clipping from one of the local newspapers will give you an idea of its size:—

The fine collection of *Camellias* at Tayside, the residence of Mr. Robert Pullar, is now at its best. There are several large trees loaded with blooms, the largest being a magnificent plant of the old double white variety, *alba plena*. It has a circumference of 36 feet, a diameter of 12 feet, and is 12 feet high. It is completely crowded with flowers, there being about 3000 blooms altogether. The tree is remarkable not only for its dense mass of flowers, but for the perfection of the individual blooms. There are two other trees almost as large, and with even finer flowers. Besides these trees of the old white variety, there are several other varieties in full bloom.—A. McDONALD.

Mina lobata.—It was thought by many and has been said in the pages of THE GARDEN that this annual climber was hardly likely to ripen seeds in our climate. It has apparently done so with me, but not expecting anything of the kind, they have been lost. Recently when pruning some *Roses* on a wall I pulled off some dead shoots of this climber that had clambered up the *Rose* last season, and I found several of the forked flower-spikes with here and there a seed-pod attached. Upon opening one it was apparent that there had been good plump seeds, but of course they were rotted by exposure to wet and frost. The present is a good time to raise this plant. Some seeds sown in fine soil and placed in a gentle hotbed a week ago were up in a few days. As soon as large enough they will be potted singly into small pots and later on shifted into 4½-inch pots. In these they will make good plants. It needs very careful hardening off and must not be planted out too early.—A. H.

Dendrobium Harveyanum.—When passing through the Orchid houses of Messrs. Veitch and Sons at Chelsea some time ago the flowers of a very scarce *Dendrobium* (*D. Harveyanum*) arrested my attention. This rare plant, which was accidentally introduced in the year 1883 by the Liver-

pool Horticultural Company from British Burmah, flowered for the first time in May of the same year in the collection of the late Mr. Harvey, of Aigburth, near Liverpool, who purchased a lot of *D. thyrsoiflorum*, among which the new species *Harveyanum* was found. Its blooming season is from March to July, the colour of the flowers being a uniform canary-yellow. The petals are ornamented with a fringe in the same way as the labellum of *D. Brymerianum*, only not quite so long; the lip is also fringed, but this character is less conspicuous than on the petals. The plant flowers on both the old and new bulbs, each of which is from 10 inches to 15 inches long. Each spike bears from eight to ten flowers individually about 2 inches in diameter. *D. Harveyanum* does well under the same treatment as *D. thyrsoiflorum* and *D. densiflorum*.—M.

Kennedya lilacina.—At this season of the year the brightness of our greenhouses is in no small measure due to the leguminiferous plants of Australia, and it is to this class and country that the *Kennedya*s belong. Properly speaking, the plant under notice is a *Hardenbergia*, and nearly related to, if not a variety of, *H. monophylla*. The two genera are, however, very much confused, and the name given above is that under which it is known in English nurseries. The leaves are broadly ovate and from 2 inches to 3 inches long; they are of a rich green, stout in texture, and strongly netted with veins. It is from their axils that the short, densely-flowered racemes proceed, each measuring 2 inches or 3 inches in length. The flowers are individually small and of a pale purple or lilac. In a small state this charming little plant should be trained upon a trellis and accommodated on the greenhouse shelf. When large enough, it may be used as a roof climber, its abundant flowers rendering it very pretty during the months of March and April. The soil in which it succeeds best consists of three parts peat to one of loam with abundance of silver sand.

Rhododendron Veitchianum.—The white-flowered species of *Rhododendron* form a considerable portion of the genus, and from the stately *R. Aucklandi* down to the dwarf bushy *R. ciliatum* they maintain a high degree of beauty. In no species, however, is a higher type seen than in *R. Veitchianum*, which is now at the commencement of its flowering season. It was introduced from Moulmein about forty years ago by the firm whose name it commemorates, and was shown by them in flower at a meeting of the Horticultural Society in May, 1857. The flowers are borne in terminal clusters, three or four occurring together. The corolla is somewhat funnel-shaped, measuring 4 inches or more across the mouth. With the exception of a patch of pale yellow on the upper side the flowers are pure white, but what adds so much to their attractiveness, and distinguishes them from all other white-flowered *Rhododendrons*, is the crisped margin of the corolla. In habit, this species cannot be described as coming up to the model that gardeners desire, being rather sparse of foliage and of somewhat scrubby habit. It is a mistake to class it amongst the half-hardy kinds, as is done in some horticultural works; it should rather be given warmer treatment than most of the cool greenhouse species require. It is a remarkably free-flowering plant.

Brassia Lawrenceana.—An example of this old Orchid was exhibited at the Drill Hall, Westminster, on March 22, coming from the Cambridge Lodge collection. It was well grown and flowered, and clearly showed the value of the *Brassia*s, even at this date, when so many more competitors for public favour exist than was the case at the time of their first appearance in Britain. Whilst several species of *Brassia* show a very marked family likeness, and are, indeed, somewhat difficult to distinguish from each other, the genus itself stands out conspicuously, by reason of the remarkable shape of the flowers. The enormous length of the sepals furnishes a character which is only seen elsewhere in *Masdevallias*, a group in other respects very distinct. *B. Lawrenceana* is a species named in compliment to Mrs. Lawrence, who first flowered it in her famous collection of plants at Ealing. Mr.

Measures' plant carried a spike of seven flowers, the vertical diameter of each of which was 10 inches. In a variety figured by Sir Joseph Hooker and named *longissima*, the diameter from the tip of the upper sepal to the tips of the lower ones is close upon 15 inches. At the base the sepals and petals are scarcely half an inch in diameter, tapering gradually upwards to a point. In colour they are orange-yellow, with a few conspicuous blotches of cinnamon-brown near the base. The lip is about 2 inches long, tongue-shaped, and of a pale, creamy yellow, shaded with green towards the column. The typical form was introduced from Brazil in 1839; whereas the variety *longissima* is a native of Costa Rica.

Calanthe striata.—Of the evergreen *Calanthes* at present in cultivation (which do not, however, by any means include all those that deserve to be grown) *C. veratrifolia* is the most useful and widely known. Next to it in value come *C. masuca* and *C. striata*, the latter a Japanese species now in flower at Kew. It has deep green leaves 6 inches to 10 inches long, plaited, and with the lower part narrowed into a petiole. The spike is a foot in height, springing from the centre of the new growth and carries about ten flowers. Each of these is about 1½ inches in diameter, the sepals being of a brownish purple in the centre bordered with yellow; on the outside they are entirely yellow. The lip, which has the deeply three-lobed character common to this part of the flower in all *Calanthes*, is of a beautiful primrose-yellow. This Orchid should be grown in a compost of fibrous peat and loam, with chopped Sphagnum and a little silver sand added. During the period of growth an intermediate temperature is preferable, but at other times the cool house suffices. Like all the evergreen *Calanthes*, it should be kept moderately moist even when at rest. It must be one of the first exotic Orchids ever figured by European hands, Kämpfer, a physician who was attached to the Dutch Embassy at Japan in 1690, having made a drawing of it about that time. It appears to be common near the town of Nagasaki, in Southern Japan, which ought to make it better known in English gardens than it is. It was introduced to Europe some time during the fourth decade of the present century.

Schizocodon soldanelloides.—In 1889 lovers of hardy plants were on the tip-toe of expectation on the introduction of the rare and beautiful *Shortia galacifolia*, which we are glad to say is now fairly plentiful in gardens and promises to stay with us. We have now the pleasure of announcing the introduction of a closely allied and equally beautiful plant from Japan, and which has now flowered for the first time in Europe, so far, at least, as we know. The introduction of the *Schizocodon* is due to the exertion of Captain Torrens, who appears to have a genuine love for these alpine plants. He found the plants growing beside sulphur springs in Japan, and after carrying them many hundreds of miles, succeeded at last in bringing home three or four living plants. This species was first found by Professor Zuccarini in the mountains of Japan and named by him as above, in 1843, from the *Soldanella*-like appearance of the flowers, and in which it differs from the *Shortia*. Some years later Dr. Maximowicz found what he considered two new species, one of which (*S. uniflorus*) was recognised by Dr. Asa Gray as his *Shortia galacifolia*, and *S. ilicifolius*, which is near, if not identical with, the original *S. soldanelloides*. The natural order to which the *Schizocodon* belongs contains only six genera, five of which are now in cultivation—*Pyxidanthra barbatula*, *Diapensia lapponica*, *Shortia galacifolia*, *Galax apophylla* and the subject of our note, all of which are growing in the alpine collection at Kew. *Berneuxia* is not, we believe, represented in cultivation, but as it also is worthy of a place among our choice plants, we hope soon to see it in a living state. Captain Torrens showed the *Schizocodon* in flower at the Crystal Palace last Saturday. The flowers are like those of a large *Soldanella*, prettily fringed, deep rose in the centre, passing into blush or almost white towards the edges. The leaves are similar to those of *Galax*, but dark

green, and produced from stems at present 2 inches to 3 inches long instead of from the ground, as in the other genera mentioned. The plants are, unfortunately, very weak after such a long journey, but a year may prove sufficient to get them into a robust growth. It evidently requires much the same treatment as the *Shortia*, and will not stand coddling.—D. D.

SOCIETIES AND EXHIBITIONS.

CRYSTAL PALACE SPRING EXHIBITION.

MARCH 26.

THE display of spring flowers on this occasion was one of the best ever held at Sydenham, being a considerable advance upon that of last year both in point of quality and quantity also. The exhibition of *Cyclamens* from the well-known trade growers was quite a show in itself, whilst *Lilies* of the Valley were present in profusion. Miscellaneous groups were likewise very important features.

In the competing classes Messrs. H. Williams and Sons, Fortis Green, East Finchley, were the most successful exhibitors of *Hyacinths*, *Tulips*, and *Narcissi* in the open classes. The *Hyacinths* shown by this firm were remarkably good, the spikes massive and the foliage not drawn up, the plants presenting a sturdy appearance. No novelty was noted amongst these, the standard kinds being well represented, a few of the best being General Havelock, King of the Blues, Lord Derby, and Koh-i-noor. The same remarks as to growth apply to the *Tulips*, the flowers also being of fine proportions. The best sorts here were *Rouge Luisante*, *Ophir d'Or*, *De Keizer*, *Cerise Grisdelin*, *Van der Neer*, and *Van Spindonk*. Amongst the *Narcissi*, that fine variety (all too scarce as yet) *Bazelman major* was the best of the light colours, the yellows being also well represented. Mr. Shoesmith, Shirley Cottage, Croydon, was a good second for *Hyacinths*, the other competitors only showing examples of medium merit. Mr. Shoesmith was first in the amateurs' classes for *Hyacinths* with another good display, the plants dwarf and sturdy. For *Tulips* and *Narcissi* the same exhibitor was well in advance of all others. The best of his *Tulips* were *Proserpine* and *Joost van Vondel*, and of the *Narcissi*, *Empress*, *Emperor*, *Golden Spur*, and *Queen of the Netherlands*.

For *Cyclamens* the first prizes in both the open and the amateurs' classes were awarded to a private grower, Mr. Phillips, Langley Broom, Slough, to whom great credit is due for having beaten such well-known growers as Messrs. Edmonds and Odell, who were second and third respectively. Mr. Phillips was well in advance of these growers; his plants were larger, the variety of colour better, the dark kinds being particularly fine, whilst they were most profusely flowered. For *Cinerarias*, Mr. Ford, Wexham Park, Slough, was an easy winner in point of size and profusion of bloom, although some smaller plants more generally useful for decoration were shown by another grower, Mr. J. Slater, York House, Sydenham. Mr. Ford's plants were large, some 2 feet in diameter, bearing very fine blooms, stronger in dark than in light kinds. With *Amaryllises*, Messrs. Paul and Son, Cheshunt, were placed first with good forms of their well-known strain, no other exhibitor staging in either class. *Mignonette* was shown in first-rate condition by Mr. W. B. Morle, Regent Street, W., and Mr. Stansell, Shepherd's Bush, W., both showing plants of the usual market style, compact in growth and freely flowered, the variety being in each instance of the French *Machet* type with large dense heads. For Tree *Mignonette* there was no competition, a matter to be regretted considered from a cultural point of view, it being a good test of an exhibitor's ability to produce this in the best form.

Lilies of the Valley were shown exceedingly well by Mr. Morle and by Mr. Jannoch, of Dersingham, Norfolk; the former complied strictly with the schedule and won, the plants being in very good

form and freely flowered, but the latter had exhibits with more vigour, the spikes and bells being finer. These latter were shown in wide pans, thus making a better show; the schedule, however, specified pots, hence the former won. In the amateurs' class, Mr. Lambert, Herne Hill, showed six nicely-flowered examples. For greenhouse Azaleas Mr. Nunn was first. This class demanded twenty-four plants, the number being evidently a tax to the exhibitor, who was weak in his smallest plants. Those from Mr. Wells, Longton Nursery, Sydenham, were more equal in this respect, the varieties also better, but not, as a whole, so fully advanced in flower. For a group of stove and greenhouse flowering and foliage plants, Messrs. J. Laing and Sons were worthily awarded the first prize, showing a well-grown, healthy lot of plants, the flowering plants consisting of *Rhododendron Veitchianum*, a fine plant; varieties of *Clivias*, which were most effective; several good types of *Amaryllis*; dwarf Azaleas, freely-flowered; with a few good Orchids, including *Cattleya Mendeli* and *Oncidium Cavendishianum*. Palms and Ferns, with *Crotons* and *Dracenas* of good colour completed a fine group of plants. Mr. James, Castle Nursery, West Norwood, was a good second, but his group lacked the brightness and fresh look of the first prize lot.

Miscellaneous exhibits were very numerous, and added greatly to the display. Of these, the *Cyclamens* formed a show in themselves, a finer lot of plants being rarely brought together; these came from such well-known growers as Mr. Petridge of Brentford, Mr. Odell of Hillingdon, and the St. George's Nursery Company of Hanwell. The plants in these large groups were profusely flowered, all being of dwarf and compact growth with great variation in colour from the deepest shades to the purest whites. The largest and possibly the best of these collections was that shown by Mr. Odell, in whose group the darkest shades of colour were especially noteworthy. From Messrs. B. S. Williams and Son came a large and choice group of plants in bloom, consisting of the best types of *Clivias* in most vigorous health. Of these, *C. robusta*, *C. aurantiaca*, *C. Meteor* (a fine dark form and very distinct), and *C. Lindeni* were the best. With these were dwarf and profusely flowered bushes of *Azalea mollis* in which the variation in the colours was excellent. The soft shades of colour in these Azaleas make them especially valuable for early flowering either when used in a cut state or for the decoration of the conservatory. *Rudaea macrophylla*, a plant seldom shown, was also included; it bore one dense cluster of pure white flowers with handsome dark green leaves; also the dwarf type of *Euonymus japonicus* called compactus, previously described. A few good seedling *Amaryllises* were likewise shown, one of the best being *Ophelia*, in which the central portions of the petals were nearly white, deepening to a rich lake at the edges, a very distinct and noteworthy variety. Messrs. W. Paul and Son exhibited several boxes of cut examples of *Camellias*, the blooms being very fine; the best of these were *Mathottiana* (in fine character), *fimbriata* (the finest of the whites), *Beauty of Waltham* (a delicate pink), *Adamo* (light pink with darker stripes), *Rose de la Reine* (a dark red), and *Montirioni vera* (a good light); with these were included some baskets filled with small plants of Hybrid Tea Roses *Lady H. Grosvenor* and *White Lady*, two valuable new kinds; also plants of *Clematis indivisa* in profuse flower, showing the extreme usefulness of this variety for a cool house. Nothing in its way could be choicer than this *Clematis* when thus grown.

A very remarkable exhibit was the fine group of Lilies of the Valley from Mr. Jannoch, of Dersingham; these consisted of masses of crowns in fine flower, arranged apparently before being started into growth into the various styles in which they were shown. Some were in the form of pyramids, looking very handsome, although massive; others were in ornamental baskets just suited to the drawing-room. These Lilies were particularly noteworthy for their close compact growth and the long spikes with large bells (silver medal). From Messrs. Cutbush and Son came an extensive group of greenhouse plants in flower, consisting of such

as *Epacris* in good variety, early spring *Heaths*, *Boronias* and *Acacias*, all being of useful decorative size. Dwarf *Calla Little Gem*, and a good type of dwarf *Mignonette* were here to be seen, making in all a group of much interest, containing only plants of serviceable size. Messrs. Paul and Son had an extensive display of pot *Roses*, which contained, besides many which had been previously noted at the Royal Horticultural Society's meeting, fine plants of *Celine Forestier* and *Violette Bouyer*, a fine light *Rose*. Both Mrs. Paul (Bourbon) and *Souvenir de S. A. Prince* (Tea) were again in good form. *Lilac Marie Legrange* bids fair to be a fine white for forcing, being here shown well; several standards of *Genista Andreana* and dwarf *Azalea mollis* were also included. Mr. T. S. Ware showed a large and fine collection of *Daffodils*, *Chionodoxas* (extra fine), and *Scillas*, with early *Irises* and *Anemone fulgens*. Of these the following were the most noteworthy: Of *Daffodils*, *Golden Spur*, *Emperor*, *Empress*, *princeps*, *bicolor Horsfieldi*, *Barri conspicuus*, and *Johnstoni*, a small pale kind; *Iris reticulata* and *I. Rosenbachiana*, with *Scilla bifolia alba*. Messrs. J. Peed and Son showed a good arrangement of cut flowers in choice variety and not in such a conventional style as is so often seen; these consisted of beautiful examples of a wreath and a cross, a bouquet composed of blooms of *Dendrobium Wardianum* and *D. nobile*, a pretty combination, and another of the *Flamingo Flower* (*Anthurium Scherzerianum*) with various tasteful arrangements of a minor character. From Mr. F. End came another exhibit in this way, which contained a somewhat novel bouquet of very free arrangement; this, although large, was of light appearance; the long trails of small flowers were, however, carried to the extreme.

A full prize list will be found in our advertising columns.

International horticultural exhibition.

The great international horticultural exhibition, which opens at Earl's Court on the 7th of May and continues open for six months, promises to be very interesting. We learn that the space is being rapidly taken up and that a comprehensive prize schedule has been compiled. Plants and flowers from all parts of the world will be grouped for effect both indoors and out. There will also be exhibits of all objects and appliances that tend to enhance the beauty of a garden, or that are necessary to its working. In addition to the money prizes, which are on a liberal scale, medals (both gold and silver) will be awarded to noteworthy subjects. The entire net profits will be devoted to such gardening institutions as the committee may select.

RIVIERA NOTES.

TO THE EDITOR OF THE GARDEN.

SIR,—Each year, I think, shows some fresh development of flower culture on these favoured shores, and the constantly improved means of transport and consequently increased demand for cut flowers must stimulate growers to fresh efforts, which sometimes deserve chronicling. After the ubiquitous *Anemone* and yellow *Acacia* called *Mimosa*, which have been the staple products of February and early March, the *Tree Carnation* is now the most abundant flower. Most brilliant in its varied hues of red, white, or yellow, art has been called in to produce a green flower. I cannot say the result is successful, because, like the *Tulip*, which is said to show its future featherings when its stalk has been soaked in dye, the *Carnation* comes out in an eruption of green spots or stripes, and does not present a smooth and delicate shade of colour which might perhaps be admissible. Nature, luckily, still possesses the monopoly of delicate colouring, and one new *Carnation* with a pale primrose eye, gradually deepening to bluish-pink at the edge, is a most lovely thing and is quite the rage for bouquets, combined with *Nasturtium* flowers and brown *Tea Rose* shoots.

Iris susiana it now grows in great quantities and used in combination with brilliant colours with much effect. Another flower of unusual colouring

is also used to tone down the fierce reds of *Anemones* and *Ranunculi*. It is, I think, *Gladiolus tristis*, or some hybrid between that and *G. Colvillei albus*, with long spikes of greenish white lilac-tipped flowers, bigger by some way than those I have mentioned, and with six or eight flowers out at one time, but with a considerable space between each bloom, so as to give a very graceful effect when cut with a good stem. In villa gardens the masses of *Freesias*, *Ixias*, *Tritonias*, and *Cape bulbs* generally are very prettily carpeted with the grey-green *Lichen* so abundant among the *Heather*, and I think the idea well worth copying at home. Under shrubs and in deepest shade *Primula obconica* proves a most useful and elegant plant; the sheets of mauve stars among the dark green shrubs are wonderfully pretty, and show how effective *en masse* an individually poor flower may prove. Now and then one sees some happy combination by hazard, and when, for instance, the ground under flaming *Pyrus japonica* bushes and golden *Forsythia* tangles is covered with the milk-white *Triteleia uniflora* in fullest flower, the only wonder is, why did not anybody suggest the combination long ago? It is lovely. Beds of *Cyclamens*, *Cinerarias*, *Tulips*, *Forget-me-nots*, and all such common-place beauties pale before it. E. H. WOODALL.

PUBLIC GARDENS.

The purchase of Hackney Marshes.—The Parks Committee reported that the offer of the Council of £50,000 for these Marshes had been refused by the Lord of the Manor.

Allotments at Hampton Court.—Mr. H. W. Primrose, Secretary to Her Majesty's Board of Works, has written to the Hampton Wick Local Board announcing that the Commissioners are prepared to let six acres of land in the Home Park, Hampton Court, for the purpose of allotments, at a rental of £2 per annum, and that if there should be a pressing need for additional land, a proposal to extend the area may hereafter be considered.

Open space in Pimlico Road.—The Committee of Works of the St. George, Hanover Square, Vestry submitted the following recommendation: "That an offer from Mr. H. T. Boodle, on behalf of the Duke of Westminster, to lease to the Vestry, for 30 years, from Lady Day next, at a peppercorn rent, the piece of land lately occupied by Nos. 32 to 40, Pimlico Road, and Nos. 241 to 247, Ebury Street, subject to conditions named in the letter, be accepted, and that the ground be laid out as an open space in accordance with the terms proposed;" and a further letter in which Mr. Boodle stated that the Duke of Westminster would be happy to contribute £250 to the cost of laying out the ground if the site was accepted. The offer was accepted.

Sulphurous acid and plants.—Some two months ago a builder was employed to clean the paving tiles in a conservatory under my charge. Since that time I have not been able to keep any bloom fit to look at in the place. *Primulas*, zonal *Pelargoniums*, *Cinerarias* and fine heads of *Azaleas* have been alike dried and shrivelled in a few days, and even strong *Arum Lilies* have been quite spoiled. *Acacias* (of the *lophantha* type) lost every leaf in three days and became nothing but sticks. I have since ascertained that sulphurous acid was the solution used for cleaning the tiles, and the only conclusion I can arrive at is that the tiles still retain the acid, the fumes of which injure the plants. I found the damage to be greatest when I was unable to open the ventilators on account of severe weather. Possibly some reader of THE GARDEN may have had a similar experience or be able to inform me of some remedy. I am informed that free ammonia or strong soda will kill the acid, but I am afraid that either of these remedies would tend to make matters worse.—T. R. S.

WOODS AND FORESTS.

TREE MANAGEMENT AROUND LONDON.

THE management, if such there be, of trees both individually and in masses around London is carried out in a most unsatisfactory manner. Travel where one will, the most appalling neglect of our larger growing trees is evident. Here they are allowed to grow so thickly together that one fair-sized tree would alone, if allowed plenty of room, take the place of at least three, while adjoining this we find the pretty graceful Lime hacked and cut about. But this is not all, for even in the squares of London the practice of indiscriminate pruning that is permitted in certain quarters is worthy of the most severe censure. There is no excuse, however, for this bad management of trees and shrubs. True enough, it is not every gardener who understands the management of trees, and to keep a man who does, becomes rather expensive, so they are left to Nature, "the survival of the fittest" going on from year to year. On large estates the management of trees and woodlands is always better attended to, my remarks being more suitable for the hundred-and-one petty properties that occur around the metropolis.

Neglected woodlands, badly-pruned trees and shrubs, and dead and dying branches have anything but a pleasing appearance, and render that part of the country in which they abound of far less interest than would otherwise be the case. To see a number of gaunt branchless stems with only a tuft of verdure atop, as is, unfortunately, too often the case in Kent at least, augurs of no good, for either the place must be wholly deserted, or the owners dead to their own interests and the interests of their trees and property.

But the haphazard method of dealing with trees in general and the bad system of pruning (where this is required) crops up on all hands, for it was only the other day that I noticed for about a couple of miles along one of our principal roads the most objectionable and unworkmanlike plan in removing large branches, that were interfering with the telegraph wires, that it has ever been my lot to witness. Fine old Oaks and gnarled highland Pines were treated alike, the branches on one side, big and small, being sawn through at any convenient distance from the stem and allowed to tear the bark from the under sides of the branches, an evil that might readily have been prevented had a skilful man been employed. So ruthless a system of removing branches is, fortunately, not very commonly practised, and, for the appearance of the country, the seldomer the better. By removing or foreshortening a few of the branches of these very trees equally on both sides of the stem good results could have been attained in so far as the wires were concerned, while for the look of the specimens, it would certainly have been far preferable. Sawing half through the heavy branches on the under sides would also have been a matter of no great difficulty, and so prevented the splitting and rending of both wood and bark, which impart so unfinished and so unworkmanlike an appearance.

The annual unmerciful pruning to which the Limes around London are subjected is very deplorable, and can nowhere be so commonly seen as in the southern English counties. If owners of small properties could only be made aware

of the fact that the Linden is one of our largest-growing forest trees, matters might gradually mend; but the treatment the tree generally receives places it only on a level with the Thorn, Privet or Hornbeam. Now is the time to see this annual pruning of the Lime going on, and a sorry sight it is to watch the wielding of the bill-hook in depriving this most graceful of trees of its natural beauty in leaf and branch. Did any good result from this unnatural method of treatment I would be silent, but to see, as one commonly does, lines of shorn stems looking like so many worn-out mops, and with great ugly protuberances that have been brought about by the annual shearings, is certainly anything but agreeable. Where houses are built within a short distance of the public road, it is a very common fashion to plant a line of Limes along the roadside. These are allowed freedom of growth for the first half-dozen years. After this the beheading system annually takes place, every branch being chopped off close to the stem and the upward growth arrested by the same method, until in the end the trees look the picture of wretchedness, being simply bare stems surmounted by distorted heads of ugly protuberances. What pleasure or advantage can be derived from such a method of tree management I am at a loss to know, and certainly the little shade given by these mutilated trees can be of small value. At the outset, it would have been a far wiser course to have planted, say, two trees instead of every twenty, and allowed them to grow in the way intended by Nature. Pruning either trees or shrubs requires nice discrimination and a great amount of education in the use of the pruning knife or saw. One man will remove a great many unwieldy branches in such a way that their loss is hardly apparent, while another, by his barbarous use of the pruning tool and uneducated eye in such matters, does an irreparable amount of damage to the trees, and offends the tastes of those who understand such matters. Shrub-pruning if not done by a person well up in such is so much lost work, for it is not everyone who knows the individual shrubs that flower on the old, and such as flower on the new wood, and so if the work is ignorantly gone about, the results achieved cannot be at all satisfactory. In a big mixed shrubbery in London I saw a man cutting in, pruning I cannot call it, each shrub with a methodical regularity that was quite enviable, no thought being taken that one shrub is totally different from another in its method of flower production.

One would naturally think that with the many pretty grounds that are to be seen in the metropolitan area and the wealth generally lavished upon plants, a better system of tree and shrub management would follow in the wake of gardening; but not so, for certainly I am not alone in saying that in so far as tree and shrub management is concerned, the example shown by dwellers in the outskirts of London is anything but worthy of imitation.

A. D. W.

The Spurge for coverts (*Daphne laureola*).—The Spurge, or Wood Laurel, forms a dense evergreen bush, from 3 feet to 4 feet high, with large, thick, glossy, dark green leaves, disposed in tufts at the ends of the branches; the yellowish green flowers are produced in drooping clusters of five. They appear in mild seasons soon after Christmas and continue until March, when they are succeeded by oval berries, green at first, but black when ripe, at which time they form a favourite food for many birds. The Spurge Laurel is not only a native of Britain, but of most other parts of Europe, in woods, and consequently

thrives best in the shade; it will grow under the drip of trees, where few other shrubs would, and although its flowers are not showy, it is a valuable plant for shrubberies and coverts. There is a variegated variety of the Wood Laurel which has its leaves more or less margined with pale yellowish white.—F.

The Platanus, or true Plane, of which there are two distinct species and several sub-varieties, *orientalis* being, of the two species, the hardier and handsomer, and *occidentalis* the faster growing, is one of the most free-growing, beautiful, and largest of deciduous trees, excelling alike in general style of growth, form, and tint of foliage, and density and beauty of yielded shade. It is an avenue tree of the very first class, but, as a possible requisite caution to planters, it is said, though liking good rich soil and objecting strongly to that which is dry or poor, not to succeed where the ground is very stiff and wet.

The Sweet Chestnut (*Castanea vesca*) well deserves a place in the landscape, both on account of its symmetry and beauty of foliage, flowers, and fruit. It becomes a large tree, and survives under favourable circumstances to an old age. Owing, however, to its tendency to become ring-shaken, which lessens much the value of its wood and shortens its existence, it is often preferable to plant the native Elms in its stead. The wild Cherry (*Cerasus sylvestris*) is also suitable for many parts of the sylvan landscape. It thrives under extremes of climate and in any soil, but does not well sustain the rigour of the sea breezes. It is also undesirable on account of its profusion of white blossom in spring, rich foliage in summer, and variegated shades in autumn. In favourable situations it becomes a tolerably large tree, and often attains a great age.

Seaside planting.—There is a variety of opinions as to the proper time to plant trees and shrubs, or perhaps, I should say, as to the different times at which they may be planted. Some say, "plant at any time," and this may succeed occasionally. But when one has 40 or 50 acres of ground to plant, midsummer is not the time one would choose for the operation. My experience points to early spring as the best time for seaside planting. Trees and shrubs planted in the early autumn are subjected to the whole of the winter's surly blast, which, in addition to the singeing they get from the salt spray, robs them of more than half their leaves. I am now alluding to situations very much exposed. With the shelter of a hill or of strong belts of plantation, I would plant in October rather than in spring, particularly if I were sure that the winter would be open. I have, however, planted young Austrian and Scotch Firs from the same nursery both in autumn and in early spring, and have found the spring-planted ones to succeed infinitely better than those put in in autumn, which got burnt so brown with salt spray as to be to all appearance dead, and, in fact, many of them were; whilst the spring-planted trees rarely turned a leaf, and failures among them were rare.—P. W.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols. price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; post, 1s. 3d.

No. 1664. SATURDAY, April 9, 1892. Vol. XLI.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ROSE GARDEN.

AMONG THE ROSES.

A FEW fine days made us busy among the Roses, and we were hoping that at last the winter had left us, but this morning (March 28) everything was again covered with snow, though happily it was a thin covering, that disappeared early. However, the season is far enough advanced and the Roses as well to enable us to ascertain the exact amount of injury received. This in my own case, as previously, is practically nothing worth mentioning. It has been a severe trial for anything of doubtful hardness to have to pass through two sharp winters in succession. It has killed in places where last year it spared, but weakened. A friend writing to me speaks of Roses killed outright, and I know that he does nothing to coddle the plants or pursue any system of culture likely to weaken them. We speak of absolute hardness, but it is only comparative after all, aspects and surroundings being factors of considerable influence. That being so, we may profit greatly by observing the varying conditions under which plants are grown and compare their behaviour. We know that the frosts hug the valleys and diminish in intensity at comparatively low elevations. Observations extended over several seasons clearly prove that in well-drained soil on an elevated site 25° of frost do not even injure, much less cripple Tea Roses. In this respect such kinds as Comtesse de Nadailac, Ma Capucine, Amazone and others are not worse than Marie van Houtte, Anna Olivier, and Mme. Lambard.

March and April are always busy months among the Roses, as pruning is carried on in both these months. Sometimes it is hard to restrain the desire to complete pruning at a much earlier date than is advisable if we would avoid great risks. Impatience is natural when we see, perhaps in March, buds bursting and betokening activity at the root. We are loth to see them expend their early energies uselessly. Our patience, however, will hardly be taxed this season, for rarely have Roses been so late. Even now buds are hardly moving upon wood that will be cut away. The pruning of wall Roses was completed early in March, as these must always have first attention. Upon one wall an enormous quantity of green-fly was hibernating; in fact, a sunny day, whilst pruning was going on, caused some to creep forth and show unmistakable signs of their readiness to pounce upon the first tender shoot that appeared. It is no matter for surprise that Roses are smothered with green-fly as soon as they have young growth upon them. A strong solution of soft soap and water will doubtless kill them readily in their present comatose state. If we can destroy them, we are giving our Roses a fair start and a chance to gain some amount of vigour wherewith to fight against insidious foes.

A bed of Monthly Roses best shows the backward state of Roses generally. Owing to its situation, the plants are hard pruned each year. This has already been done, but usually at this time much new life is apparent, as these Roses are amongst the first to shoot. They are very accommodating, because we can prune them as hard as we like or let them alone; in either

case flowers will be abundant. The pruning of Hybrid Perpetuals has been completed, all the long shoots of vigorous kinds being preserved for pegging down. Everyone growing Roses for pleasure, apart from exhibiting, should peg down the long shoots, because if they are shortened to a proportionate length, much good wood and many prospective blossoms are wantonly sacrificed. Ulrich Brunner, Mme. Gabriel Luizet, and Gloire Lyonnaise are examples of extra vigour, especially the last-named kind, each bush having several clean, straight, wand-like shoots 6 feet in length. In any case, whether a length of 2 feet or 4 feet of this growth be shortened back, only a few buds would burst and bear flowers, but the shoot pegged down to the ground will bloom at almost every eye.

After the pruning comes the digging, and its consequent injury and wholesale destruction of Rose roots. Let us dig as deeply as we like before we plant our Roses, but after and when they are established, let them alone. If we use a spade the roots are cut asunder, and a fork, though supposed to do less injury because it does not bring everything to the surface, tears many, and loosens their hold of the soil. It is a wonder that so many Roses survive such treatment. If the surface of the ground is hard and caked, nothing can be said against lightly breaking up the surface and making it more friable. If fresh food is to be supplied through the medium of rich manure, all the goodness it contains will be carried down to the roots by rain. There is no need to dig it in directly among the roots, as by such practice we discount considerably any good that may be done. The evils of the practice and the impossibility of following it out are more apparent in proportion as we mass or group our best Roses closely so as to secure the brightest effect that they can, and when so planted do give.—A. H.

— This is a very busy time for the rosarian both inside and out. Roses under glass are in full growth and are constantly demanding attention if one is to keep them in good health. Whether the plants have been forced since Christmas or only allowed to come on naturally in a cool house, there is ample work to attend to. It is during the changeable weather of this month that Roses are so often spoilt by the amateur and least experienced gardeners. The sun is often shining brightly for an hour or so at a time, and it becomes a hard matter to ventilate the house judiciously. There would be much less difficulty about this if the wind and air were not so keen. An hour of sunshine and the temperature rises with a bound, to fall again almost as suddenly when the sun is behind a cloud. I use very little fire-heat indeed during this month, generally letting the fires out early in the morning and lighting up again about six o'clock at night. By shutting the house up early in the afternoon and damping down the walls and walks slightly, one can secure a sufficiently high temperature until the pipes are able to replace it. It is less expense, both in time and fuel, to let the fires out during the daytime if one can manage enough heat by careful ventilation. When the house is kept up to the maximum temperature required by the use of fire-heat, it quickly gets too hot when the sun comes through for an hour or two. It is also quite natural for the house to be colder in the early morning than at any other time during the twenty-four hours, and the slight warmth given by stirring the fire up and then allowing it to burn out is generally quite sufficient for Roses during the months of April and May. Slight shading will be very beneficial, and as this can easily be applied so as to merely break the glare of the sun, I find it much better to have it done in time. My plan is to mix a little whitening with skim milk, and apply this with a brush. A very thin solution will suffice during these two months, and will be found

a great help in maintaining an even temperature. Much of the solar heat will be secured without the burning effect the sun has when shining through clear glass. Another advantage is the freedom with which you may use the syringe without fear of burning the young growth, and a gentle syringing during the hottest part of a bright day helps the plants a great deal, as well as moderates the temperature. When the glass is slightly shaded, it is not necessary to admit air so freely during bright weather, and this also is a great gain, because the outside air during these months is often very keen and will bring on mildew in an astonishingly short time. While the Roses are making healthy growths of considerable strength is the best time to afford them some assistance in the way of liquid manure. It is altogether wrong to give stimulants to weakly growing, comparatively speaking, dormant plants. Yet we often see this done, under the mistaken impression that the weaker subject is the one that requires it most. The exact opposite is the more correct treatment, as it is only the stronger growing plants which are able to utilise any liquid manures to advantage. Manure water is very apt to make the soil sour and stagnant, unless the roots of the plants are sufficiently vigorous to assimilate such food quickly. Both for healthy and weakly growing Roses the ammonia arising from an occasional damping down with liquid manure is very beneficial. Such assistance as this will often give the necessary impetus towards a healthy and more vigorous growth. I also find that the ammonia is useful in checking insects, and never consider that manure water is wasted when used in this manner. Do not be afraid to let the temperature rise as high as 80° or 85° Fahr. in preference to admitting any keen air upon a bright day. Provided the glass has been ever so slightly shaded, you may moderate the heat and ease the plants by a gentle syringing overhead; in either case, shaded or not, you can assist them by damping down the walks and surface soil as much as possible without sprinkling the foliage. Clear, soft water will be necessary for such syringing, and care must be taken that it is not used too cold. I would recommend that it never be colder than 65°.

As I have frequently advised in these pages, cold air and drought at the roots must be carefully avoided, or mildew is pretty sure to attack the plants. Nothing can be more injurious than this disease, and too much care cannot be taken in avoiding it. The frequent use of a weak solution of some reliable insecticide is the finest antidote that I know of, and this will always prevent the mildew from getting so firm a hold of the plants as would otherwise be the case. Sometimes the air comes in through a chink in the woodwork or bricks, also through the corner of a broken square of glass; any foliage near to these places is often attacked with this fungoid disease. Such foliage should be removed at once and destroyed. It will also be well to stop up the holes in some way. Roses are partial to fresh air, but it must never be colder than they have been used to, nor must it come to them in the form of a draught. Sooner than this, I would keep the house entirely closed.

There is also a great deal to be done in the outside rosery during April and May. The early part of April is the best month for pruning Roses in northern or cold and exposed situations, and is also the best time for the more tender Tea-scented and Noisette varieties even in warm and sheltered places, while the end of April is quite soon enough for this class if the situation be in any way exposed. Having pruned the plants, give the surface ground a light forking over again, and as soon as the eyes are pushing into growths of about 2 inches to 4 inches take the first seasonable opportunity to work the hoe among the plants. This will check any seedling weeds and at the same time assist the plants. Soon after the plants have reached this stage—which will generally be about the end of May—they are likely to be troubled with the Rose maggot or caterpillar. These must be hand-picked as soon as they appear. Many birds will assist in clearing off these enemies, and I have often watched the common house sparrow eating them. This bird is a great nuisance in many ways, but he has

his good qualities as far as the rosarian is concerned. The strange thing to me is, that when these birds have tasted the maggots they are positively ravenous after them, and yet in some seasons they do not seem to eat them at all.—RIDGEWOOD.

NEW ROSES.

EVERY year brings fresh candidates for popular favour, and all Rose lovers are more or less interested in them and eagerly anticipate seeing them either at the shows or in the nurseries of the noted trade growers. Many who never purchase novelties till others have tried and proved them manifest a desire to know what is new in order that their Rose knowledge may be up to date. Mr. William Paul, of Waltham Cross, has kindly sent me a box containing buds and blooms of five new varieties.

DANMARK, a new Hybrid Perpetual, is the most conspicuous among the blooms now before me, and undoubtedly it is a Rose destined to become popular. It was raised in Denmark, but distributed in this country through the agency of Mr. Wm. Paul. The form of the flower is most like that of *La France*, but in other respects Denmark differs greatly from that variety. It is a sturdy grower, with stout shoots that bear the flowers singly and boldly erect. They are of fine form and substance, the petals being large and thick. Mr. Paul says that "it opens out of doors in all weathers, and under glass it forces well." This last fact is proved beyond question by the blooms before me, and more, for it is unquestionably a good Rose for cutting. The long, stiff stalks amply support the blooms. The flower is of a rich rose colour, shading to pink at the edges of the outer petals, and is particularly brilliant under artificial light. Lastly, it has a delightful scent.

Whilst opinion is divided concerning the so-called Hybrid Teas and how and where they should be classed, new kinds of that type continue to come, and there are three now before me. The first is

LADY HENRY GROSVENOR, which will naturally be regarded with favour, as it is one of the late Mr. H. Bennett's kinds. Although he did not live to bring it before the public, it is evident that he regarded it highly, for he had worked up a large stock of it. The plants were moved so late last year that it was impossible to form a decided opinion as to the real merits of the kind, but in spite of adverse treatment it manifested great freedom of blooming. It is a promising garden Rose, and, like most of Mr. Bennett's sterling productions, will make a good group. It forces readily and throws fine flowers. A half-expanded flower before me is borne on a strong stout stem. It has very large petals, and is of a globular form. The colour is a pale flesh, deepening to a delicate pink internally. It most resembles Viscountess Folkestone, but doubtless is sufficiently distinct.

WHITE LADY.—This is not exactly new, but, on the other hand, it has not yet gained the amount of popular favour it is destined to enjoy. The advent and distribution of several sports which did not much differ from the parent naturally made people cautious, but none need hesitate as regards White Lady. Its flowers are creamy-white with a faint flesh suffusion upon the outer petals. They are large and massive, with thick fleshy petals, and decidedly handsome.

PRINCESS MAY is entirely new, and is not yet offered for sale. Mr. Paul says that it originated at Waltham Cross, is of semi-climbing habit, makes a fine pot Rose and forces well. Whether it originated as a seedling or a sport I do not know, but of the flowers sent a bud is very pretty and of a delicate pink colour, whilst a half-expanded bloom doubtless shows the true character of the variety. This is a pale flesh-pink, large and full, globular, after the manner and shape of Baroness Rothschild, but very sweet scented, and therefore likely to be valued on that account, apart from its other apparent merits.

MEDEA is one of the latest additions to the increasing, but none too numerous company of yellow Tea Roses. Its first great merit is that of being a vigorous grower, and we know of all Roses, but particularly Teas, that if we can grow a good plant, flowers in abundance will follow. The buds of this kind are charming in shape, having a full round base, but tapering gradually and gracefully to a high centre. In this state they are of a pale lemon-yellow colour. Expanded flowers become quite globular, are large and full, and deepen into a glowing shade of rich canary yellow. If the coming season is at all favourable for outdoor Teas, Medea will make a good impression. A. H.

Tea-scented Roses and their uses.—I quite agree with "A. H." (p. 247) respecting the outdoor merits of Tea-scented Roses, and when I remarked in a former article that the true beauties and charms of this class were generally found under glass, I was speaking of them as a class. I should be one of the last to depreciate the grand beauties of foliage and blossom often found among this section when grown in the open air, but it is necessary that we have fairly good weather before one can see these charms; whereas, under glass we can always secure the chaste and beautiful tints being kept pure and clean. There are a few varieties—Marie Van Houtte in particular—that are extra good out of doors, and which put on some charming tints towards the autumn, as well as coming deeper in colour than they would do under glass; but it is only now and again that we get such a summer for Tea Roses as 1887 was. *Perle de Lyon* has the finest foliage of any Tea-scented Rose and throws a good number of trusses, but unfortunately they do not open into flowers of any merit. As its foliage is so extra good, it is well worth growing on that account alone.—A. P.

Propagating Tea Roses.—The present is an excellent time for this operation where plants are forced under glass. Wherever a flower has been cut from a side shoot, the remaining portion of the lateral growth will form a good cutting. Any blind growths will also do for the same purpose, and as soon as they are about three parts ripened is the very best time for the operation. Prepare some pots of sandy soil containing a fair amount of leaf-mould, thoroughly draining these. Remove the cuttings with a small portion of the older wood attached if possible; if not, cut them off clean just under a leaf or joint. Do not remove more than the one bottom leaf. Insert them firmly, give a good sprinkling, and place them in some close propagating pit or frame. They should be kept perfectly close until rooted; after this has taken place, a little air may be given gradually until they are able to bear the full exposure. Pot on into the same compost, using this a little richer at each successional shift into larger sized pots. It will be well to partially shade the young plants for a short time after the first potting, but after this they may be treated the same as other Roses in pots. Many prefer Roses upon their own roots, and there is no easier plan of working up a stock of this class than by following the simple method here given; and at the present time, and for some two months to come, there will be many opportunities of securing serviceable cuttings. Plants struck now will make neat little bushes for transplanting during the next spring, and will be quite as hardy after a summer's growth as if they had been raised in the open air.—N. S.

Two good white Roses.—If one were tied to cultivating any one variety of white Rose more especially for forcing, I do not suppose he would choose any other than *Niphetos*. The two varieties that I propose giving a few remarks upon, however, do not include *Niphetos*; they are *Souvenir de S. A. Prince* and *The Bride*, probably the two finest white Roses sent out since 1844 when *Niphetos* made its appearance. Seeing what strides Roses have made during late years, it is saying much for these two varieties when one declares them to be the two best white Tea-scented Roses introduced during the last forty-eight years. *The Bride*, sent out by an American firm in 1885, is a white

sport from Catherine Mermet. For exquisite shape and good size, combined with extra long-lasting powers, I do not think this Rose is surpassed. It is one of the finest Roses grown, an excellent variety for forcing, a good grower, and altogether first-class. *Souvenir de S. A. Prince* was sent out by Mr. Prince, of Oxford, in 1889, and is, like *The Bride*, a sport from another grand old Rose only two years younger than *Niphetos*. *Souvenir d'un Ami* (1846) is the foster parent of *Souvenir de S. A. Prince*. This is one of the very sweetest scented Roses we have, pure white in colour, of grand size and shape, while the plant is of a vigorous constitution. For cultivation out of doors, I would prefer this even to *Niphetos*, as it is not quite so delicate and easily affected by the least bad weather, as *Niphetos* unfortunately is. To all who grow Roses, if only a dozen or so plants, I would strongly recommend this grand white variety, which is equally good in the open air or under glass, for exhibition or for garden decoration.—R.

SOME EARLY-FLOWERING HYBRID PERPETUAL ROSES.

It is pretty generally admitted that every Rose has its season of flowering, but it is doubtful if this is always sufficiently recognised when making selections for special purposes. I am quite sure there are some cases when it would be decidedly advantageous to know the varieties of Roses that in an average season flower about the same time. Supposing, for instance, one wanted to exhibit at a flower show held towards the end of June a selection of twelve or twenty varieties and had only room for a limited number of plants, it would be a decided gain to know which varieties might be depended upon to be in flower at that time. Again, it might be that the owner leaves his home early in the summer and would like to see the Roses in bloom before he does so. In either case it would be an advantage to be able to make a suitable selection. With a view to improve my acquaintance with the different characters of the Hybrid Perpetuals, I visited for two years in succession a large grower of these flowers to ascertain what difference there was in their behaviour. Each time I paid my visit towards the end of June. I came away convinced that there is a fairly large number of varieties that can be depended upon to flower in advance of the majority of the same section, and, what is equally important, the quality of the flowers was quite equal and in some cases far superior to that of the same varieties later on in the season. Indeed I am disposed to think that the colour in the dark flowers is more intense than when they are produced under a broiling July sun. I go further, and say that the true colouring of the darkest Roses can be seen only in the early and late part of the season, unless the flowers are inspected within an hour or two after they expand. Only those who have watched the behaviour of that comparatively new dark Rose *Earl of Dufferin* when it first flowers in the closing days of June can realise its distinct character, as it undoubtedly stands alone as the best of those which bloom early. Of other varieties which I found in bloom at the same time I must mention the following: Victor Hugo was particularly striking. Marie Baumann on cut-back plants was also good. In the same line of colour *Prince Camille de Rohan* is quite reliable. Some good red flowers with different shades of colour will be found in *General Jacqueminot*, *Charles Lefebvre*, *Alfred Colomb*, *Charles Felix Briton* (intense dark), *Mrs. Baker*, and *J. D. Pawle*. The best amongst the newer varieties having cerise or rose-coloured blooms is *Mr. James Brownlow*, the flowers of which are very sweet and the foliage large and handsome. *Lady Arthur Hill* is also distinct and beautiful. *Caroline d'Arden* not only flowers early, but is very fragrant. *Alphonse Souperet*, *Heinrich Schultheis*, *Mme. Gabriel Luizet*, *Mrs. J. Laing*, *Violette Bouyer*, and *Mme. de Castellane* were in splendid condition on both occasions when I saw them. *Boule de Neige* is still the earliest white Rose in this section. Of course there are a good number of varieties that follow those I

have named very closely, but I feel sure I have not named any but what may be relied upon to flower early under ordinary conditions of soil and season. While on the subject of securing early Roses, I should like to refer to the remarks of "Grower" in THE GARDEN for March 12 (p. 224), where he says, in writing of the Manetti stock, it will throw flowers some ten days or a fortnight before the same variety upon any other stock. For some time past I have noticed when going through large Rose quarters that there was some difference in the stocks as regards the production of early flowers, but I thought a week was the outside of the difference between the Manetti and the Brier in this respect. I may, however, be wrong in that respect. I am, nevertheless, glad that the writer referred to has called attention to the superiority of the Manetti stock for giving us early flowers.

J. C. CLARKE.

Trellis-trained Roses.—In a tall house at Claremont are three very high wire trellises, the front one about 16 feet and the back one about 20 feet high. These are about 5 feet apart and are literally clothed with Roses, chiefly Teas, so that the flower produce is enormous. *Homère*, *Cheshunt Hybrid*, *Bouquet d'Or*, *Catherine Bell*, and others form the leading varieties. Probably in no other way could the same space be so fully utilised for Rose production as in this case. All the trees are robust and clean, occasional fumigation keeping aphids in check. Of course ample waterings have to be given, and mulchings of manure are found helpful. Houses now would not of course be built so high as is this Rose house, and but for its great height could it be utilised so advantageously as is here seen.—A. D.

ROSE ETHEL BROWNLOW.

ALTHOUGH of comparatively recent introduction (1887), this is already recognised as one of the finest Roses we have. Unfortunately, many, in fact most, of our best Roses are so extensively propagated immediately they are put upon the market, that their naturally healthy and robust character is lost for a time. The best of the new varieties are over-propagated, every little piece of wood, however weakly and unsuitable, being utilised to increase the stock. It stands to reason that the young plants resulting from the weakly wood will be, if anything, of a less robust nature than their parent, and when we take into consideration the fact that these weakly subjects are again cut up for propagation as fast as any wood forms, it is not surprising that the healthiness of the stock deteriorates rapidly. This fact should be borne in mind by all who are trying any new varieties of Roses, or indeed of any other flower. Until the plants have had time to recover from the excessive strain they have been subjected to, it is not possible for them to do justice to themselves, and consequently one cannot give any reliable decision upon their merits. It is only when a Rose has been in commerce long enough to allow of its being necessary to choose none but the strongest and best wood for propagating, that we see it in its true form. This is the reason that many new varieties seem so inferior to the same kind as exhibited by the raiser, who, generally speaking, has worked up a sufficient stock to be able to benefit from a judicious choice of propagating material. As soon as the Rose gets into commerce, its constitution is ruined; more especially if it be a variety that has been well exhibited by the raiser, and does not naturally possess an extra strong constitution. As an example of my meaning, I will name A. K. Williams, a grand Rose indeed, but one which was not seen in its true form and beauty until some years after its introduction. For some time this variety was exceedingly disappointing; it seemed to have little or no constitution, and until a choice of good sound buds was possible the general public did not see the exquisite beauties of this superb Rose. The same may be said about *The Bride*, now recognised by all as one of the finest white Tea-scented Roses

grown, but which was for some time considered a very disappointing Rose by many. I am quite certain that the only reason of this was the great strain of excessive propagation put upon these two grand varieties.

All of the above remarks apply equally well to the subject of these notes—*Ethel Brownlow*. This variety possesses the grand merit of almost every bud filling out into a large and perfectly shaped flower. It will also rival *Comtesse de Nadaillac* in long-lasting qualities, and retains the exquisite freshness of its colour for a long time. *Ethel Brownlow* is one of the most perfectly shaped Roses I am acquainted with, and is carried upon a stout stem well above the foliage. In colour it is deeper than a bright *Catherine Mermet*, and may be briefly described as a very bright salmon-pink.

RIDGEWOOD.

SIMPLE HOUSE DECORATIONS.

WE can never be too simple in our use of plants and flowers, especially when we essay to ornament or decorate our homes with them. The finest of plant growth is too sacred, the loveliest of our flowers too precious to be wantonly and wastefully employed, no matter how great our joy or how deep and desolate our sorrow. Of late years there has been an unwholesome rivalry in the reckless use and inordinate profusion of flowers as used for functions and festivities of all kinds. It is to be hoped that the extravagant Second Empire sort of profusion and wastefulness of flowers has been ended, and there are already signs of this being done, and with the best results, for the true and most satisfying use of flowers, dainty or simple, can never be measured by their cost in the market, by their rarity, or by the difficulty or expense of growing them.

Flowers in variety and in plenty let us have by all means, but it surely is not at all necessary that choice Orchids and rare Pitcher Plants should be frozen to death on icy rockeries or frizzled up by the heat of gas-light in order that we can enjoy their exquisite beauty. Only a few years ago and the pendulum swung in the other direction, and it was heresy in many gardens to cut a flower. As an illustration, we have only to go back to the days of show plants, when in many gardens plants were mainly grown for prizes at the horticultural shows, and the actual owner dare not cut a flower from them. There is a story told of a well-known lady who half a century or so ago was the acknowledged queen of horticulture in London, and her splendid collections of choice plants were rarely to be surpassed as exhibited at the metropolitan floral exhibitions. The *Amherstia nobilis* first flowered in her hothouses, and her triumphs were many, but she could not be induced to cut her commonest flowers, and when importuned by friends whom she did not like to refuse, she generously sent them lovely bouquets, &c., which she had purchased in Covent Garden Market.

The real delight given to us by flowers after all bears but a small proportion to their rarity or profusion. The commonest of blossoms after all possess the greatest charm, and a duchess or a princess even who would scorn a bouquet of Orchids may be moved to tears by a handful of Violets or Primroses artlessly offered to her by a cottager's child. In the old show plant and bedding-out days, indeed, there were very few flowers to cut or use in any homely and simple way. Now, however, we have plenty, from the Snowdrops and Violets of spring to the Christmas Roses and *Chrysanthemums* of winter, and even country people having neither hothouses nor gardens of their own may find an abundant supply of

wild flowers, green or bronzed leafage, or hedge fruits many and varied, and need never allow their flower vases or glasses to be empty a single day throughout the year.

Here in Europe we scarcely ever think anything pretty except it be something in the way of a flower. In Japan it is different, and leaves and stems set with buds of different kinds are there used with excellent effect. The branches of many trees may be used as room ornaments at this season, and afford a welcome and restful change from eternal floral arrangements, even although they be of various kinds of flowers. Willows, Elms, Maples, Alder and Sycamore, or branches of Pine, Fir, Larch, or of *Aucuba* in berry, of *Shepherdia*, *Cornus*, or *Garrya* are each and all distinctly beautiful and effective as artistically placed in fresh water indoors. Branches of Apple and Pear, Cherry and Plum, or dark gnarled spurs and shoots set with rosy almond buds and blossoms are exquisite as simply arranged in the light and warmth of a sunshiny room. In the exquisite use of such simple and beautiful things the Japanese have taught us much, and we might well imitate their subtle methods, at least now and then, even if only as a relief and change from our usually flowery bouquets and glasses of blossoms and Ferns.

Now and then try a few branches of Almond or any fruit tree in a large vessel of water just as the buds are bursting open and watch the effect. Last year I decorated a reception-room and never used a single flower; all the pots and vases used were filled with branches and leaves only, and the cool and quiet effects were much admired. Again, last winter I decorated a dinner-table with nothing but dead leaves, &c., with the brown panicles of *Astilbe rivularis*, and it was much liked by all who saw it done. The brown winter leafage of Ivy, *Tellima*, *Bracken*, and Royal Ferns is admirably adapted for such uses, and looks well under artificial light.

What we especially require in our home decorations is variety—some constant changes of an agreeable kind—and it is here that the floral artists of Japan are superior to our own. There is no forcing nor retarding of flowers in Japan, as with us, and so it follows that all their productions are at least seasonable, and one is not wearied by too long a continuance or the repetition of the same things. I have seen a room most tastefully decorated by the hostess herself in less than an hour, the only materials used being fresh green Pine branches and their brown cones, relieved here and there with dead Fern fronds, chiefly those of *Osmunda regalis*, 6 feet long, and of the most beautiful fox-brown tint imaginable. In early winter I have seen branches thickly set with crimson haws and wild Rose and Sweet Brier stems with scarlet hips used with exquisite taste as relieved with the bronzy foliage of *Mahonia aquifolia*. Indeed, I sometimes have thought that we have, or use, too many flowers in proportion to the use of stems and leafage, but, at any rate, it is quite possible to artistically decorate a dinner-table or a suite of apartments without a single flower being used. This is a fact not often grasped by those on whom the execution of room decoration usually falls, and the constant and but little varying use of flowers and hothouse Ferns, often the same in kind, leads to a sameness not a little depressing to those familiar with the variety of material and the range of variation possible in its tasteful and proper employment.

It is the same with plants. A healthy Palm is always a lovely and graceful thing, but it is the constant repetition—the eternal sameness—

that irritates and annoys one, for that variety is life some of us at least believe. Let us have variety in our room plants, as also in our flowers, and the results will be a gain. A fresh, glossy-leaved *Aralia*, an *Aspidistra*, a group of green-leaved Dragon trees (*Dracena*), a hanging basket or two of fresh green Ivy, or of the creeping Fig, all or any of these would give us a much-needed change. By all means let us have Palms in plenty, Phoenix, *Latania*, *Corypha*, and *Cocos*; but Palms alone in time become tiring, and it is then that the wearied mind calls out for variety. This relief the Japanese obtain by using things only in season. Natural things as thus used can never weary, and our own plan should be to go more direct to garden, field, and wood for our floral and leafy decorations, and to use them boldly and simply. B. W. F.

ORCHIDS.

ORCHIDS AT BURFORD LODGE.

On a recent visit I noted many species and varieties in flower. Commencing with *Dendrobiums*, I must give the palm to the fine plants in good varieties of *D. Findlayanum* which were flowering freely. Many forms of *D. nobile* are still to be seen, but these are nearly over. *D. signatum* is another remarkable kind flowering here in two varieties, one with plain rich yellow flowers and the other with two deep blackish maroon spots at the base of the lip. It was said to have been a yellow-flowered form of *D. nobile*, but it appears to me to belong more nearly to the *D. fimbriatum* section. It is very handsome, and not yet, I think, well enough established to flower freely. The ever-beautiful *D. thyrsoflorum* and *D. densiflorum*, both of them old and well-known plants, although the flowers are somewhat short-lived, cannot be dispensed with. *D. crassinode* in good forms is also to be seen here. *D. primulinum*, a very pretty variety, and a very fine form of *D. Pierardi* were showing many flowers. Here I also noted plants that I used frequently to see in collections, but they have now dropped out of cultivation—*D. superbum* and its less strongly scented variety *anosmum*. The flowers of this latter are rounder, and it blooms upon more slender stems. *D. stratiotes*, although said to be an autumn bloomer, is now displaying its charms. There were also the pretty *D. Kingianum* and its white variety *album*, and the hybrid form between *D. speciosum* and *D. Kingianum* without a name, but certainly deserving one. A form of *D. heterocarpum*, bearing the name of *Fredricksianum*, differing in growth from the typical plant, the flowers being soft primrose-yellow in the sepals and petals, the lip rich orange-yellow, the point passing into soft pale yellow, the side lobes rich orange-yellow streaked with fine lines of brown, was also in bloom; the flowers have the strong fragrance of those of the typical species. The singular plant *D. capillipes* was also in full flower, its rich bright yellow blooms resembling those of *D. aggregatum*. The curious and beautiful little species *D. Fielschi* was also flowering freely. The flowers of this have long narrow sepals and petals, pure white in the lower half; the upper half has two or three twists in it, and is of a greenish yellow; lip white, streaked with magenta on the side lobes, the middle lobe having a blotch of the same colour in front. Amongst the *Cypripediums* I noted a beautiful variety of *C. Boxalli*, bearing many flowers, the charming *C. Argus*, *C.*

Sedeni candidulum with its ivory white flowers, *C. calurum* and *C. grande* with seven spikes. *C. selligerum majus* is also very fine, whilst the colour in *C. Harrisianum superbum* is very striking. *C. Schroederae* is a grand flower. There were also fine forms of *C. Lawrenceanum*, *C. Haynaldianum*, *C. Schlimi*, and many others. *C. Elliotianum* and *C. Rothschildianum* flowering side by side allowed me to compare these two plants, and, saving in the blooms of the latter plant being larger in size and deeper in colour, I can see no difference. One plant of *C. Elliotianum* is bearing seven flowers, three upon one spike. I remember being told upon its first introduction five flowers had been seen on one spike, which when it comes to pass will be a fair rival to the celebrated *C. Chamberlaini*, which appears to be growing and doing well here. *Cattleyas* are not in their prime; most of the *C. Trianae* are past, and only a few plants were in bloom. Here also I noted what an early bloomer *C. Lawrenceana* is, it being in full flower here also. With the *Cattleyas* was a fine plant of *Cymbidium Lowianum* in full flower, but the blooms were apparently fading from self-fertilisation, which is much to be regretted, as the flowers are richly marked, and should last at least a couple of months longer. *C. Devonianum* was also beautiful, carrying three spikes of bloom, whilst a grand plant of *C. eburneum* was bearing a dozen of its large and showy pure white flowers. *Epidendrums* as a rule do not count for much, but here are to be found most of the kinds introduced to cultivation. Amongst the gayest of the species having slender reed-like stems are *E. arachnoglossum*, with large trusses of rich purplish crimson flowers; *E. radicans*, with an equally large truss of rich bright cinnabar-red flowers, and *E. elongatum*, with bright rose-coloured blooms. Here also was the beautiful little gem *E. Endresi*, which has pure white flowers, spotted on the lip with violet; it grows some 9 inches high, and bears from six to twelve blooms on the terminal raceme. I also noted a large-flowered species which I have before seen under the name of *E. Imperator*. This, however, is but a garden name, it having been named by Klotzsch nearly fifty years ago *E. leucochilum*. It is a large-flowered species, and, as its name implies, has a pure white lip, the sepals and petals being yellowish green. A fine plant of the seldom-seen *Arpophyllum giganteum* stands in the same house with the *Epidendrums*, bearing many erect spikes of its rich rosy-purple flowers. Of the two-rank-leaved East Indian plants a few are in bloom; amongst these may be noted *Vanda coerulescens*, its spikes of blue flowers being very attractive. The curious and little-known *Trichoglottis fasciata*, *Cleisostoma crassifolia*, the pretty and singular *Angraecum Leonis*, *A. articulatum*, and the beautiful snowy-white-flowered and deliciously fragrant *A. fastuosum* were also in bloom. There are fine pieces of *Sophranitis grandiflora* just passing out of bloom, one plant having had as many as seventy flowers. A very fine form of *Odontoglossum Andersonianum*, *O. crispum* in variety, *O. triumphans*, *O. hastilabium*, and the rare and beautiful *O. nevadense* were also very noteworthy. Amongst *Masdevallias*, which have wintered superbly, I noted many fine and richly-coloured forms of *M. ignea*, *M. Veitchi*, *M. Chelsoni*, the fine hybrid *M. Heathi*, *M. Fraseri*, *M. Shuttleworthi*, and many others. *M. Wendlandi* appears to require more warmth than many of this family. A nice plant fairly covered with its pretty flowers is very showy. The flowers, which are not very large, are purple below and white above. In a warmer house plants of *Oncidium ampliatum* had many

finely-branched spikes, and several plants of *Oncidium sarcodes*, with long, much-branched spikes, were a mass of golden-yellow and dark brown flowers. *O. Hrubyanum*, a species similar in growth, but with chrome-yellow blooms: *Lycaste Harrisoniae*, covered with buds; *Calanthe veratrifolia*, with eleven spikes of its pure white flowers; *Ansellia lutea* and *A. africana*; *Trichopilia suavis* and the white variety *alba* were also to be seen. Several *Coelogyne ocellata maxima* and a fine plant with many spikes of the old, but beautiful kind known as *C. elata* make up a splendid show. Many *Cypripedium* seedlings are pushing up flowers, while several little seedling *Odontoglossums* had just been potted off. The whole collection is in the best of health and has passed through the winter in splendid condition.

WM. HUGH GOWER.

***Epidendrum conopseum*.**—Mr. Gerald Howatt, of Alabama, U.S.A., sends me a plant of this species, but, unfortunately, it is dead. This is more curious than beautiful, but its geographical position leads to its finding favour with growers at home. Mr. Howatt also sends a *Polypodium* which I read as *P. incarnum*, but by such a name I cannot find it in any book. Will he kindly name it again?—G.

***Epidendrum cinnabarinum*.** "J. J." sends me flowers of this species. On the specimen sent there had been as many as twenty-eight flowers, which are bright cinnabar-red, saving the lip, which is tinged with yellow. *E. cinnabarinum* is a bright and showy species, growing some 3 feet in height and having slender stems. It appears to be widely distributed in Brazil, and mostly in the hot parts, so that under cultivation it will require the heat of the *Cattleya* house. The plant is an old discovery, having flowered upwards of fifty years ago in the famous collection at Hackney.—W. H. G.

***Odontoglossum Alexandrae*.**—I am in receipt of flowers of this species from Mr. J. Schofield, of Manchester, for my opinion of them. The sepals and lip are boldly marked with large spots of bright chocolate, the petals being pure white. It certainly is a plant full of promise, and I should advise care to be taken of it. From its appearance I should think it has not been long imported, and no doubt the flowers will improve as the plant gets stronger. J. Miles also sends me a flower which differs considerably from the preceding. The flower comes from a plant which is well established, having been in his possession five years; consequently it is as good as he may expect it. The flower is large and the sepals and petals are spotted, but the segments are so narrow and make such a starry flower, that it is of no value.—W. H. G.

***Dendrobium nobile*.**—Mr. Cypher, of Cheltenham, sends me a flower of this species which is very fine, but I cannot think so highly of it as he apparently does. He says it is the best formed flower he has ever seen, really better than that of *D. nobile nobiliss*. The sepals and petals are broad, the lower half white, the upper part broadly tipped with bright amethyst-purple extending down for fully the half; lip large and open, with a deep maroon spot or blotch at the base, round which is a broad zone of pure white, having a faint tip of colour on the point. It is a very fine form, much resembling *D. Sanderianum*, as far as my recollection serves.—W.

—I have received from E. Busbury, gardener to the Duke of Norfolk, Arundel Castle, two flowers of the above plant, which I suppose by his letter have been bought in as ordinary varieties. One form is *D. nobile*, but the other is a very good variety of the plant known as *D. nobile Cooksoni*. I shall be glad to know if these plants have been recently imported.—G.

TREES AND SHRUBS.

THE CHILIAN PINE.

(ARAUCARIA IMBRICATA.)

ABOUT twenty years ago it was a very common thing to see small plants of this Pine in front of many villa residences. The majority of these have died out now; not because of frost, as many have supposed, but from their roots descending into unsuitable soil. The first effects of this are seen in the lower branches of the trees turning rusty and brown. These soon die and are removed, making the tree into a long-legged specimen that has no beauty left. *Araucaria imbricata* requires a deep loamy soil that is neither wet nor dry. It also enjoys a gravelly subsoil, and where good specimens of this Pine exist, they are very effective. Those that the engraving represents are growing in a Sussex nursery upon a deep black loam with a moist gravelly subsoil. The avenue at present consists of some fifty trees, but it originally contained many more. These range in height from 40 feet to 55 feet each, and are perfect specimens. The largest plant is a male, and the circumference of its branches is 97 feet. It is 60 feet high, and 10½ feet round its trunk 4 feet from the ground. There are several more plants in the avenue that are almost as tall as this, and I see no difference in this respect between the male and female plants. I have twice noticed a monoecious plant among them, but as a general rule the sexes are distinct. The cones are each 18 inches to 20 inches in circumference, 7 inches to 8 inches deep, and weigh from 2½ lbs. to 4 lbs. In 1889, one of the specimens bore over sixty cones, which are two years in arriving at maturity, and often contain from two to three pounds of sound seeds, which produce much hardier plants than imported seed. Last year these plants produced some twelve bushels of seed. The bulk of the seed has generally been sent to French and German growers, and always commands a ready sale. Squirrels and rabbits are the two worst enemies of the seed. Owing to the extreme fondness of these rodents for this seed, I have been forced to knock off the cones when ripe and collect the fallen seeds at once. It is not the number of seeds eaten that matters so much as the fact that squirrels and rabbits nibble the germ out of so many and then leave them.

In 1883 one of the large trees in the avenue was felled, and, singular to say, about a couple of years later a sucker was produced from the roots. This grew very rapidly, making as much as 6 feet during the third year, and growing to some 15 feet in height before breaking into any horizontal growths. The *Araucaria* contains an extraordinary amount of resin, which is very clear when it first exudes from the bark. A peculiar feature in these Pines is the tenacity with which they hold their needles. Unless these are injured in some way, I have never known them to fall; in fact, the same needles that were upon these plants as young ones are on them now in many cases.

Seed should be sown in the autumn as soon as ripe. It takes about six years to grow the young plants 1 foot high. After this time they grow more rapidly, and from the time they have reached 3 feet to 4 feet will often grow 2 feet to 3 feet during twelve months.

R.

Cupressus nutkaensis.—This Cypress, to which the name of *Thujopsis borealis* is frequently applied, is a good deal in the way of Lawson's Cypress (*Cupressus Lawsoniana*), and it also re-

sembles that well-known kind in other respects, for both are thoroughly hardy and far less particular as to the quality of the soil or position they are placed in than most coniferæ of this section. In its native country the timber of this Cypress is much appreciated, as it is very durable and of so fine a grain as to admit of a high polish. At present, little can be said of it from a timber point of view in this country, but in planting for ornamental purposes it is one of those subjects that should be borne in mind and for which a place should if possible be found. The usual habit of *Cupressus nutkaensis* is more or less pyramidal, the principal branches being generally sub-erect, while the minor branchlets are drooping. These last are in some specimens much longer and more distinctly pendulous than in others, and to the most pronounced in this respect the varietal name of *pendula* has been applied. A good form of this



Avenue of *Araucaria imbricata* in Piltdown Nursery, Maresfield, Sussex.

in a thriving condition is a very beautiful specimen conifer. A neat, yet dwarf-growing variety is compacta, which among small kinds is well worth a place, while *glauca*, *viridis*, and *variegata* explain the prominent characteristics of those bearing the three last-mentioned names. A golden variety—*aurea*—has the young shoots pleasantly flushed with yellow, and this is certainly one of the best of the recognised varieties.—T.

Cytisus Andreanus.—This Broom has within the last two years rapidly become popular owing to its being so striking and quite distinct from anything of its class, at least among hardy shrubs. In addition to the other features it has also turned out to be a first-rate subject for flowering under glass, the rich velvety red of the two upper petals being when treated in this way especially noticeable. In order to perpetuate its distinctive features, this Broom must be propagated either by means of cuttings or grafting, as seedlings cannot be relied on to come true, most of them reverting to the typical golden-flowered form. This shrub was illustrated in the *Revue Horticole* nearly half-a-dozen years ago, but

it was not put into commerce till three or four years afterwards, since which time our nurserymen have been propagating it as fast as possible, and a good demand for it has been maintained. Mr. Gumbleton, to whom all readers of *THE GARDEN* are so much indebted, was the first to direct attention in the pages of that journal to the merits of the Broom in question.—H. P.

TRANSPLANTING EVERGREENS.

MUCH has been said and written respecting the transplanting of Evergreens, some advocating or recommending one time in the year and some another, but after having had much of that work to do or superintend, and therefore some considerable experience of it at different seasons, I am clearly of opinion that April is the best month in which to move large plants, as then the buds are fast swelling and growth just forming, the action of root and top being simultaneous. Evergreens under such favourable conditions quickly become re-established. If transplanted in the autumn, it must be done early, for if they have not taken fresh root before winter sets in, they stand little chance of living, and this anyone may see, for if he only look around now he will find how severely many Evergreens have suffered that have not been disturbed, and what chance then would any have had if they had been moved, as most surely the sap would have been dried out of them and all the leaves have perished? There are some kinds, however, more amenable to transplanting than others, and among these may be mentioned *Rhododendrons*, *Aucubas*, *Box* and *Yew*, which generally lift with large balls, as they make plenty of fibre and root near home. *Hollies* and *Barberries* are very difficult things to deal with if they are of large size and have not been prepared by previous transplanting. I am just now engaged at some, and have a lot to move ranging from 10 feet to 15 feet high. The plants are all got out of hedgerow banks, the best among them being those that have been beheaded at some distant time, as they have what is here termed a "tod," that is a large bottom, and I always find that such plants feel the lifting less than others, and they generally start off at once.

The thing in moving Evergreens, such as *Hollies*, is to have them as short a time as possible out of the ground and not to let them dry or suffer more than can be helped. To prevent these things happening, every preparation should be made for getting them into their places or positions as quickly as possible by having holes of sufficient size dug ready to receive them, that the planting may be carried out expeditiously and a thorough watering in quickly follows. For all large plants the watering is a very important matter, as it is impossible to put soil or convey it where water will carry it, and soil should always be washed in that all cavities may be filled, which can easily be done by throwing in the water in quantity with great force, at the same time swaying or moving the head of the plant, which will cause or allow the puddle to draw under and in and around the ball, the subsidence of the whole giving any evergreen shrub a good chance of growth. The final filling in of the soil should be left till the settlement referred to has taken place, and following on immediately after a good mulching be given, which prevents evaporation, and therefore keeps the earth about the roots in a uniformly moist condition, thus greatly favouring the

plants. If these are tall, or in exposed positions where they are likely to be affected by the wind, they should be stended in some way, and one of the best methods is to use three stakes to each plant, and place them tripod fashion with the feet well out, and it matters not then from which quarter the wind may come, one or other of the stakes offers resistance and the plant is kept right. Stout strings applied in a similar manner answer the same purpose, and so does wire, but whatever is used care should be taken to provide against any chafing of the stem where the supports are attached, and the part should be well padded with something soft before the collar goes round so as to protect the bark. S. D.

Prumnopitys elegans.—This Chilean conifer is, unlike most plants from that region, perfectly hardy, and, what is more, the foliage does not seem to be in the least affected by sharp frosts or cold cutting winds. In its native country it is said to attain the dimensions of a tree 40 feet to 50 feet in height, but here it usually forms quite a thick bushy specimen that as a rule mounts upwards but slowly. There is a great tendency to produce numerous leaders, thus accounting for the bushy habit, but where required to grow as large as possible the plant should be limited to one leader, and any extra expansion of the lateral branches checked. This *Prumnopitys* is nearly allied to the Yews, and indeed is often spoken of as the Plum-fruited Yew, while a synonym used at one time more than at the present day is *Podocarpus andina*. The leaves of this are from half an inch to three quarters in length, bright green above and glaucous beneath. They are very thickly set on the branches, and from the conformation of the specimen this glaucous character is more noticeable than one might suppose, especially when stirred by the wind. From its somewhat slow growth, at least during the earlier stages, this *Taxad* is very valuable for small gardens, while its light cheerful appearance throughout the winter is more pleasing than that of those which assume a rusty tint. It does not seem particular as to soil or situation, for I have seen it thriving under varied conditions, doing even fairly well in smoky districts. Cuttings are by no means difficult to root if taken early in the autumn and inserted in sandy soil in a close frame.—T.

Tetratheca pilosa.—Among the Australian plants of a hard-wooded character that make a goodly show during the present season must be included this *Tetratheca*, which forms a little Heath-like shrub less than a couple of feet high, the branches of which are thickly studded with soft purple-coloured blossoms. It is very bright and cheerful when at its best, and the flowers supply at the present time a shade of colour by no means largely represented.—H. P.

Rhododendron dahuricum.—The rose purple blossoms of this little *Rhododendron* are now opening, and very bright and cheerful they are, especially by contrast with those of most shrubs at this season. It forms an upright bush usually from 3 feet to 4 feet high, which during mild winters is sub-evergreen in character, but when very severe, deciduous or nearly so. There is a variety, *atrovirens*, in which the leaves are retained to a greater extent than in the ordinary form, while the flowers are also somewhat deeper in colour. When planted near some Evergreens so that they are partially protected from spring frosts or sheltered in some other way, this *Rhododendron* is seen at its best, as from the time of the year at which the blossoms are borne they are where fully exposed liable to be injured. In addition to being itself a very pretty shrub, *R. dahuricum* is also of value from the fact that it has, in conjunction with the Himalayan *R. ciliatum*, given us a very valuable race of dwarf early-flowering *Rhododendrons*. The best known are *R. precox* and a deeper coloured variety—*rubrum* of which a coloured plate was given in THE GARDEN two years since. This was raised between *R. dahuricum* and *R. ciliatum*, while the parents of another pretty little kind—*Early Gem*—were the hybrid *precox* and the darker form of *R. dahuri-*

cum. They are all very ornamental outdoor shrubs, while from their naturally early blooming qualities they may be had in flower under glass with but little trouble much before this.—T.

Cytisus filipes.—Forty years ago this *Teneriffe* Broom was far more generally grown than it is at the present day, but why it has been allowed to almost drop out of cultivation it is difficult to say, for it is in every respect a most desirable greenhouse shrub, and one quite distinct from any occupant of the same structure. Its true character is best seen when on a clear stem a yard or more high, as then the long slender branches depend therefrom in a most graceful manner. For this reason it forms a very ornamental plant at all seasons, but is of course additionally attractive when in flower, the slender shoots being at that time studded with pure white fragrant blossoms. Its usual season of blooming is during the months of March and April, but frequently flowers are produced in considerable numbers during the autumn, and a scattered few maintained from that time till the spring display. This Broom, which was introduced from *Teneriffe* in 1838, has been frequently noted in THE GARDEN, but too much attention cannot be directed to its desirable features.—H. P.

FLOWER GARDEN.

THE CULTURE OF MOUNTAIN FLOWERS.

I HAVE read with interest the two communications of "F. W. B." on alpine plants in your columns, and a good deal of what he says might be written in letters of gold and might be taken to heart in many places I know of. Thus, nothing in my opinion could be better than this: "For many years I have almost totally disregarded the advice of those friends who try to persuade you to grow your plants under the conditions in which they thrive in their own gardens or in those somewhere else, or as they thrive under certain supposed conditions of Nature. My golden rule is to consult the plant," &c., and so on in other instances that might be given. But, on the other hand, I see much to dissent from in what he has said. On page 239 "F. W. B." expresses himself as follows: "An observant gardener is like a poet; he is born rather than made by study, although without much study he could not approach perfection. He is often quite as much of an artist as a painter, and will mix a compost of one plant widely different from what he will mix for another of the same genus, or even species. He will indeed employ the most delicate and exquisite shades in soils, temperatures, aspects, &c., just as the poet does in words or phrases, or the painter in colour or tone." I can only say all this seems to me to be very tall talk indeed. No doubt everyone of us has his bent, and facility is acquired by study, but that is all so far as gardening is concerned. It is utterly incredible to me to suppose that an observant gardener is like a poet, and that he is born such rather than made by study. Save me! I should exclaim, from the workman who goes about his business in a dreaming, poetical sort of way, and I am quite sure my flowers would say the same. Imagine him mixing his soils and his composts, and perhaps his

manures under some afflatus he has received, and what a hash it would all be! If grand comparisons are to be made at all, and we may fly high kites, which I very much deprecate, I should think that a good gardener would live in the spirit of an inductive philosopher more than anything else, and that he would lean upon experiment every step of the way. I have a dear old friend whom I have known for nearly thirty years, and as a gardener he is second to none. He is running over with knowledge and has all the minutiae of his profession at his fingers' ends. When I next happen to meet with him I shall say to this canny, hard-headed, business-like old Scotchman that he also is numbered among the artists and the poets, and what fun it will be. I can easily anticipate the shrug of his shoulders and the twinkle of his eye while he disavows any such thing, and plainly says that he knows nothing at all about it, nor wants to know. Undoubtedly it is true that a "landscape" gardener must have a sort of poetical inspiration to do well at all, but that is a very different thing from what I have been referring to above. His vistas and undulations and swelling lawns and woods are the outcome of the idealising to which he is prone, but an ordinary working gardener is quite wide of all this. What he has to do more than anything else is to put two and two together, and by unceasing observation to find a pathway which leads him to success. And let me say here that I think in many of the letters I have read about the culture of alpine plants, and also about the construction of rockeries, these two things cross each other very much; remarks are made which are pertinent to landscape gardening and nothing else, or some inexorable rule of culture is disregarded because it is not suitable to landscape gardening with which it has nothing to do.

I also read in your impression of March 26 the following sentences of "F. W. B.": "It must not be said of me that I undervalue stones either in rockeries or as used in or upon ordinary soils. A stone often makes all the difference between success or failure in the growth of a plant placed beneath or near to it in an ordinary border," and there is more to the same purpose. All this is very good indeed, and the tyro in alpine gardening cannot too soon learn the value of stones. But when "F. W. B." goes on from this to ask why stones are so especially valuable in a rockery, and to make answer to the question he had himself proposed, he should be very careful, I think, to give a full and sufficient reply, and not to utter a single word of criticism upon the operations of other people till it has been properly done. But this is precisely the very thing which he disregards altogether. He does give some two or three minor considerations which are very true and good so far as they go, but the *raison d'être* of the whole proceeding—the point of points which makes a rockery after the Edinburgh style to be so very serviceable to all growers of alpine plants—is not noticed in a single

place in his letters from the beginning to the end.

My reply to a great deal of what "F. W. B." has said lies in a nutshell, and may be given in one word about a rockery after the pocket system, and that word is the sun. Hundreds of delicate alpine plants can be grown with safety and ease upon it which cannot be grown in any other manner, or at any rate where you could grow one on an artistic rockery, you can grow at least twenty or thirty in the construction of a different sort, and that is the reason why I like it so much. It is simple truth to state that for years and years I never could touch alpine Primulas in this garden at all; the sun used to wipe them out of existence during the months of July and August, but now quite a large number are amenable to reason in this place, and they nestle in security under the stones and defy in that way the fiercest glare of summer. I had a letter two or three days ago from a high authority to whom I should think "F. W. B." would defer in which these words occurred, "I am glad to hear your rockery is finished. I am sure the Primulas will be very happy in the corners that have been provided for them." Then again, I believe that a great number of alpine plants do much better on the level than anywhere else; and without the little terraces to which the upright stones so readily lend themselves, there could be no levels at all, or only a very few where now so many abound. Only very lately a most skilful practitioner proclaimed in your columns the great difficulty he had about the right management of *Gentiana verna*. But this turned more than anything else on the position in which his plants had been placed, and when I took down from the shelf the work on alpine plants by the editor of THE GARDEN to see what he had written about the matter, I was pleased to find that he had anticipated me in the expression of an opinion which is quite identical with my own, and he very strongly supports my view. On p. 220 of his book he states that "*Gentiana verna* must be grown on good deep sandy loam on a level spot on rockwork," &c. Let "F. W. B." mark well the expression "on a level spot," and then say if he has not left out in his remarks all notice of one of the principal advantages of the Edinburgh system. I therefore venture to think that "F. W. B." has not done full justice to one of the plans he has criticised.

It matters not whether this or that undertaking on the part of a private individual originated in Edinburgh or not. Mine did in several respects originate there, and I pretend to nothing more than to get information from any quarter where it can be obtained, and to make full use of it. I do not believe that in any climate or any locality this system need be a failure. I have seen it under such different conditions as to be quite sure about that; but everybody who uses it at all must adapt the Edinburgh idea to his own particular garden and circumstances; and when Mr. Lindsay pays me a visit, as I hope he will do before long, it will not surprise me if he is hardly able to recognise his own child;

and I hope I shall be able to show him how alterations have been made in it which are greatly for the better.

There are some sentences in "F. W. B.'s" letter to which I take very strong exception indeed, or, at any rate, they should be explained, and not stand as they do. He says about alpine plants "it is quite easy to give them too much coddling with panes of glass and handlights and other mechanical notions, and more or less repelling appliances, which quite rob the rock garden of any interest for the plant-lover pure and simple. Whenever I see a rock garden disfigured by glass or crockery and other similar sheltering appliances, I lament the alarming quantity of sack to the minimum of bread; and, furthermore, I do not believe that rockeries so adorned please anyone half so much as they do their owners." Of course all this is true in a sense, but it all turns on what too much coddling is. If it is in excess of the real requirements of the plants it would be the part of a fool to go in for it, but if it keeps delicate plants alive which to a certainty would perish in any other manner, it is not at all to be objected to. I suppose "F. W. B." has a greenhouse. Why in the world does he not expose his exotics to the cold east wind if they ought not to mind it? But really the whole of the above extract is written so loosely, it is not easy to understand what is meant by it. Does "F. W. B." go so far as to say a bit of glass over the head of an alpine plant will not give it succour in winter? (About crockery there need be no question made, for it never is used, and I suppose that word is put in merely for effect.) Then I am at issue with him in the strongest possible manner, for I know it often makes the whole difference between life and death. Moreover, I have seen it to be recommended by cultivators of the very first rank and they use it themselves. It is the best apology for snow that can be found in this country, and Mr. Wood's method of holding a bit of glass securely over a plant in the winter has done more for my garden than anything else. But with pockets of stone all this can be managed in the easiest possible way, and this is one great additional reason why I stick to them so much. Or does "F. W. B." merely refer to disfigurement, as the meal and the sack seem to say? Then let me tell him that he is quite mistaken also about this. One would think from his letter that these little protectives are kept *in situ* during the summer months, and that an alpinery becomes a sort of collection of little greenhouses all over the place. It is nothing of the sort. I sedulously protect a large number of tender alpine plants from the rain by the use of these glasses in autumn; they are put in position, say, when October is drawing to a close. I have taken them all off with only a few exceptions some weeks ago, so that it practically comes to this—one has to choose between measures of security during the dead season of the year when for the most part all is uninteresting and dull, and it matters very little if the ground be covered or not, and

running the risk of absolute failure with your plants and losing them altogether. These glasses are no eyesore to me in the winter, and the flowers which they have saved gladden me beyond all expression in the bright days of summer. Let me only just say when anyone sees fit to mock at the special contrivances I have named, he should be careful to give a list of the sort of flowers he grows. There is hardly one mentioned in "F. W. B.'s" letters, except *Lewisia rediviva* (and this from what he says he grows in the wrong way) and some Primulas, for which I should say a rule use any protection at all, but when I have tried year after year to make such things as alpine Primulas do well in this garden—and I have never succeeded till my present plan was devised—it will require something more than what "F. W. B." has said to make me desist from it and to take to anything else.

I fully believe that if a list were given of some of the choicest alpine plants on "F. W. B.'s" rockery and also on mine, it would be found at once that where his plants are uncovered by glass mine also are uncovered, but that in addition to these I have a large number of alpine plants here which he keeps mostly in frames, if he succeeds in keeping them at all. To give only one instance of what a bit of glass will do and of what comes from its absence, I brought *Morisia hypogaea* quite safely through the tremendous winter of 1890-91, and also through this till quite the other day. Unluckily, in an evil moment I took away the glass protection too soon, and a most dear little plant which was green and flourishing one day and covered over with its myriad buds was the next day browned and stunted by the cruel east wind in a sad and miserable way. Better by far to have borne the disfigurement of a piece of glass a little longer—if it be a disfigurement at all—than now to have to look on this woe-begone and miserable object and to see how it reproaches me for neglect. Can "F. W. B." grow *Pulmonaria dahurica* in the free and easy way which he advocates so much? Is *Lewisia rediviva* proof against autumnal sheets of rain? Will *Onosma albo-roseum* stand the cold if nothing be done for it? Has he much chance with *Primula Reedi* in the open unless great care be taken of it? (I quite believe it has pulled through this winter on my alpinery.) Is *Omphalodes Lucilæ* certain to survive if it be left exposed? Does *Morisia hypogaea* show itself to be able to resist all attacks? Has *Primula Allioni* a ghost of a chance if it has to fight its own way and nothing be done for it? All these and many more questions like these should be answered before any practice, whatever it may be, is put down by authority. And let me just tell "F. W. B." that this spring for the very first time in my life some of my *Soldanellas* are covered with blossom. I know it is very easy to keep the plants alive, but is it so easy in every place to throw them into bloom? I could tell him a secret about this matter if he cares to have it from me, and I will now go so far as to say that these most precious little alpine gems

would have been barren this spring, as they have always been barren before, if they had not been protected; and here, with many apologies for its length, I must bring my letter to an end. It was impossible for me not to see that "F. W. B." was reflecting in his letters to you on what I have lately written in the pages of your contemporary, and this of necessity threw me on the defensive. But I join with him in the belief that a gardener may well try to be poetical at such a sweet season of the year as this. When the first little *Soldanella* opened in my alpinery the other day, it brought to my mind so many reminiscences of alpine expeditions and snowy peaks and steep moraines, that I almost felt the whiff of the glacier breeze upon my cheek, and I wished to goodness that I could adequately give expression to my delight, but, as "F. W. B." reminds us, it is too true that "poeta nascitur non fit," and I contented myself with the absence of all attempt. It is melancholy to reflect that if only some island Wordsworth had been at hand, the tender flower which was growing upon a misshapen rockery might have acquired an immortality like to that which has been given to the little *Celandine* on a bank; but of this I am sure: my *Soldanella* would never have blossomed at all if it had not been for many an experiment of a very prosaic kind, and most uninteresting and often endured defeats which were spread over a long term of years. It would have saved me an enormous amount of trouble if I could have jumped into success at once by some illumination from within. Alas! only that it was not given to me — HENRY EW BANK, *St. John's Vicarage, Ryde, I.W.*

— Following "F. W. B.'s" practical and suggestive notes upon this subject on page 275, I wish to suggest an addition to his reasons for employing stones, large or small, in this culture, either in rockeries or upon more ordinary beds. The prevention of evaporation, the maintenance or equalisation of warmth in the soil, and the congeniality of a rocky appearance in association with mountain plants are substantially the reasons which he justly cites for the practice in question. There is, in my view, a fourth purpose, of a very matter-of-fact kind, it is true, and constantly overlooked, but which yields to none of the foregoing in solid value. I refer to the enormous saving of labour resulting in any large garden from the space between the plants being so filled by stones, that little or no room is left for weeds. Apart from the satisfaction which some of us may feel in planting a rockery or rockbed so completely that it may be left to Nature almost untouched and untended for years, the economy in labour is, I believe, so great, as soon to save many times over the cost of stone and plants used in the construction. For those to whom labour-saving is of consequence, as to most of us it is, I doubt whether in the long run—nay, even in any "run" not very short—there can be any cheaper garden (of at all equal beauty) than the properly constructed rock garden, furnished so completely

with rocks or stones, and with plants making their growth between and over them, as to leave little or no lodging room for weeds. This economical consideration alone is enough to turn many herbaceous or other flower borders practically into low rockeries.

"F. W. B." observes that "the rockery which shall at once be artistic and practical for alpine plants is yet to come." If he means, as probably he does, that the complete and ideal combination is still to find, I agree. But he also will probably agree that such gardens as Messrs. Backhouse's and many others, including doubtless those which he names, are both artistically beautiful and at the same time very fair homes for mountain plants, even from a purely cultural point of view. No delusion, at least, can, I think, be more complete than the notion which, I am told, got about last year, on the authority of a much-respected enthusiast, that an alpine garden cannot be at once beautiful and well constructed as a plant home. I know of nothing even to encourage or suggest—much less justify—such a conclusion. The utmost that could be said in extenuation of it would be that if our main strength be put into artistic effect, the plant culture will probably, perhaps certainly, suffer, and *vice versa*. And even this may mean little for the many of us who (given but the absence of real ugliness in the surroundings) find enough, perhaps the best, of artistic effect in the sight of masses of fine plants well and naturally grown.

At one point of his article "F. W. B." will, I think, see that he has accidentally run the risk of conveying a misapprehension which he certainly would not share. I refer to the passage in which, treating of the differing needs of the plants in question as regards summer moisture, he instances *Iris stylosa*, red *Valerian* and *Zauschneria californica*. I am open to correction, but I am under the impression that these are not, properly speaking, mountain or alpine plants, and should not be planted in their company if plentiful summer watering be given. Although the second and perhaps the third of them are of such long-suffering natures, that they will probably stand this (or almost any) treatment, I imagine that the first would be almost ruined by it.

It is, of course, the fact that there are some plants truly alpine (such as the many named by "F. W. B.") which if well rooted in lime will even survive drought, and prefer but very moderate watering. But I think of no truly alpine plants which exact a dry summer, or which would fail certainly if subjected to a wet one (naturally or artificially).

Stony banks, or even stony beds or mounds, over suitable soil, and such as one often seen in the Alps, high or low; every space and crevice furnished with alpine plants of every suitable kind; it is in this direction, as it seems to me, that we should be turning in our search for that combination of beauty and of cultural utility which "F. W. B." wisely desiderates for us.

As regards cultural utility, the form and method I have suggested yield, I think, to none. As regards beauty, that method is, to say the least, adequate on the one hand, and unoffensive on the other, while in the hands of very many it might be so used and extended, as to make wholly insufficient such faint praise of it in that regard.

Over and above all this, the method suggested would be open for the many. Such of our present structural modes as do not offend by a pretentiousness conspicuously falling short of its aim, are open only to the rich few, because involving a large initial outlay. — H. SELFE-LEONARD, *Guildford*.

— When I read the interesting notes on hardy flowers in your columns I always look eagerly for some indication of the climatic surroundings of the writer, often, unfortunately, in vain. It is not the latitude that makes the difference in gardening conditions. Proximity to the sea, elevation, and, above all, the difference between east and west are far more important, at least in England and Scotland. My garden lies 500 feet above sea level in one of the coldest districts in England, and during my first season here some years ago I made up my mind not to attempt to grow plants that could never really thrive in such a climate, but to seek out whatever flowers there are that can defy its rigours and make the most of them. It occurred to me that many alpine plants at any rate ought to do well here, and I accordingly chose the most open and sunny part of the garden, a rather steep bank of turf sloping to the south, and prepared a small piece of it, some 7 yards or 8 yards long, as thoroughly as I could. The natural soil is a rather heavy loam, so, after laying down some inches of stones and rubbish for drainage, I mixed a quantity of sand with the top spit loam and scattered some rough stones of various sizes over the top, raising the bed in parts about a foot only above the ground level on the north side. On this rough border I planted a small collection of alpine plants from a first-rate nursery, filling up with such common garden flowers as seemed suitable and were ready to hand, such as *Arabis*, *Aubrietia*, yellow *Alyssum*, and the commoner sorts of *Sedum* and *Saxifrage*, which grow so freely here in the north.

Little by little I have added to this modest alpine garden, and in spite of many losses and disappointments, it is a constant source of interest, and in the early part of the summer it is always the gayest part of the garden. From the middle of May till the beginning of July—long before the *Roses* and *Lilies* venture out—*Saxifrages* of many kinds are smothered with their star-like flowers and make a charming colour harmony with the *Lilac*, *Aubrietia*, the golden *Alyssum* and the soft grey foliage of *Antennaria* and *Pinks*. The yellow *Corydalis*, with its exquisite Fern-like leaves, flourishes under the shelter of a big stone; the alpine *Wallflower*, though only two or three plants may survive the winter, loads the air with its fragrance; the heavenly blue of *Gentiana acaulis* and the less robust *G. verna*, followed by the almost equally fine *Lithospermum prostratum*, give a deeper note of colour. And among these are many lovely, though less showy things—*Drabas*, *Linarias*, *Hutchinsias*, *Silenes*, *Arenaria*, *Erinus*, *Fritillaries*, *Poppies* (alpine), *Ice-land*, *Welsh*, and the delicate *Cathcartia* from the Himalayas, *Globe Flowers*, *Grape Hyacinths*, and *Primula farinosa*. A little later come the alpine *Roses* and *Dianthus*es of many sorts—alpinus, fragrans, integer, su-

perbus, &c.—*Menziesia polifolia* and *Campanulas* of all shades of blue and white, the latest to flower and not the least beautiful being our wild Harebell, *Geranium lancastriense*, *G. Endresi*, &c., *Helianthemums*, alpine Flax, *Sedums* and *Sempervivums*, the beautiful crimson *Thymus serpyllum*, *Veronicas*, Sea

more use. Some time ago I remember a writer recommending that the soil be washed out from the roots of plants before dividing them. This is advice worth following, more particularly with all such as are choice and where a large increase is desired, as after the washing, every eye or crown bud may be detected and divisions made accordingly. A washing, too, seems to do the roots good and

two other things may be accomplished, and so, having that old proverb about "two birds with one stone" in my mind's eye, I, seeing the security of one object assured, resolved to make the wall not only a shelter, but also an object pleasant to the eye of the wayfarer as well. This has now been accomplished fairly well, as I imagine, by the building of a hollow wall topped with tie or binding stones, and pocketed for the reception of soil and plants, as shown in the accompanying sketches, made to a scale of half an inch to the foot. In such a plant wall the principle is everything, and the proportions may be varied to suit any special conditions, circumstances, or surroundings. The wall is a little over 4 feet high and over 2 feet through and 30 yards or 40 yards in length, and after having filled up the hollow centre of the wall with suitable soil, I shall fill the top with *Iris* of the *I. germanica* and the *I. pumila* sections, with *Cloves*, *Carnations*, and *Pinks*, or with *Linarias*, *Aubrietias*, and *Stonecrops*, *Edelweiss* and *Sempervivums*, but I am especially anxious to see established on its face a group of the Californian *Zauschneria*, which does not always flower well with us on the ground level, except during very hot, dry summers.

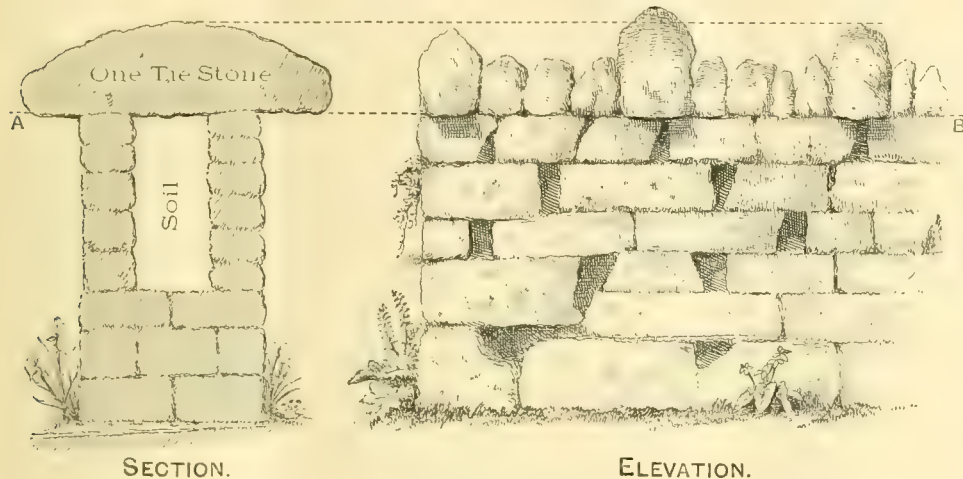
A wall of the above size may be made by any handy man at stonework, and at no great cost. The stones I was very fortunate in procuring almost free of charge, and every one of them is precious, as having originally formed a portion of the Trinity College Library, removed during alterations and additions recently made. They have come from the world of books into a world of flowers, and in a short time they will, I hope, be crowned with blossoms and green leaves. F. W. BURBIDGE.

Dublin.

SPRING FLOWERS.

THOSE who are really fond of gardening do not estimate their flowers merely by their gorgeous hues or the brilliancy of their colouring *en masse*. Certainly, these things afford a great deal of pleasure, and a bright and pretty garden will always be specially attractive. But the true lover of flowers enjoys the interest which may be attached to a plant which requires to be closely examined before the full beauty of its flowers can be appreciated—a plant which does not challenge attention, but would be passed over unnoticed by the casual visitor, who might thoroughly enjoy the more conspicuous flowers. I do not mean to disparage the beauty of bright and attractive flowers in the open garden, but I think there is a special pleasure in cultivating plants which are distinctly not showy, but are nevertheless most interesting. Such things are specially to be found in our rockeries, but not only there. The herbaceous border is also a place for objects of special interest.

At the present time I have in flower on the rockery a plant to which my attention was drawn some time ago by a coloured plate in *THE GARDEN*—the white Dog's-tooth Violet (*Erythronium dens-canis*). I had always known the common pink variety. It is to be found in every garden, and it is worthy of a place in every rockery because of the striking character of its foliage. I have found it a shy flowerer. But, to my mind, the white variety is much more beautiful. The extremely delicate texture of its long-pointed petals and the fragile purple anthers, which show themselves when the sunshine induces this little flower to expand itself fully, make the white Dog's-tooth Violet a really beautiful thing. It seems quite hardy, and the spotted leaves at this time of the year are very attractive, but flowers are not generally numerous. Perhaps for that very reason we appreciate them the more when they do come. The plant seems to like a shady nook, and it evidently grows best in a strong peaty soil. It does not like being too dry. The flowers push up from



A wall for rock plants.

Pinks, *Hawkweeds*, *Geums*, the curious little *Acena* from New Zealand, &c.

This is not a valuable collection, but it is a mountain garden, though on a small scale, in which I think any lover of flowers might find pleasure. There is nothing of the cemetery about it, except, alas, a bare space here and there in the spring, showing where some new-comer has perished. And there are few labels, only one here and there, to mark the places of plants that disappear in winter. I quite agree with "F. W. B." that coddling with hand-lights or panes of glass is utterly out of place in pleasure grounds, and should be confined to nursery gardens. If we cannot grow alpine freely and gracefully, it is better not to attempt them in the open air at all.—G. G., *Durham*.

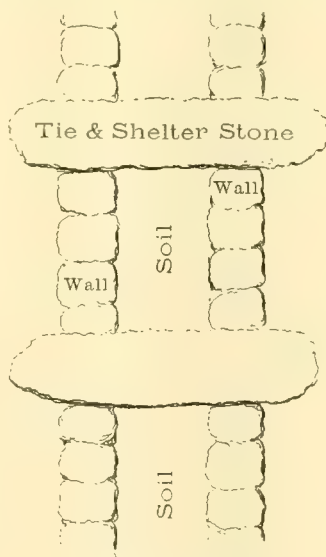
***Scilla bifolia*.**—Very interesting and beautiful are these charming Squills at this early season of the year for masses on the rockery or similar places. Not growing more than 3 inches or 4 inches high, it is obvious that their pleasing starry blossoms of blue or white would soon become bespattered by pelting, driving rains unless arrangements were made for preventing this at planting time, by thinly carpeting the ground in which they are growing by some other dwarf subject as *Thymus lanuginosus*—a good rock plant in itself, and made doubly so if utilised in this way.

Herbaceous plants.—The season has now arrived when herbaceous plants may with safety be divided, and it is by far the best season for overhauling and re-arranging them, as immediately after they have started into growth they may be cut through or taken up and separated without causing much check or doing harm to the roots. Not only is this so, but the majority of the plants will be benefited by reducing the crowns or number of shoots, as the tendency with most of them is to produce more than are wanted, and they crowd each other. Especially is this so with such things as *Phloxes* and *Delphiniums*, which are all the better for being reduced and having only the strongest shoots left, as then the plants make fine heads of bloom. It is a good plan also when dealing with *Phloxes* to give them fresh positions and prepare the ground by well breaking it up and giving a liberal dressing of rotten manure, which should be kept down so that it does not come into direct contact with the roots at starting, but serve them later on, when it will be of

often increases the health of the plants, as the roots become cleansed and old bark or fungus got rid of. In cases where herbaceous plants have stood long and the land is not deep, trenching the border will be productive of good results, and then an entire re-arrangement of the plants may follow; but if trenching is not carried out, a top-dressing of very rotten manure should be given and some fine soil scattered over that, so as to work in amongst it and cover it up.—S. D.

A WALL FOR ROCK PLANTS.

HAVING that worst of all things in a garden, viz., a rubbish and manure yard somewhat exposed to a public road, it became a necessity to



PLAN ON A.B.

Wall for rock plants.

erect a shelter wall, so as to secure somewhat more privacy and to conceal from the public gaze what is really a sort of laboratory necessary in every garden. But in doing one thing well, it generally happens that at least one or

among the tufts of spotted leaves, so that when the former are gone, and they do not last long, the plant is still an ornament to the rockery, as it grows by some old grey stone, which affords it the double benefit of shade and damp.

Another flower which comes rather later and would be easily passed over except by those who like to examine closely the beauty of small flowers, is the tiny little *Soldanella*. This plant seems to like a gritty soil. I remember very many years ago seeing it used as a border to the beds of a so-called "Italian garden." It used to be covered with its pretty little fringed bells in the months of April and May, and the round flat leaves were always green. But this Italian garden was in a very sheltered corner on the south coast of Cornwall. It has flowered with me in this country, but I gradually lost it. It is always difficult to manage small plants which will not take care of themselves to a certain extent. When other plants begin to grow strong and rapidly with warm days, the tiny delicate little things are easily forgotten till it is too late to repair the mischief. I intend to renew my acquaintance with the beautiful little *Soldanella alpina*.

This year I have made a point of comparing the relative advantages of *Scilla amœna* and *Chionodoxa Luciliae*. It seemed to be thought when first this *Chionodoxa* made its appearance that it was to throw our old friend the beautiful blue *Squill* into the shade. We were almost recommended to throw away the old favourite and to adopt the new in its stead. However profitable this might be to some, it was advice which would have been ruinous to those who love the frail, but brilliant little plant which, with its sheet of brightest blue, is making our borders and tub gardens lovely in the sunshine of this dry April weather. The *Chionodoxa* has the great merit of throwing up its flowers well, till they look up at you with their sweet little light blue flowers, and seem to ask for admiration as you look at them. But they last a very short time, and are gone while our old friend the *Scilla* is still in perfect beauty. This is a great advantage in the latter; but again the *Chionodoxa* scores by coming out the first in early spring. I wish I had taken careful note of the time, but I did not do so. I only noticed that in my own garden and very much in the same aspect the *Chionodoxa* was well in flower when *Scilla amœna* was only just showing above the ground; but in my opinion nothing can excel the rich blue colouring of the *Squill*—not yet showing the slightest sign of passing away, though it has been in bloom some time.

I think perhaps to mix with the bright golden cups of *Crocus* and the pure white of the *Snow-drop* *Chionodoxa* may be the best, for it can be made to flower at the same time; whereas the *Scilla* does not come till the later *Crocuses* are almost over. Both have the great merit of being exceedingly hardy. *Chionodoxa* especially seems to be one of those things which is not easily uprooted. When you think you have removed all the bulbs, you will find next year straggling bits coming up and flowering with wonderful freedom. I like this early *Chionodoxa*, but it can never take the place of the later *Scilla amœna*.

Cottage gardens still rejoice in the possession of that pretty little shrub the *Mezereon*, which just now is in its full beauty. It may be due to the old days of bedding out, but at all events for some reason this grand old plant is very scarce in large gardens. Its mode of growth is not ornamental, but one can put up with that for the sake of the sweet red and white flowers which are ready to brave frost and snow in the early days of March. In our cemetery there are some fine plants of the white variety, showing how much the cottagers think of it, as they deem it worthy of a place by the grave of some dear one who has been called away. The cylindrical mode of flowering with its red or white blossoms sessile on its rigid stems is almost grotesque in its appearance. It is a pity such an early flowering little shrub is not more abundant in the gardens of the rich, but we delight to see it and to know how much it is valued in the gardens of the poor.

Triteleia uniflora, though not actually in bloom yet, will soon be sending up its pretty starry flowers. They look exceedingly well when planted at the foot of a large stone, where, undisturbed by any interfering tool, they will grow in the Grass and brighten the spring rockery. The ends of the stalks when gathered have an Onion-like smell, but this is too slight to interfere in any way with this little flower either in its usefulness when gathered or with its general attractiveness. It is an exceedingly showy and free-flowering bulbous plant, and as it has the advantage of being sold at a very low rate, it is just one of those things which might well be used in large quantities to adorn the spring garden.

Coloured *Primroses* are just coming into their full beauty. I find the only way to grow these beautiful spring flowers satisfactorily is to sow the seed early, prick the seedlings out when they are nice little plants, and finally put them in autumn where they are to bloom next year. They then make plump heads of strong bloom in the spring. Writers in *THE GARDEN* have repeatedly said that *Primroses* are at their best the second year. Accordingly this year I made the trial and I have left some plants in their places for second blooming. The result is a distinct failure. The plants have become tufty with small leaves and a few scattered flowers, quite different from the one-year-old plants which I usually have, and which form one of the chief ornaments of the spring garden. If the plants are to be kept over a second winter, they must, I am convinced, be pulled to pieces and replanted. I should be glad to hear the opinion of other growers of these lovely spring flowers on this point. Those which I hope to be useful next spring are now just getting into their second leaf.

A GLOUCESTERSHIRE PARSON.

HARDY CYCLAMENS.

WHEN the hardy sorts are in the hands of the planter, they require perhaps somewhat more care than those are apt to believe who have only seen them growing wild, and more especially is this the case with corms that are being planted which have not previously been established in pots. If you are dealing with the naked corms of *Cyclamen coum* of the age of three or four years, some may be found to have long persistent woody stems, from half an inch to 2 inches or 3 inches long, on top of the corms, which clearly indicate that such roots or corms have been previously grown at some depth from the surface. Other corms, which may be of equal size and age, may not have such long stems, and in the case of these they have assuredly been grown at the ground surface level, and possibly with the corms partly above the surface. Now, as from these long or very short stems (for there are short rudimentary ones, even where they are so short as to be almost invisible) the leaf-stalks spring mainly from the apex, but often in the case of the long ones from the lower parts of the stems, it is quite evident that, whereas those with the very short stems may be planted either near the surface or deeply, you cannot expect success in planting the longer stemmed ones unless they are somewhat deeply buried, to correspond with the conditions under which the stems in their former home came into existence. I hope I have made my meaning clear on this point, because those who have a partiality for the older corms for the purposes they suppose of getting quicker and better effects from size and strength will simply defeat their own object unless the stemmed corms are planted deeply enough. Some people are all the more likely to err in this matter if they overlook the long-stemmed feature, from having seen many corms, of from 2 inches to 5 inches diameter, cropping out of the surface like black boulders. If those friends will notice such out-cropping corms, they may have an ocular demonstration of the fact that the exposed corms rarely develop stems, and that when they do, it is because they are found in a tilted position with the upper corm centre totally or partially under the sur-

face. By sequence we come now to another feature important to the planter to which the term "tilted," just used, points. The shape of all the species of *Cyclamen* corms varies, and I believe among all are often to be found those comparatively flat, and often, with so to speak, a depressed ring round the sprouting part of the corm. Now in many sorts of land this flat surface or ring tends to hold wet, which during the sunny days and keen frosty nights of our winters affords to frost an abnormal grip, the consequence being that the tissues of the corm often become ruptured, and I believe I shall not be far wrong when I say that such corms newly planted in retentive soil are often killed. A very simple method to prevent this may be adopted in planting. Simply tilt the corms so that the wet cannot lodge. This will not materially interfere with the upward or foliar growths; they will find their way just as well as otherwise, and I believe that it is owing to the accident of wild specimens assuming that position either under or partly above the surface, that the tilted tubers or corms are found to live longest and grow to the biggest sizes. I have watched this habit of the hardy *Cyclamen* for many years, and there is, I think, something in it. There will doubtless be exceptions, as in the case of those which are found growing in somewhat dry situations, as in very stony soil among the roots of trees or grasses, and again where they are met with, practically, in nothing but small chips of rock. In all cases the hardy *Cyclamen* should have well-drained soil, and a good rule to follow would be to set the corms 3 inches deep at least, as then, all other conditions being suitable, they grow more luxuriantly, and last, but not least, afford a better spread of their beautiful foliage, as then, owing to their depth, all the while the underground leaf-stalks are lengthening they would also be spreading, as also the flower-stalks. Fewer corms so planted would cover in a short time a much bigger space than a corresponding number if set nearer the surface.

Woodville, Kirkstall.

J. WOOD.

SEASONABLE NOTES ON HARDY FLORISTS' FLOWERS.

THE AURICULA.—As I write these lines the house containing what fanciers term the show Auriculas is in great beauty; the earliest of the trusses have their flowers quite open, and their peculiar Russia leather-like perfume is very pleasing. As a rule, the selfs produce their flowers first, and the earliest to flower amongst them are the yellow selfs. I have a few seedling yellow varieties flowering for the first time this year, and the interesting part in their history is this, that neither seed nor pollen parent was yellow, nor had any yellow in the flower except the yellow throat of the calyx, which in all Auriculas is either yellow or orange coloured. This tendency in seedling Auriculas to revert to yellow in the form of stripes in the calyx, or to a yellow colour on its margin, seems to be a reversion to the primeval *Primula Auricula* of the Alps. In the early seedling forms of two centuries ago many kinds valued as good garden varieties are reproduced in our gardens; but they are usually thrown out, as not possessing the points of excellence required by the florists' standard. This standard is exceedingly difficult of attainment, and raisers of a few dozens of seedlings should not be disappointed if they are unable to select anything good amongst such a small number; the only chance for an amateur to obtain anything good is to select the very best varieties to seed from, and raise as many plants as it is possible to find room for. The choice edged varieties require care to bring out the full beauty of the flowers. If the east wind blows directly upon the opening pips they may never open at all, and if the house where the plants are placed is too closely shut up, the flower-stems and leaves become drawn and flabby, so that it is necessary to keep the plants as nearly as possible to the glass roof and admit air on the side where no damage can accrue to the plants by the wind

rushing in directly upon them. During the recent prevalent east winds air was admitted through the small ventilators in the wall under the stages upon which the plants are placed, but this is not enough. When the sun shines out brightly on cold days, the top ventilators must also be open. See that the flowering plants have a fair supply of water at the roots, but avoid giving too much, and see that the drainage allows the water to pass away freely. The young seedling plants are yet of very small size, and although the seeds were apparently good enough when they were gathered and sown in July, very few vegetated at that time, and not many plants have appeared since. I find that some varieties are very shy in producing seeds with the pollen that is likely to produce the best results, but will do so freely enough when pollen from another variety is used. In watering the Auriculas, one has to be very careful not to wet the finely-mealed foliage.

CARNATIONS AND PICOTEEES.—No sooner were the plants transferred from the small flower-pots than an intense and for the season long-continued frost set in, which certainly has not improved them. They were protected with glass lights, but no root-action could be possible while the frost lasted. It would be well to wait until the weather was favourable to do the work, but in gardens where a certain routine of work has to be carried through, one thing comes pressing in upon the heels of another so rapidly in the spring months, that it is a sheer impossibility to wait for favourable opportunities for everything. Such management would bring the work into inextricable confusion. While frosts and continued cold weather last no water will be needed for the plants. Some time ago the border Carnations (seedlings and named varieties) were all looked over, and those of them that were loosened in the ground had to be pressed in firmly. As soon as this second spell of frost is quite gone, the same process will have to be repeated. The seedlings planted out in the summer and well established are not acted upon by the frost; the roots have penetrated the ground deeply and have taken such firm hold of the sub-soil, that no frosts can move them. I was very late in planting the named varieties this year. Not until November were they planted out, and though the weather was favourable at the time and also after planting, they are not so well established as I would like.

PINKS.—These charming garden flowers can be propagated and cultivated much more easily than Carnations and Picotees. Planted out in September, their hard wiry stems are not at all injured by frosts, and being well established they usually throw up a good head of bloom. They do not require much attention, and for this reason are better adapted for cultivation in gardens where skilled labour cannot be employed; but, notwithstanding this, they would not be out of place in the gardens of the highest class. A deep and rich soil must be provided for them, and they will never fail to give satisfaction, as their delicate perfume is most delightful.

FORCING PINKS.—No time should be lost in getting in all the cuttings of these that can be obtained, for if they are not all required for forcing next season there need not be any trouble to find room for them in the flower garden borders. The smaller growths strike root more readily than the thicker pithy ones, and they must be inserted in fine sandy soil, a dozen cuttings in a 5-inch pot. As soon as they have formed roots they should be carefully removed and planted out in boxes of good soil, allowing a space of 3 inches between each plant. When the young plants are fully established and have grown into nice tufts, they must be planted out in the open garden, allowing a space of 10 inches or 12 inches between each plant. If the soil is rich and open and the plants are not allowed to suffer from drought during hot, dry weather in summer, they will grow into quite large clumps by the end of September, when they may be lifted and planted in flower-pots from 6 inches to 8 inches diameter, inside measure. The plants are placed in frames and removed into the forcing houses as they are required.

DAHLIAS.—The Dahlia has received much attention during recent years, and has been very extensively cultivated in all the sections, but many cultivators have only limited means by which they can obtain cuttings. A hotbed should be provided if possible, but the roots should not be put in until the violent heat has considerably subsided; many valuable stools are lost by being over-heated in hotbeds. The young growths soon appear in the heat, and they must be taken off for cuttings when they have grown about 2 inches. It is much better to place the stools in a forcing house. I place mine in boxes amongst cocoa fibre refuse and place them over the hot-water pipes in a vinery about the first week in March. I have already obtained all the cuttings we want, and as soon as they are rooted and have grown a little they are planted in larger pots. The cuttings form roots most freely in a moist bottom-heat. I find that the pompon varieties and the so-called Cactus varieties are the most useful to provide cut flowers in the autumn. The Dahlia needs rich deep soil to develop its beauty, and the plants should be well prepared for planting out the last week in May or early in June.

HOLLYHOCKS.—These stately garden plants are propagated by cuttings or root-grafting in the early months of the year, and the plants must be inured to the open air in the same way as other tender plants, for although the Hollyhock is not tender, the plants become sensitive to cold if they are propagated, as they usually are, in the spring months in hothouses. The young plants propagated the previous year have been wintered in frames, and should now be freely exposed to the open air, so that they may be planted out on the well-prepared ground the first favourable opportunity. Do not let the plants become pot-bound before planting them out. J. DOUGLAS.

ALPINE AURICULAS.

ANY doubts that may have been entertained respecting the perfect hardiness of these charming spring flowers must have been dispelled during the last two winters. I have a tolerably large bed of them in an exposed position, and not a single plant exhibits the faintest trace of injury from the recent severe weather. The seeds were sown broadcast in a frame, and the young plants being small at the beginning of the winter, I allowed them to remain protected and undisturbed until spring. The following April they were in excellent condition for transplanting, and were set out 2 inches apart in ground that had been well stirred and sweetened by exposure to frost, sun and drying winds, and which was surfaced with a couple of inches of nice soil from the potting bench. They made fine little plants by autumn, as I encouraged them by means of top-dressings of artificial manure and frequent watering during the late spring months, when the weather at times was hot and dry. It is noticeable that Auriculas, like Primroses, Christmas Roses and some other spring-blooming plants which naturally take a rest through the summer months, will continue to grow on if well looked to with water through the first year of their existence. For this reason, much is gained by sowing as soon as the seeds mature, so that the seedlings are large enough for planting out by the middle of March. They thus get a long season for growth and will all bloom more or less well the following year. I have a large bed of Primroses treated in this way, and by October they had grown into fine specimens, capable of bearing individually half a hundred blooms, and it is the same with the Auriculas; by getting them into the open ground early in the season, they have been enabled to come to blooming size, which could not have been the case had sowing been deferred until spring. Many appear to think that the raising of Auriculas is attended with some difficulty and a considerable amount of uncertainty, this erroneous impression doubtless taking its origin in the frequent failures arising from an imperfect appreciation of the character of this hardy flower. A method frequently followed is that of sowing in warmth in early spring. There are two objections to this method, one being that

the germinating powers of Auricula seeds decrease at a rapid rate when kept out of the soil; the other that the Auricula is naturally very impatient of the application of artificial warmth. So far from artificial heat conducing to free and quick germination, I believe the contrary to be the case with this hardy flower at least. The important point is to employ new seed, and for this reason I would advise those who may intend to raise a stock of young plants to order the seed when the natural blooming season of the Auricula arrives, specially stipulating that it shall be fresh gathered and to be sent on as soon as ripe. Seed purchased in spring has, of course, passed some months out of the ground, and although it may be quite good, its germinating powers are so sluggish, that one can expect but a sprinkling of plants when sown. These should be carefully taken out with as little disturbance of the soil as possible, for it must not be concluded that the seeds that have not germinated are bad; they will in all probability come up later on. The best thing to do is to plunge the pots in a cold frame, covering the soil with Moss, and just looking to them now and then during the summer, so that the soil does not get dry. In this way most of the seeds will come up in autumn or during the winter, so that by the following March every good seed will have made a plant. It has always appeared to me that Auriculas germinate most freely at a temperature but little above freezing. It is probable that in alpine regions they germinate under their snow covering, and a German grower advises as a certain way of getting the seeds to grow freely that they be sown in winter, covering the soil with snow, which is to be allowed to remain until it melts.

Some years ago when commencing the culture of these hardy Auriculas there happened to be a good deal written in THE GARDEN respecting the best way of raising them from seed. Various plans were recommended, most of which I tried with more or less success, but in no single instance did I succeed in getting the whole of the seeds to germinate, and there was always a difference of several weeks in the appearance of the first and last seedling. Eventually it occurred to me that I would try sowing late in autumn, thinking that if the seeds remained in the soil through the winter they would come up earlier in the spring, and perhaps more regularly. They were sown in boxes in the ordinary way, but I allowed space for a covering of Moss, a piece of glass being put on to keep off drip. They were plunged to the rims in a cold frame, remaining undisturbed until the end of the year, when happening to look to them I found young plants coming up; by the end of January they had quite covered one side. Every seed appeared to have germinated. The following year I adopted the same plan, and with identical results. It is, therefore, very evident that in the case of the Auricula, artificial heat is not likely to favourably influence germination. Autumn sowing is, however, preferable for the reasons above given, and the sooner the seeds are committed to the soil after maturing the better. Requiring a considerable number of plants, I dispense with pans or boxes and sow in a frame where the young seedlings can remain through the winter. The soil is well watered before sowing, the seeds being very thinly covered and kept quite dark until they come up. I find that in this way it is no more difficult to raise Auriculas than the common blue Lobelia. With the shelter of a frame the young plants remain quite fresh and green all through the winter, presenting quite a different appearance from older specimens at that time of year. In hot summer weather they should be kept well watered with an occasional dose of liquid manure, and by the end of the autumn they will make nice little specimens large enough to yield a moderate amount of bloom. Even when choice hybridised seed has to be dealt with, whether of the alpine or show varieties, this method is far preferable to growing the young seedlings along in pots, as they give much less trouble and make double the growth. If any are required to bloom in pots, these can be selected and marked when in bloom for potting up the following August.

The best position for Auriculas is undoubtedly a north border, but it must not be overshadowed by trees or high buildings. A certain amount of sunshine is, I am convinced, beneficial, and this the plants will get in early morning and towards the close of the afternoon in a north aspect if there is no obstacle to the admission of the sun's rays. I grow my plants fully exposed to the sun and they bloom remarkably well, but I find that if we get hot sunshine with a dry condition of the soil, the blooms quickly lose their freshness. They last double the time where they escape the effects of the midday sun and parching winds that so frequently accompany it in spring. Hot sun, frosts, and heavy rains are the great enemies to Auriculas in their blooming season, and it must be admitted that they seldom escape the effects of these adverse climatal conditions. Heavy rains come mostly from the south and west, so that plants in a north or east position are less likely to have their blooms spoiled. I have not found Auriculas very capricious as regards soil, but they are impatient of stagnant moisture at the root during the winter months. Where the soil is naturally heavy it is better to plant somewhat above the ordinary ground level, and some river sand or light material of any kind should be added. The best results will, of course, be obtained when good loam is used. In light porous soils they are apt to have their blooming time considerably shortened by drought, and if some good holding loam cannot be added, the surface should be mulched with cocoa fibre or something similar. As regards transplanting, I am in favour of doing this early in the autumn, as the soil gets well settled round the roots by winter. In a general way it is advisable to transplant Auriculas every third year, as they have a tendency to push their crowns above the soil, in time forming naked stems several inches long, and the ground becomes hard and sour through heavy rainfall. If this is not done many of the plants will die out; whereas with periodical transplanting they will yearly increase in size and effectiveness.

At the commencement of this article I alluded to the ability of Auriculas to withstand the vicissitudes of our winters. It appears to me that if enjoying suitable conditions as regards position and soil, frost alone makes no impression on them. This winter by the action of frost a number of young plants were thrown out of the ground and remained thus exposed to 20° of frost. When the weather changed I put them back into the soil, and they are now growing away quite freely. It is only in waterlogged soil and when the crowns do not properly mature that they are likely to perish.

Byfleet.

J. CORNHILL.

CARNATION NOTES.

If vigour and stamina are lost through over-cultivation, as "H. M." supposes in his article in THE GARDEN of March 26 (p. 278), it is because we rely too much upon the plants that are flowering to furnish us with healthy stock for the ensuing year. The better we cultivate our plants and the stronger the tufts they make, the greater number of flower-spikes appear. They sometimes are so numerous, that the plant produces little or no grass. If a plant all but exhausts its energies in profuse blooming, the few shoots it makes are not fitted for layering, and if layered cannot grow into strong promising plants for the future. Some of my most vigorous selfs have failed in this respect, and to follow out the usual method of procedure would soon result in deterioration. Doubtless we shall always have some fine selfs that we want to keep and grow year after year, and I can think of no better plan for keeping up a healthy stock of any desired variety than that which I have before advocated, namely, duplicate plants in nursery quarters grown solely for the purpose of layering. This enables us to plant our groups in the flower garden closely, so as to secure the best effect. In order to carry out the plan suggested

by "H. M." of layering the plants and permitting them to stand a second year, they must be rather thin the first season to permit of layering. Then the second season the display of bloom, it is true, will be great, but the plants so thick, that it will be hardly possible to put down any layers whatever.

It is obvious that vigour must be lost in this way. If we can arrange matters so that there is no need to look to the flowering plants for stock, we shall have little to complain of, but, on the other hand, shall find no difficulty in keeping a healthy vigorous stock of any desired kind. We may annually have a display such as "H. M." would have to wait two years for. There are very few gardens where Carnations can be left unlayered or where they spread into broad healthy tufts. But if they thrive with us at all, we may treat even the best kinds as mere annuals. This much is gained, namely, that we plant our groups early in the autumn ready for the following year.

It is hardly possible to say too much in favour of raising seedlings. Doubtless the strains of seed in commerce are improving. Some of the early strains gave a very second-rate lot, and even now cheap seed hardly rewards the raiser for his trouble. Of all Carnations, a healthy, well-rooted seedling plant is probably the hardest of all, and I think instances must be very rare of the necessity to protect them through the winter in any way. So far as my experience of raising seedlings goes, I think both the times mentioned by "H. M." are not the best. I suppose the annual treatment is implied by sowing in July and August, the plants flowering at this time in the following year. But such a date is too late, because the plants cannot grow as strongly as they would if they had an earlier start. Again, February and March are much too early for sowing in most districts, the two succeeding months being much better. Even then I find the plants without due hastening or coddling get forward enough by autumn for many to develop a flower-spike, which, of course, has to be removed.

SPRING PLANTING.—Those who defer planting till this period of the year will have profited by the fine open weather. It is of first importance that the plants be put out as soon as possible, for the Carnation seems very excitable under the slightest degree of protection. Out of doors fresh roots are to be seen quite early in the new year, and under glass top-growth also quickly responds to the influences of more sun and lengthening days. I was recently asked what would be the best thing to do with some Carnations that were in pots and already had their flower-spikes a few inches in length. The plants had been kept too long in an amateur's warm greenhouse. It is not giving them a fair chance to plant them out in this state, because some check must be administered to the flower-spike by any course of treatment, be it ever so carefully performed. This, it is true, is an extreme case, but to a less degree harm may be done by leaving planting till the spring and then delaying it too long through inclement weather. Those who have a cold, wet, heavy soil to deal with find the benefit of any advantages that are to be derived from deferring planting till the spring, but it often happens that such soils are in better condition during autumn than in the early spring months. Earlier autumn planting might be tried, and no month is better than September. The autumn-made plantations in my own case are looking remarkably well, and the plants are taking on that freshness of leafage which clearly indicates fresh top-growth. As soon as the plants are fairly on the move, top-dressing the surface of the beds will do good. If manure is applied it must be thoroughly decayed. Fresh loamy soil with soot, wood ashes, or any burnt refuse answers admirably, and for certain situations is decidedly the best dressing the plants can have.

The ravages of the disease among some healthy colonies of seedling plants during the past winter prove that the severity of the weather does little to check its rapid progress. All badly affected plants have been cleared away and healthy one

replanted. Although they occupy the same spot, they are not likely to become affected now.

A. H.

GARDEN FLORA.

PLATE 852.

HYBRID JAVA RHODODENDRONS.

(WITH A COLOURED PLATE.*)

Few, if any, greater triumphs of the hybridist could be pointed out than the magnificent forms of Javan or tube-flowered Rhododendrons that are now to be found in our gardens, and with which the name of Messrs. Veitch is so closely connected. Their first hybrid was Princess Royal, raised about forty years ago by crossing the little white *R. jasminiflorum* with the orange *R. javanicum*, which, singularly enough, resulted in the production of a pink-flowered variety. This (Princess Royal) is still one of the best of its colour, and none are superior to it in habit, foliage or profusion of bloom. Since that time other species have been introduced and employed for hybridising, so that the numerous varieties now in cultivation owe their origin not only to *R. jasminiflorum* and *R. javanicum*, but also to *R. multicolor* and its variety Curtisi, *R. Brookeanum gracile*, *R. Lobbi*, *R. malayanum* and *R. Teysmanni*. These various species have been, in most cases, crossed with each other, and nearly every conceivable cross has been effected among the different hybrids, even to the third and fourth generation, the result being very interesting and in many cases most perplexing. A notable instance of this occurs in one of the varieties figured on the accompanying plate, viz., *R. jasminiflorum carminatum*, the parentage of which—*R. jasminiflorum* crossed with *R. javanicum*—is the same as that of Princess Royal, but instead of the pink blossoms of this last those of the newer variety are of the rich tint here shown, while the habit of the plant is more like that of its white-flowered parent, *R. jasminiflorum*.

The second flower on the lowermost part of the plate (*luteo-roseum*) is another illustration of the peculiar features that come under the notice of the hybridist, its parents being Princess Alexandra (almost white) and *R. javanicum* (orange). When it is borne in mind, however, that the pink Princess Royal is one of the parents of Princess Alexandra, in which this tint is almost eliminated, its occurrence in the second generation is thus accounted for. In this, however, the orange and rose are not blended to the same extent as in many of the others, having, in fact, as may be seen by the illustration, a tendency to remain separate from each other. The pretty primrose-coloured flower at the top, so appropriately named, has for a male parent the Sumatran *R. Teysmanni*, with golden-yellow blossoms, while the seed-bearer is Maiden's Blush, a pale pinkish yellow flower. As one of the parents of this last is the almost white Princess Alexandra, the colour of the variety Primrose is such as might be expected. These three varieties have all been exhibited at different meetings of the Royal Horticultural Society and awarded certificates—*R. luteo-roseum* having been so honoured in the spring of 1886, *R. jasminiflorum carminatum* in the autumn of the same year, while Primrose was shown quite early in 1888. This last, I believe, has not yet been put into

* Drawn for THE GARDEN by Miss Gertrude Hamilton at Messrs. Veitch's, November 21, 1891. Lithographed and printed by Guillaume Severeys.



HYBRID JAVA RHODODENDRONS

1 LUTEO-ROSEUM. 2 PRIMROSE 3 JASMINIFLOREM CARMINATUM

commerce, but *R. luteo-roseum* was sent out in 1889, and the other a year previously.

In noticing a few of the earlier varieties of this section, it may be mentioned that after Princess Royal, Princess Alexandra, and Princess Helena (this last a poor plant from a garden point of view) had been sent out, a long interval elapsed before we made the acquaintance of any more, for the next additions were Duchess of Edinburgh and Taylora, put into commerce in 1877. The first-named of these two—Duchess of Edinburgh—resulted from the intercrossing of the crimson *R. Lobbi* with the yellow *Brookeanum gracile*. The flowers of this are not so large nor so well formed as in some of the newer varieties, but it is one of the most continuous blooming of all, while the blossoms are of a bright scarlet-crimson colour. This and Prince Leopold, with the same parentage, whose flowers show a peculiar blending of orange and rosy red, in this respect greatly resemble each other.

The cultural requirements of these *Rhododendrons* have been so often dealt with in THE GARDEN, that little further need be said upon the matter. In one respect especially valuable to the gardener, they differ considerably from the Himalayan hybrids, such as those claiming parentage from *R. ciliatum* and *R. Edgeworthii*, in that they strike root readily from cuttings; whereas these other hybrids, especially those in which the woolly character of *R. Edgeworthii* is most pronounced, take a much longer time to root. The cuttings must be formed of the young growing shoots taken when they are in a half-ripened condition, and being cut off at a joint and the bottom leaf removed, they should be dibbled into well-drained pots of very sandy peat pressed firm. Care should also be taken that the soil is well closed around the base of the cutting, otherwise the action of rooting will be much retarded. If the cuttings are placed in a close case with a gentle bottom-heat in a temperature rather higher than that in which they have been grown, they will quickly root, and when this takes place no time should be lost in hardening them off and potting singly. The soil should be much the same as that employed for the cuttings, except that it need not be quite so fine, nor so sandy, though in all stages a liberal use of sand is desirable. As the plants get larger a little turfy loam and nodules of charcoal may with advantage be mixed with the potting compost. A free use of the syringe throughout the greater part of the year is very essential to the well-doing of these *Rhododendrons*; and concerning the temperature most suitable for them, it may be remarked that, though frequently referred to as greenhouse varieties, by far the greatest success is attained when they are grown in a structure warmer than an ordinary greenhouse. An intermediate rather than a greenhouse temperature is by far the more suitable for them, that is to say, where in the winter the thermometer at no time falls below 50°. They will, however, hold their own in a cool greenhouse much better than would be imagined when it is borne in mind that the original species from whence the whole of these hybrids have sprung are natives of Java, Borneo, Malacca, and Sumatra. These *Rhododendrons* are as a rule not vigorous rooters, and consequently care should be taken not to overpot them, while at the same time a compost that will remain sweet and open for a long period is absolutely necessary. Raising seedlings is very interesting, for most of them will produce seed freely. The seed takes a considerable time to ripen, but if sown at once the young plants quickly make their appearance, and many of them will bloom when not more

than a foot high. From its minute character the seed should be very slightly if at all covered, and placed after sowing in such a position that an equal state of moisture is maintained till germination takes place. When the young plants are large enough to handle, they must be pricked off and after that shifted on when necessary. Insect pests are but little trouble to them, but if the atmosphere is too dry, thrips are apt to attack the leaves, while aphides occasionally make their appearance on the young shoots.

While most of these Javan *Rhododendrons* produce single blossoms, there is a small group in which the flowers are double. To this group has been given the name of *R. balsaminæflorum*, owing to the resemblance of the flowers to those of a double Balsam. This section originated from one bloom which showed a tendency to become double, being fertilised by its own pollen, and the results proved so successful, that a race of these double flowers is now established. Three varieties of this group, viz., *album*, *aureum*, and *carneum*, were exhibited and received certificates in 1882, while upon a fourth, *Rajah*, the same honour was bestowed in 1886. They are all now in commerce, *album* and *aureum* having been sent out in 1887, *carneum* in 1889, and *Rajah* a year later. In this last the flowers are fawn-yellow tinged with rose. Apart from their distinct character the blooms of these double *Rhododendrons* remain in beauty for a much longer period than those of the single varieties.

As this Javan group of *Rhododendrons* is now an extensive one, a selection of a few, embracing as far as possible the most distinct varieties that are in commerce at the present time, may be of some service.

Besides those on the plate and the double varieties just mentioned, Duchess of Edinburgh, scarlet-crimson; Prince Leopold, orange and rosy red; Princess Royal, pink; Duchess of Teck, buff-yellow, shaded scarlet; Militaire, orange-scarlet; Aphrodite, blush; Princess Christian, nankeen-yellow; Brilliant, scarlet; Favourite, satiny rose; Lord Wolseley, orange-yellow, tinged rose; Princess Alexandra, almost white; Queen Victoria, buff-yellow, suffused rose; Triumphans, crimson-scarlet; and Ophelia, rosy salmon, may be included. There are many more varieties, all of which are well worth a place, but where space is limited a selection is necessary, and the above may be taken as at least a fairly representative one.

H. P.

THE WEEK'S WORK.

FRUIT HOUSES.

BANANAS.—Fully grown or large and strong plants with stout stems 20 inches or more in circumference at the base and their roots confined either in large pots, tubs, or small pits ought soon to be showing a cluster of fruit. A sudden change from a moderate to a strong heat, a rise from 10° to 15° all round being effected, should excite them sufficiently to cause fruiting, and now is a good time to start them in order to have ripe fruit in the autumn. Until they do fruit, the plants ought to be kept a little on the dry side at the roots, but directly it is seen they are fruiting remove all surface-soil unoccupied by roots, give a good soaking of fairly strong liquid manure and top-dress. The great coarse roots delight in good food, and the top-dressings cannot well be made too rich, so long as none but solid or animal manure is used. Keep well supplied with liquid manure of some kind, varying this occasionally, so as to give a change of diet. An ordinary stove temperature and a moderate amount of shade suit Bananas well, but to grow them rapidly, higher temperatures must be kept, or such say as suit the Pine-apple.

SUCCESSIONAL BANANAS.—Strong suckers, or those already furnished with a pair or more of leaves, can be detached and potted without experiencing a severe check or much more surely and readily than do those not long showing through the ground. Supposing a fruiting stem of *Musa Cavendishi*, for that is the best variety for producing large clusters of superior fruit was cut down last autumn, one or several strong suckers ought now to be available from around this, and being well cleared of soil, quite strong well-rooted pieces can be separated from the old stool. Place as many as are required singly into pots that will hold the roots comfortably, using a rough and fairly rich loamy compost or say a mixture of three parts of fibrous loam to one of good flaky manure or horse droppings, adding half-inch bones freely. Extra strong suckers might be placed direct into their fruiting quarters, but as a rule it is advisable to establish them in 9-inch or slightly larger pots if need be, and to finally shift from these before they become badly root-bound. It is possible to grow them with such rapidity as to fruit the strongest before the year is out, but this cannot be done in an ordinary stove temperature, and in most instances it is advisable to be content to grow them to a fruiting size in one year and to fruit them during the next. They ought not to be smothered up among a variety of other plants, but should stand up boldly above them, being most at home at the ends of large central beds, and may be treated in all other respects similarly to the other occupants of the house.

EARLY PEACHES AND NECTARINES.—During the stoning period there must be no undue excitement, a night temperature of 55° to 60° according to external conditions being ample, with an increase of from 5° to 10° in the daytime, the house being closed sufficiently early on bright days to run up the heat to near 80°. Continue the overhead syringings and damping down, a moist atmosphere being desirable, or otherwise red spider may soon gain an ascendancy. Keep the border in a uniformly moist state, liquid manure being given in all cases where there are good crops and the trees are not growing very strongly. Directly the stoning period is safely passed through, the final thinning should be completed, leaving the fruit 9 inches or rather more apart all over the tree. Also increase the temperatures 5° all round, and this, coupled with a humid atmosphere, the trees still being fed at the roots for a time, will assist in swelling the fruits to their full size. Every fruit should be exposed as much as possible to the light and sunshine, plenty of colour adding greatly to their appearance and value. When nearly matured more air should be given, overhead syringing discontinued, no more liquid manure should be given and less atmospheric moisture kept up, the fruit hanging to the trees and being of better quality accordingly.

SUCCESSIONAL TREES.—Thinning out or disbudding should be gradual, yet thorough, crowded trees being neither so profitable nor easy to manage as those more thinly furnished with leaves and bearing wood. Where the shoots are stopped at the fourth leaf, with a view to the leaves thus retained acting as nurses for the fruit at the same joint, remove these with the fruit if the latter are among the number to be thinned out. Do not be in too great a hurry in laying in the young wood, tying back soft young shoots restricting their growth considerably, and in any case necessitating a second turn of tying-in at a time perhaps when much other work presses. If good crops are set, do not delay thinning out till the trees already feel the ill effects of being overlaid, but gradually reduce the number so as to leave no more than double the number that will eventually be left on the trees. Use good judgment in this selection of fruit so as to leave them as much as possible where they will be likely to colour well, and further reduce the number before the stoning period arrives. Not being unduly heavily laden nor neglected in any way, few or no fruit will fall off prematurely. Syringe freely in order to keep down red spider, and if green or black fly are troublesome, fumigate frequently, but not very strongly till they are de-

stroyed. Much may be done towards keeping down the troublesome black fly by means of tobacco powder and a distributor, the affected points being heavily coated with it for a few hours and then syringed off. On no account use any strong insecticides about the trees, or serious injury may accrue to the delicate skins of the fruit.

PRACTICAL.

PLANT HOUSES.

SHADING PLANT HOUSES.—With the increasing power of the sun upon the glass week by week, all blinds should now be put in order. If new ones are necessary it is better to commence the season with them rather than have trouble later on with torn material; in such instances it may happen that just when they are wanted the most they may fail to serve the desired purpose, thus probably causing injury that with due foresight might have been avoided. For the roofs of plant houses of any description (other than Orchids) I have not yet found anything in the way of shading by means of blinds to surpass or even to equal that known in the trade as No. 3 garden netting or shading. It is quite sufficient to scatter or break the sun's rays as far as any injury is apprehended to the plants without any undue amount of shade that would tend towards a weakly growth. Too much shade is most injurious at any time, but more so early in the season and towards the close of the summer; shading, therefore, when employed should be performed in a cautious manner with due discrimination and judgment in relation to the plants that are forming the chief part of each collection. The blinds should not be let down just when there is a blink of sunshine now and again, and that to save a little more attention to the temperatures, nor should they be let down unduly early or be left down too late in the afternoon. Shading by means of blinds in such instances becomes more of an evil than an advantage to the well-being of many plants. Elevating the blinds upon a light framework upon the roofs of the houses is much to be preferred to having them resting upon the glass. It affords room when so arranged for a current of air to be in motion between the glass and the blinds; this in most cases would be found an advantage rather than otherwise.

Permanent shading for the summer months should only be tolerated where it is not possible to fix roller blinds. The same material will then be preferable for the roofs to any kind of wash that can be had. Any form or colour of shading by this latter method should not be tolerated; it is not consistent with any sensible mode of plant culture, nor is its appearance at all desirable, the besmearing of the glass being hideous in many instances, particularly so when done heavily with a thick mixture. Then again, in our fickle climate (but more particularly where fogs and a cloudy or thick atmosphere prevail) there is not only the possibility, but the certainty of days together without the need of any shade at all. Such kinds of shading should only be used for the side lights where any is found necessary, and then even they should be applied in a light manner.

ARRANGING THE PLANTS FOR SHADING.—This is a subject that should likewise receive due consideration now, and it applies to all kinds of plant houses where any shading is in operation. In the stove if there are two blinds, those plants that require the most shade, as *Marantas*, *Alocasias*, *Anthuriums*, and *Dracenas*, with many of the Palms and some of the tenderer of the Ferns, should be so arranged that they are protected by one blind. On the other hand, such plants as do best with more sunlight, as *Crotons*, *Pandanads* (variegated) and nearly all of the flowering section of stove plants, should be so arranged that they may receive a far larger proportion of sunshine. In fact, if *Crotons*, *Allamandas*, *Ixoras*, and *Gardenias* predominate, no shading need be thought of. This rearrangement of the plants for the summer months will afford a pleasing change, for the following out of one stereotyped method of arrangement the year round does not create nearly

the same amount of interest; a specimen plant always in the same position with but little variation in its surroundings gets to be taken as a thing of natural consequence.

These remarks upon shading also pertain to greenhouse plants, but not nearly so much shading is here required as in the stove; yet a portion of the house fitted with a blind is quite essential, and will prove most useful for keeping such plants as *Indian Azaleas*, *Cinerarias*, herbaceous *Calceolarias*, and *Pelargoniums* when in flower in a better condition, preserving for a lengthened period their beauty. None of these plants should, however, be shaded until they are in flower; otherwise the colours will not be so brilliant. When treating such as the *Calceolarias* in a span-roofed house, it is best to keep them least exposed to the sunshine. *Cape Heaths*, *Epacrids*, *Aphelexis*, and other *Cape* and *New Holland* plants should all be fully exposed until in full flower, then a very light shading during the brightest part of a bright day will tend to preserve them in good form for some time longer, but on no account should the shading of these plants in any case be prolonged, otherwise the growth will soon be drawn up weakly. Retarding plants by means of shading is a mistake. The better plan is to place them in houses with a north aspect, or if in a span-roofed structure, upon the side that is least exposed to sunshine.

When shading is found necessary for pits and frames, the inevitable Archangel mat is frequently resorted to as the speediest and most effectual method. It is effectual in excluding the sun's rays altogether; no one will dispute this point, but this is not what a practical plant cultivator would dream of trying to accomplish. It is just the way to weaken growth and render shading even more necessary than would be the case when a light material, as at first recommended, is being used. For pits and frames it is best to provide the shading of sufficient width and then affix it upon light rollers, working it lengthwise—not up and down. This is, in my opinion, a better plan than fixing it in position with hooks and eyes; its application in the former instance can then be regulated to suit each case with its various changes.

JAMES HUDSON.

ORCHIDS.

THE weather is still cold with frosts every night owing to the wind persistently keeping in the north and east, but the days have been bright and fine; therefore, it has been easy to give the plants sufficient ventilation, it also being necessary to shade the houses at the time they have been fully exposed to sunshine. We are thankful for this fine weather, for its beneficial effect upon the plants is already very marked. Last year, owing to the lack of sunshine, the *Cattleyas* of the *Triane* group which were placed on the shady side of the house did not make such good growths as they would have done had they been placed in a better position or the season been more favourable to their healthy, solid development. They are now since they passed out of bloom forming roots rapidly, and we may hope that their lack of flower-production this year may be made up by better flowering growths for the following season. Many of the *Dendrobiums* are now passing out of bloom, and some of them have made considerable advance in the formation of new growths. Of such are *D. nobile* and the beautiful hybrids raised from this and the *D. heterocarpum* (aureum) cross, of which *D. Leechianum* is undoubtedly the best; *D. Ainsworthi* is the oldest form; *D. Wardianum*, *D. crassinodes*, *D. Brymerianum* and *D. moniliforme*. *D. Findleyanum* has flowered splendidly this year, and is a lovely delicately tinted species. Many other species and hybrids I have not named, but I allude to them here because it is of much importance that they should be reported or surface-dressed as soon as they pass out of bloom. If this work is delayed, the new roots which are produced after the young growths have started may be injured. They require from the time they pass out of bloom until the growths are

well formed plenty of light and moisture with the temperature of the warmest house. What used to be termed the pruning system of treating *Dendrobiums* has not been heard much of recently. I remove any decaying growths and such as show by their shrunken appearance that they have lost their vitality; to this extent pruning is a necessary part of the cultivation of the plants, and if the variety or species may happen to be scarce and their propagation is desirable, these old stems cut into short lengths if laid upon a surface of live Sphagnum may be encouraged to make fresh growths from the nodes of the old and partly exhausted stems, and as they would not produce any more flowers if left upon the plants, they are of no value for any other purpose. It will be very necessary to see that the plants are quite clean and free from thrips, red spider or any other parasite. Water the growing plants freely, and on the mornings of fine sunny days they may be syringed. The later-flowering *Dendrobiums*, such as *D. Bensoni*, *D. Devonianum*, *D. Dalhousianum*, &c., should have a little more heat and be fairly well supplied with water at the roots. *D. Devonianum* and *D. Falconeri* are very liable to be attacked by red spider, and should be daily syringed when growing.

The general treatment of all classes of Orchids at this season is of much importance, for unless a good start is made and any plants receive a check at the beginning of the season, the chances are that they may not recover again for twelve months. Watering is of the first importance, and on this point the amateur who starts the cultivation of Orchids with little knowledge of general plant culture and none at all of Orchids, finds himself in a dilemma, and yet in some cases such men, when very enthusiastic, may find their way to cultivate plants well which have altogether baffled the efforts of the most experienced cultivators. Those who are anxious about this matter may take as a general rule that all Orchids in growth and freely making new roots are likely to be injured if the potting material gets too much on the dry side. In the case of the *Dendrobiums*, for instance, I like to see the Sphagnum Moss growing on the surface mingled with the fibrous peat and pieces of clean drainage; the new roots will be found pushing over the surface freely amongst the growing Sphagnum. *Cattleyas* also require plentiful supplies of water, more especially the long-bulbed varieties; but in their case it is better to allow the potting material to become moderately dry, especially if they are large plants with a considerable mass of fibrous peat mingled with a little Sphagnum Moss about the roots. Plants suspended near the roof-glass in shallow pans or teak baskets require water two or three times to once that they will on the side stages, and a large specimen *Cattleya* or *Laelia* may not require water more than once in ten days, while small plants which have filled the receptacles for their roots well may need water every day, or at least three or four times in a week. The more vigorous-growing *Cymbidiums*, such as *C. Lowianum* and *C. eburneum*, require plentiful supplies of water and weak liquid manure occasionally. The soil should never be quite dry, even in winter. *Cœlogynes* require plentiful supplies of water and not to be too freely exposed to bright sunshine. All the varieties of *C. cristata* do best near the glass roof of the intermediate house, but on the side of it least exposed to the sun. All the *Cypripediums* may be freely watered, as established plants form immense masses of roots; in fact, vigorous specimens of *C. villosum*, *C. barbatum*, *C. Lawrenceanum*, &c., when they are turned out of their pots after a year or more seem to have nothing but roots. It can easily be seen by the condition of the plants whether they are well rooted or otherwise, and water may be applied accordingly. Of course when we come to write of the *Odontoglossums*, *Masdevallias*, and *Oncidiums*, such as *O. macranthum*, in the cool house, it is safe to recommend a free supply of water all round; enough should be given to keep a healthy, good growth of Sphagnum Moss on the surface. Any plants of *Disa grandiflora* in the house may be watered once and syringed once every day. The temperature of the cool house should be about 50° at night to 60° by

day; when the temperature rises to 65° by sun heat, let down the blinds. The Cattleya house may be 55° to 60° at night, and will rise in the day to 70°; shade when the temperature rises to this. The East India house may be 65° to 70° at night, rising to 80° by day, but shade at 80°.

J. DOUGLAS.

THE KITCHEN GARDEN.

GLOBE ARTICHOKE.—Even where these have wintered safely it will be late before the stools commence to make a free growth, and even up to the first week in April it has not been safe to remove the dry litter surrounding the plants; consequently the surfacing of rotten manure has had to be delayed. In the case of weakly plants, or those which may have been hard hit by the late frosts and cutting winds, manuring had much better be deferred until the young growth has fairly started, for it cannot benefit weakly plants to surfeit them with rich food. The growths being very backward, the making of fresh plantations where these are in course of contemplation will be very much delayed, for it is useless to divide dormant or weakly stools. The suckers should be quite 12 inches in length before they are taken off, as at this stage young roots will be forming, and after being detached they will quickly take to their fresh quarters. A rich root-run being essential, the suckers should be set out in rows 4 feet apart and 3 feet in the rows. Some growers plant three suckers to a station. Trenches may also be formed, these being taken out to the depth of a foot and about 18 inches in width, filling them up with a richer compost.

MAIN-CROP CARROTS.—There cannot be any doubt that the main-crop of Carrots is, as a rule, sown too early. In the majority of instances about the middle of the month is a suitable time. Carrots delight in well-worked, pulverised ground, and this season it should be in good condition, even the most stubborn of soils if attended to early enough being in fine working order. Recently manured soil is not good for Carrots, this causing the roots to become forked. There are, however, exceptions to this rule, and these are where the manure is some distance from the surface and applied early enough to become partially disintegrated. Burned garden refuse, to which the Carrot is very partial, will no doubt have been worked into the surface ere this, but if not, there should not be any delay if such material is at hand for the purpose. A light dressing of soot and salt, the latter at the rate of an ounce or even two to the square yard, should be raked into the surface previous to seed-sowing, this acting as a deterrent to maggot and also as a pulveriser. Select the intermediate and stump-rooted forms for shallow and cold soils. The above forms are mentioned because on shallow and cold soils the Long Red Surrey type, which requires a deep soil, would be comparatively useless. Previous to seed-sowing, if the ground should be at all light and spongy, it should be equally trodden over previous to drawing the drills. The drills for the main-crop kinds should be drawn 12 inches apart, and if space is an object, the stump-rooted 10 inches. The seeds should be sown thinly, and if the soil is at all lumpy, germination will be greatly assisted by filling in the drills with lighter and sandy soil.

BROAD BEANS.—Those of the Long-pod section which were sown early under glass in a cold frame are now very forward, as those sown in the open air are very backward on account of the inclement weather. There should be no delay in putting in the main-crop section, of which the Green Windsor is still the best of any for flavour, although for exhibition or for those who prefer them, the longer-podded Leviathan type should be selected. Strong soils should be chosen for Beans where there is a choice in the matter; in fact, on a cold and heavy soil I find the produce come very good. The seeds should be placed in double rows 6 inches asunder, the rows being quite 30 inches or 3 feet apart where more than one row is sown, but a single row of from 20 yards to 30 yards will be sufficient, periodical sowings at intervals being better than

a single one of a larger quantity. As the Beans come through the soil, earthing up must not be neglected, and where slugs are likely to be troublesome, a dusting of fresh soot previous to earthing will prove an effective antidote.

VEGETABLE MARROWS IN FRAMES.—Where early Potatoes are grown in manure-heated frames, and these can be spared for the purpose, they may be turned to a profitable account by putting two or three Vegetable Marrow plants in them, an early supply being therefore assured. If the frame should not be wholly cleared by the time the plants are ready, two or three roots may be removed from each light so that there may be no loss of time in putting out the plants. A few seeds sown now will thus be of benefit, but, of course, this will not interfere with the later crop to be raised for planting in the open air, and for which purpose there is ample time yet.

EARLY CABBAGE.—These have had a very rough time of late, and in some instances I fear they will be killed outright. Still, those which have weathered the storm are now looking up, and will be greatly improved by surface stirrings, and at the same time a little soot or guano sprinkled about the surface and hoed in will be of great benefit. Afterwards, as they commence to start freely into growth, a slight earthing will be of benefit, drawing the soil up on each side. As a last resource, and if the plants look as if a little extra assistance would be of benefit, a little nitrate of soda sown lightly over the surface will prove of inestimable value. A. YOUNG.

KITCHEN GARDEN.

NOTES ON BEET.

The new Crimson Ball and Globe varieties of the Egyptian or Turnip-rooted Beet are very superior to the old form, and ought certainly to quite supersede the latter. Not only do they quickly attain a serviceable size, but they also keep admirably, the quality at the present time being fully equal to that of the best of the long-rooted varieties. They will succeed well where the latter fail, a rather poor or shallow soil suiting them admirably. On deeply cultivated rich ground they are apt to grow rather too strongly, become objectionably coarse in fact, but this difficulty can easily be obviated by sowing later, or say about the second or third week in May. They are heavy croppers, too, for if the drills are disposed 15 inches apart the seedlings may be left 4 inches apart, and further lightly thinned when the forwardest are near the size of tennis-balls, and therefore fit for use. I have hitherto grown the Turnip-rooted forms principally for early use, not considering them equal to Dell's Crimson and such like for winter use, but in the future the Globe-shaped forms will be more extensively cultivated, as they please the cooks as well as those who eat them. For affording early supplies of tender highly-coloured young roots they are indispensable. A considerable gain will be effected by sowing a pinch of seed now in a pan or box of soil, placing it in heat to germinate, the seedlings being grown to a good size near to the glass in a pit or frame, and then transplanted, that is to say, dibbled out 9 inches apart on a warm border. Fairly early roots can also be had by sowing seed at once on either a warm border or in a sunny open spot. Frosts occasionally destroy the very early sowings, but this risk may well be run, while birds have in many cases to be kept off with nets, or an occasional dusting of soot and lime may be given while the dew is on the plants, this also saving them from slugs. The end of April or early in May is early enough in most localities for sowing the main-crop Beet. In this case also coarseness is most objectionable, and if the ground is strong

and has been well manured for the previous crop, no manure ought to be given for the Beet. It is possible to err in the opposite direction, poor ground not growing Beet quickly or large enough, small and stringy roots being of no value whatever. If solid manure is used, this should be dug in rather deeply, so as to prevent the tap roots coming into contact with it too quickly, forking being the inevitable result of the latter occurrence. Dell's Crimson is in my opinion the best main-crop Beet in cultivation, and it is also known under many other synonyms. It is of neat growth, the foliage as well as the roots being very richly coloured, but it is scarcely vigorous enough for poor soils, and for these the Cheltenham Green-top and Pragnell's Exhibition are more suitable. If either of the latter is grown on strong ground, defer sowing the seed till the middle of May, and draw the drills 15 inches apart, eventually thinning out the seedlings to about 8 inches apart. Dell's requires less space, and the drills for this variety may be 12 inches apart, leaving the plants from 6 inches to 8 inches apart at the final thinning.—M. H. F.

— Distinct types of Beet are not very numerous if the names are. For early use the Egyptian Turnip-rooted is generally sown, but it has a distinct rival in Crimson Ball, which I prefer. The value of these Turnip-rooted Beets is in their coming quickly to a usable size during the early summer months. If the early-sown Turnip-rooted Beet is allowed to remain on the ground until the main crop is fit for storing, it would certainly be useless, for it would grow to a very large size, when, of course, any merit it previously possessed would be gone. Of the long varieties, Dell's Crimson is a well-tried variety, the roots being of medium size and of excellent colour. Pragnell's Exhibition, as its name implies, is much sought after by exhibitors, being of handsome shape when well grown, the colour and quality being also excellent. Cheltenham Green-top, which has lately come into prominence, is a very fine and distinct Beet. Nutting's Dwarf Red may take the place of Dell's where desired, but it is not so vigorous. Frisby's Excelsior is after the style of Nutting's Dwarf Red. Like other vegetables, it is useless growing several varieties, the Turnip-rooted for earliest use and a good selection of the long-rooted being sufficient for all ordinary purposes. Too early sowing is a great mistake with main-crop Beet, for even where the soil is all that can be desired, the length of time the roots have to remain previous to storing causes them to grow very coarse. The main-crop sowing had much better be deferred until the first week in May. Too early sowing also has a tendency to cause the roots to form a flower-stem.

The preparation of the soil is of the greatest importance, for if this should be poor and stony, or even badly worked, the roots, besides being of poor quality, become forked. Recently manured land also has a tendency to cause the roots to be forked, and for this reason a plot should be chosen which had been well manured for a previous crop, such as Celery, Cauliflower or even Cabbage. According to the analysis of the Beetroot, potash and salt predominate as the main constituents, although soda is also present in a good proportion. Looking to these facts, it is evident that these elements must be present in sufficient quantity if well-nurtured roots are to be had. As a form of potash, wood ashes or burned vegetable refuse is perhaps the best. Soot is also used and also salt. On light soils this latter is of proved benefit. This should be sprinkled over the surface previous to sowing at the rate of 2 ozs. to the square yard. When ground is ready for sowing, drills should be drawn quite 15 inches apart and also about an inch and a half in depth, for if at a lesser depth and a dry time should ensue, the seeds might fail to germinate. During a dry period I have found it necessary to moisten the drills over-night and also to soak the seed at the same time. By soaking the seed over-night and also moistening the drills, the seeds, if sown early the

following morning before the soil has had an opportunity of becoming dry, soon germinate. The seeds in either case must be sown thinly, for if too thickly sown there is a danger in thinning of disturbing the roots. I am well aware that transplanting is sometimes recommended to fill up faulty rows, but whatever may be its advantages, it also has its disadvantages. Thinning out must take place directly the seedlings are large enough. The storing of Beet is most important. Too warm a place brings about premature sprouting, and too dry surroundings cause the roots to shrivel. Some growers favour leaving the roots in the soil where they have been grown, earthing up the soil on each side as a protection from frost and excessive wet. On sandy soils this may do, but the method also has its disadvantages. Other growers take them up and store them in cone-shaped heaps of convenient size under the shade of a tree. I have a well-constructed root store. This is behind a north wall, the ground floor being about 3 feet below the natural level, the floor also is bricked over. In this structure the roots keep sound and fresh packed between layers of sand, the crown of the roots pointing outwards.—A. Y. A.

Tomato disease.—As a supplement to the article by "A. Y. A." (p. 278) on the prevention of the *Cladisporium* on Tomatoes, I should like to add a word of warning as to planting Potatoes on the wall borders or near the walls on which it is intended to grow Tomatoes. Though *Cladisporium* and *Peronospora* may be distinct forms of fungoid growth, either there is some analogy between them, or Tomatoes are subject to the latter as well as to the former of them. Of this I had plain proof last year, when through the force of circumstances I had to plant Tomatoes on the west end border of a garden, the north boundary of which is the south wall of a walled-in garden. On this wall Tomatoes were planted. They grew and fruited very well until the Potatoes took the disease: from these it spread to the Tomatoes, and its progress was unmistakable, though not very rapid, as it attacked first the plant nearest to the Potatoes, and so advanced plant by plant eastward, till by the end of the season it had affected about two-thirds (probably about forty) of the plants on a wall 100 yards long, and no doubt it would have gone farther had not autumn frosts cut it and the Tomatoes short. On the parallel wall about 30 yards off, also planted with the same varieties of Tomatoes between fruit trees, not a plant was touched. The only difference between the Tomatoes and Potatoes as regards the spread of the disease was that its progress was much slower on the former, probably through the different texture of the growth.—J. C. TALLACK.

Turnips.—The best point in "S. H.'s" note on the Early Milan Turnip is that in which he mentions his practice in pulling the bulbs so soon as fully grown and laying them in on a north border so as to assist in retaining vitality and freshness for a longer period than would be the case were the bulbs left where grown. Such a practice is one of the wrinkles of the observant cultivator, and well worth the fullest publicity. Undoubtedly it is the fact that all these early summer Turnips, whether the Early Milan or any other, have very fugitive lives, so far as actual usefulness is concerned. Heat and drought (usually the weather features of July and August) soon cause Turnips to become dry and astringent. To transfer them to a north border, burying the bulbs in cool soil, seems to be the very best course to secure their preservation in a fresh, useful condition that can possibly be advised. It can hardly be doubted but that many growers of these summer Turnips will now take the hint. "S. H." wonders why if Extra Early Milan Turnip be so poor in quality it received a certificate of merit from the Royal Horticultural Society. I think that honour was given some few years since, but at least it was repeated last year, when, after a capital trial of all the best known varieties of Turnips, a selection of the best for honours was made, the Early Milan being so noticed because of its exceeding precocity. That

it is useful other than as an extra early bulbing variety no one imagines. It has often been asked, and the question may be repeated here, Why is it that we in the south dislike the yellow-fleshed Turnips, which are found to be so generally popular and acceptable in the north? Really the yellow Turnips are better flavoured and of more Marrow-like texture of flesh than are the white forms, so that it would seem as if only colour prejudice prevented our growing and using them in the south. If there be any other reason for such neglect, I should like to hear of it.—A. D.

COLLECTIONS OR SELECTION OF SEEDS.

THE rage for collections seems passing away, and the more useful and practical plan of making selections seems gaining ground. This is not to be wondered at, for if the owner or cultivator of a garden does not know what he requires for the season, it is certainly not to be expected that a stranger can make out a better list, and the unanimous verdict of those of my friends who have gone in for collections is that they got a good many seeds that they did want and found useful, but that they had so many that they did not require at all, that it caused the sorts they did utilise to cost them more than if they had selected the kinds they had space and use for, and paid per-



Fruiting branch of Fig.

haps a little higher figure for them. If we take the most important classes of vegetables, such as Peas, that are in most gardens in request for as many weeks in the year as they can be had, we find in practice that it is very difficult to allot the precise quantity that a moderate-sized garden would require, and if that were the only difficulty, it might be got over by having collections rather under the quantity one expected to use and making up the deficiency from the neighbouring seed store. The question of suitable varieties is even more important than quantity, for in the outskirts of populous towns, where the majority of villa residences are located, Pea sticks are such an expensive item, that they cost nearly as much as the Peas could be bought outright for, and for this reason all sorts of contrivances in the shape of wire supports are used, or, as is more generally the case, all the tall-growing varieties are discarded, and only the dwarfs, such as American Wonder, English Wonder, William Hurst, and Little Gem, are used. But if there is any difficulty in making up a collection to suit any two gardens without first consulting the wishes of the owner in the matter of such a universally used vegetable as Peas, how can you expect to be more successful with such vegetables as are held in the highest estimation in one garden, but never used if grown in the next? I allude more especially to Parsnips, Broad Beans, Salsafy, Scorzonera, Chicory, Artichokes, that one finds the packets left unopened at the end of the season, and eventually cast into the furnace. Gardens as a rule are not any too large to supply the household they are attached to, and one of the most

important things in the management of a garden is not so much the mere planting of certain crops, although a good deal depends on that, but in making an estimate at the earliest date of what space can be allotted to each vegetable and what quantity of seed will be required, allowing for casualties incidental to our variable climate. J. G.

Gosport.

Scarcity of green vegetables.—The foreigner will, to all appearance, have a very good time of it this year, for it is seldom that green vegetables are so much cut up as they have been this last winter, and March seems to have put the finishing stroke on them, as what few had escaped, or were apparently alive, have succumbed since, and whole breadths of Broccoli and even Cabbage stalks are destroyed. The hardy Brussels Sprouts have suffered severely, too, and Spinach, which one might have expected would be safe under the snow, looks scorched in the leaf and affords no gathering, so that altogether the home supply of all garden stuff will be short. Unfortunately, young plants have shared the same fate as the old, as seed beds of Cabbages and Cauliflowers pricked out under walls are gone, and nothing is left us to plant out and fill up the gap. Laments, however, are useless, and the thing is to sow at once and rear some of both of the last-mentioned vegetables under glass, and if seed can be sown in a warm frame the plants will come along quickly and be in almost as soon as those raised in the autumn, but early sorts must be chosen. Among these in the Cabbages, Ellam's is the best, but Veitch's is good, and Erfurt Cauliflower is the one to be chosen.—S. D.

Mushrooms failing.—I send you a few Mushrooms which are covered with small insects on the top and stems. I shall be pleased if you can inform me through THE GARDEN what they are, and if there is any means of destroying them. I have been troubled with this pest for five or six years, more or less. This season I have seen very little of it until the last few weeks. I uncovered a fresh bed and found the young Mushrooms covered with the insects, and other beds in bearing are now very much the same. The crops have been all I could desire up to the present, but I find when the Mushrooms become infested they do very little good afterwards. I have fumigated with tobacco, but it appears to have no effect whatever. I always sulphur the house well before I commence making up beds. I used mats for covering. The house is nearly new, built of brick with slate slabs, and heated by hot water.—J. BOWLER, *Caldecote Gardens, Nuneaton.*

It is not often Mushrooms are infested by insects in the manner described above, but it is by no means an isolated case. In all probability the brood was introduced into the house with the manure in much the same way as woodlice are, the dry surroundings in stables, and especially about the heaps of newly-turned out manure, favouring this unfortunate occurrence. Without committing myself positively to the assertion, I am yet of opinion, however, that the insects complained of are not the original cause of the cessation of growth in Mushrooms. If the other conditions were favourable, Mushrooms would hold their own in spite of the insects. What the latter thrive in, and which the Mushrooms do not like, are high temperatures and a dry atmosphere. During the prevalence of cold searching winds, notably those experienced in March, or frosts, if the attempt is made to keep up high, or moderately high, temperatures, the atmosphere becomes unfavourable to the progress of Mushrooms—frequent damping down or overhead syringings, if they do not aggravate the evil by unduly cooling or saturating the beds, certainly not greatly mitigating the ill effects of excessive fire-heat. A house to be really serviceable ought to be heated, but the less fire-heat used in reason the better. Instead of the walls being thinly constructed of bricks and the roof merely tiled or slated over, the former ought to be either more solid or, better still, thatched, and if the roof is not

also thatched, the least that can be done is to ceil it underneath. When the houses are constructed more on these lines than at present is the case, there will then be far less need to turn on fire-heat so freely and often, and fewer failures. They are more snug in winter and cooler at other times, very little heat being required to keep up the temperature to the congenial height of 55° and less difficulty in keeping it down to that in hotter weather. If the heat cannot be kept up to that



Fig Dauphine Violette.

figure without rather hard firing, then let it drop from 5° to 10° lower for a time, and which can be done without fear of injury to the Mushrooms. Mr. Bowler's case may not come under any of the foregoing, but if a too strong and dry heat is not to blame for the failure. I do not know what is. It would be advisable, however, if the beds are at all dry to try the effect of a gentle application of water impregnated with salt. I should use it moderately strong, or at the rate of 3 ozs. of salt to the gallon of water, and in addition to being an excellent fertiliser for exhausted or partially exhausted beds, it may also prove a safe and effective insecticide. Mats are a good covering for Mushroom beds, but closely-fitting wooden shutters are better.—W. I.

ORCHARD AND FRUIT GARDEN.

POT CULTURE OF FIGS.

HOUSE-GROWN Figs are, as a rule, far superior in point of quality to any ripened in the open air, the only exception that I am acquainted with being the White Marseilles, a delicious little green-fruited variety that succeeds admirably against sunny walls in southern districts. In



Bordeaux Fig.

addition to the great improvement in the quality of their fruit, the trees under glass can easily be made to produce two and sometimes three good crops of fruit, and, all things considered, a Fig house is a very desirable adjunct to most moderately large gardens. A good dish of Figs also has great weight in a collection of fruit at shows, and this has also led to much

extra pains being taken in their production. It is only from plants in pots that it is often possible to obtain three crops in a season, and even in this case it would perhaps be wisest in the long run to be content with two, one ripening in April or May and the next in July and August or thereabouts. The trees have to be started early in the winter, being given the benefit of a gentle heat and moderately brisk bottom-heat, this leading to the production of a large number of fruit near the points of all well-matured growths. So freely do pot trees usually produce fruit, that thinning out has to be rather severe, or otherwise all may be small and the second crop somewhat prejudiced. The second crop is obtained from the young wood, and in order to forward this considerably and also to secure good bearing wood for the following winter, young shoots should be freely thinned out and stopped to a length of about 9 inches. This stopping causes fruit to quickly develop at the back joints, while fresh growths spring from the ends. It not unfrequently happens that this second crop is better than that first obtained owing to the premature dropping of early-formed fruit, but there ought really to be little of the latter, provided high temperatures at the outset and starvation treatment are avoided.

Figs in pots when once they are in full growth and rooting strongly must be fed up well. Never ought they to flag for want of water, and if the pots are only half plunged—the usual practice—water has to be given twice or three times during clear days. Liquid manure and surfacings of some kind of special manure are of the greatest service, and must be applied moderately strong and often. The roots simply revel in rich porous top-dressings, than which nothing answers better than roughly broken up fibrous loam and horse droppings in equal proportions, bone-meal being freely added. Occasional subsequent surfacings of the latter alone will keep the roots active near the surface and largely tend to promote the productiveness of the trees. When top-dressings are given as they ought to be, those responsible should remember that the state of these is little or no guide as to the necessities of the roots or condition of the old soil underneath, as the former may be sufficiently moist, while the latter is injuriously dry. After top-dressing, therefore, water should be applied nearly or quite as often as heretofore. There is nothing to prevent trees somewhat underpotted from being given a shift while cropping freely, and if the work is done carefully, using a well-warmed and fairly rich loamy compost with a little bone-meal and mortar rubbish added, the potting being done in the same house where the Figs are being forced, they will be greatly benefited by it. Not a little, however, depends upon the watering of these newly-potted bushes or trees. The old ball of soil and roots must be in a thoroughly moist state when the shift is given, and be kept so subsequently without unduly saturating and souring the new soil. This can best be accomplished by sinking the old ball slightly lower than the surrounding soil, so as to form a basin for the water, and the fresh compost being rammed down rather firmly, there is not much likelihood of this becoming too moist. When repotting allow good room for watering, and this will not be materially interfered with by the loose top dressings.

Moderately high three-quarter span-roofed houses suit Figs in pots well, and the latter

being raised up to near the glass, as they ought to be, plenty of light and air reaches them all round. If the roots are much restricted, there is little likelihood of the trees growing either too rankly or dense, but when the roots have access to and are left undisturbed in a mass of



Fig Osborn's Prolific.

rich fermenting material, the growth is apt to be much too sappy to bear well. Trees in full bearing and not growing strongly would be greatly assisted by having the pots mounded over with lumps of turf, but the roots should be prevented from leaving this for manure or decaying leaves underneath. Rooting out will not prevent the removal of the trees to the open air in the autumn, and when repotting takes place, as it should do, not later than September, all outside roots and the bulk of those inside the pots may be freely shortened back, some of the old soil forked away, and a fairly liberal shift given. Pot trees rarely need much pruning, but if any shoots are inclined to grow rankly, stop them in good time; while if the growths are at all crowded, either lightly thin out, or, better still, give more room by staking out.

When the fruits are about the size of small Walnuts, the flowering or most critical stage



Fig Courcouelle blanche.

has been reached, and while they remain stationary, water rather sparingly and keep the atmosphere drier, overhead syringing being resorted to only when the house is closed on bright days. Too much moisture or over-excitement at this stage sometimes ends in the loss of the greater portion of the crop. A fairly brisk bottom heat and a house temperature

of about 60° by night, with an increase of 10° or rather more in the daytime, are safe enough during the flowering period, after which it may well be raised 5° all round, the trees being syringed freely overhead in the morning and again when the air is taken off, plenty of moisture in the atmosphere being also needed. When the first crop is ripening, an excess of moisture in the house is apt to cause decay to set in at the points, and by way of a preventive for a time, therefore, a drier atmosphere should be maintained, air also being admitted more freely. There must be no drying off at the roots, however, or the very important second crop will suffer. The latter ought also to be thinned out after the flowering period, or the fruit will be small, and directly the first crop is cleared off resort to overhead syringing again, and damp down the floors and walls frequently. Figs are poor, insipid things if gathered before they are ripe, and must be left on the trees till they are cracking and have a "dewdrop" at the point, at which stage they are delicious.

On the whole, I give the preference to Brown Turkey for pot culture, but have had excellent crops of Negro Largo, Brown Ischia, and Osborn's Prolific, and can recommend these also. Figue d'Or proves to be our old friend Brown Turkey under a new name, but there are several new varieties in commerce that succeed well in pots, though I have not as yet given them a trial. Strong suckers or cuttings newly rooted could easily be grown to a serviceable size between now and next winter, a sunny position in a forcing house being accorded them. Cut the former back to a length of about 6 inches, stop the shoots resulting when about 6 inches long, and by these means secure eight or more good branches, which if staked out thinly will be ample for laying the foundation of a serviceable bush. One moderately good shift should be given before the plants become badly root-bound, a loamy, but not rich compost being used and firm potting resorted to. Stand the pots on a moist bottom, but avoid plunging, this causing a too sappy growth. Keep well supplied with moisture at the roots, syringe overhead freely, and transfer to either a cool, light, and airy house, or else to a sunny, open spot for the wood to harden. Thus prepared, they ought to force well next season, every firm short-jointed shoot fruiting freely. Useful little trees in pots can be bought from the leading nurserymen, these producing a few fruit this season. Give a shift soon after active top-growth commences, and stop the young shoots early, thereby improving the form and productiveness of the trees. Pot trees also succeed well in unheated houses or any not forced, but they must have a light, sunny position and be well fed at the roots. The second crop of these rarely attains perfection.

I. M. H.

Thinning the buds of Peach trees.—I am glad to note that "S. D." repeats my advice often given in your pages and elsewhere to those about to thin Peach bloom. I never could see what harm the excess of blossom did or could do unless in rare cases where the buds are too crowded together. But such cases in which the buds are overcrowded or almost crushed through their mechanical pressure are very rare, and, of course, every cultivator would interfere—that is, thin so far as to prevent such a crush of opening buds. But beyond that, where is the benefit or good of thinning off the bloom? Through all their preliminary stages of growth up to the setting the flowers perform analogous functions to the leaves—that is, they add to the resources and food supplies of the trees and subtract nothing from within. Some contend that

there is but little, if any, change of function in green stone fruit up to the period of stoning. Be that as it may, most cultivators know only too well that the period of hardening and finishing the stones of Peaches and other fruits is one of great strain to the trees; consequently were all or any great excess of fruit left through that crucial period, the trees might often cast off or drop the whole. Hence cautious cultivators begin to thin their Peaches so soon as safely set; they continue to thin tentatively, always removing the smallest and worst placed until the stoning is completed. Thus a final overhaul is made, still leaving a few in case Nature's selection should not prove identical with that of the cultivator. The same tentative policy is the safest and the best for shoots as well as for fruits. It involves sufficient care and labour without adding to both by the rather risky and wholly useless addition of thinning Peach blossoms either out of doors or in.—D. T. F.

—A note on the above subject appears in your issue of March 26 (p. 270) signed "S. D.," in which he strongly condemns the thinning of flower-buds on Peach trees, as sheer waste of time, and further that it is a mistaken idea so far as inducing weakness is concerned. Again, on p. 282 of the same issue, "Practical," in an excellent article on late Peaches and Nectarines, commends the system of thinning flower-buds as being of much benefit to those reserved. These statements are so much at variance with each other and likely to confuse, that unless some further light is thrown on the subject, the ordinary gardener is at a loss which method to accept. I have always understood that when plants were allowed to flower their vigour was impaired, and I have known gardeners prevent their plants blooming at certain periods in order to conserve their strength for a later date. Exhibitors are in the habit of reducing the number of flowers on plants in order to concentrate the plant's force into those left. For example, I may cite Roses, Pelargoniums, Begonias, and Chrysanthemums. The fewer the flowers the more robust is the plant. Everyone knows no good Orchid grower will allow a sickly plant to flower. If he did, the plant would be further weakened. How then can it be different with Peach trees? An answer might help many perplexed like myself.—J. B.

Apple Guernsey Pippin.—My attention has been directed by an amateur pomologist to the value of this late Apple for dessert, and, judging from the samples received, it certainly would appear that its merits fully warrant me in asserting that this variety has been too much neglected by planters. The fruit is somewhat small, or not more than 2 inches wide and rather less in depth, with a few prominent ribs terminating in ridges at the crown, while the skin is yellow and almost entirely covered with bright russet. Flesh greenish yellow, crisp, juicy, slightly acidulous, and, I find, easy of digestion. The latter quality is of greater importance than generally considered, and I should describe Guernsey Pippin as being a very taking, wholesome and refreshing Apple. As far as I can learn, it is a variety admirably adapted for garden culture, and should be a welcome addition to the by no means extended list of dessert Apples. A variety that is perfectly fresh, or, I may say, at its best, during February, March, and April is well worthy of being extensively cultivated, and planters should make a note of it.—W. IGGULDEN.

Damsons.—There are few fruit trees that get less attention than the above, and to advise a different course of treatment, such as severe pruning or manuring, is out of the question, as in many instances Damsons are planted for shelter to other fruits, for which purpose they answer admirably. If planted as outside trees and not too thickly, they will repay for the ground they occupy, and though a glut comes occasionally and the fruit is barely profitable, owing to heavy charges for carriage, &c., it makes up for losses by its price in other seasons. In Kent immense quantities are grown. I have observed that the trees in some instances are not pruned. This, I consider, is a mistake, as those who do remove some of the crowded shoots get much finer fruit. The fruit is

also a few days earlier, and thus two important advantages are secured. It will often be noticed that the largest or coarse-growing trees fruit less than others, and to apply severe measures to these would only aggravate the evil. I have had such trees for years without a fruit, although every spring they were covered with bloom. By removing the branches piecemeal and curtailing the roots the trees have been made profitable. Much also depends upon the variety, some being more fruitful than others. The Farleigh Prolific or Kent Cluster is one of the best. Another equally good variety is the Shropshire Damson—much grown in some districts. In the case of young trees, a little attention paid at the start well repays the grower by size and quantity of fruit.—G. W.

CANKER IN MELONS.

Two prominent articles on this favourite fruit in THE GARDEN of March 26 remind all your readers of the growing importance and popularity of this fruit. The Melon ought, perhaps, to take second rank to the Grape. No dessert can well be poor or common-place that has one or more perfect Melons, and in not a few families Melons are expected in perfection daily eight or nine months out of the twelve.

Occasional canker is almost an incident in the extensive cultivation of Melons. Gangrene is more an error of culture than of constitution, and if the useful practical instruction of "Y. A. H.," Mr. Ross, and other writers given in your last number are carried out, gangrene will be mostly unknown. No doubt rank manure, over-stimulation through heat or moisture, excessive closeness of atmosphere, too deep planting, &c., are fruitful causes of canker. But, on the other hand, excessive dryness at the roots, full exposure of the base of the stem of Melons to direct sunshine and a mechanical rupture are also frequent causes of canker. Fear of injury from an excess of water not infrequently leads to the opposite extremes. In fact some lay down the rule, never moisten the collar of a Melon plant from the time it is planted out until it has ripened its fruit and started for a fresh crop. Under such a dry régime of root and yet humid atmospheric conditions it is little marvel if the stem at the point of unity between two such extremes of aridity and humidity should canker. Again, the fierce rays of the sun hitting the unprotected stem at this its weakest and most vulnerable point predispose to canker. In a state of nature nothing analogous to such direct exposure at such a point is possible. The overlapping canopy of leaves would completely overshadow the collars of Melon plants under the most tropical conditions. Again, mechanical rupture is a fertile cause of canker or of an enlargement or straining of tissues equally or more destructive to Melon plants in their finishing stages of growth. Were canker chiefly caused through deep planting or an excess of moisture either in the earth or air, it would have been more prevalent in the pit and frame culture of the Melon than now that it is chiefly grown in houses. Such is by no means the case. In many respects the present day culture of the Melon is in advance of all that went before it. But in the prevention or cure of canker we seem to have gone backwards. There seem far more breakdowns at the finish than there used to be, and not a few arise from mere mechanical rupture of collars, thus: The Melons are frequently fixed to an immovable trellis at top, while their root bed, whether formed of decomposing manure or more slowly changing soil, has a greater or less capacity of sinking lower and lower as the crops reach maturity. This throws a tremendous strain on the stems and collars of the Melon plants, which very often snap and yet more frequently canker under it, and the plants and fruit vanish in a day. As to remedies for canker in Melons there are none, though dusting with charcoal powder, burnt chalk and flowers of sulphur are as useful palliatives as any other.

All the possible causes mentioned should also be avoided. Another point is to leave the chief leaves on the main stems till the finish if possible. This keeps up an independent circulation of the sap

through the stem for its own purposes and use till the end—a tolerably sure antidote to canker. I have even kept these main leaves on Melon plants for a second crop, which under favourable conditions, such, for instance, as a sound collar and a healthy stem, may be got in far less time, in greater weight, and in longer succession than the first crop. With a sound, fairly rich holding loam Melons need no solid manure in the soil, and unless very heavily laden with fruit are quite as well or better without sewage or other liquid manures. There is abundant feeding stamina in good loam to ripen one or two crops of Melons in full perfection as to size, colour, flavour and finish.

D. T. F.

GRAFTING.

WE have before shown that one of our earliest and greatest practical experimenters in England, the late Thos. Andrew Knight, began in his later years to doubt the efficiency of grafting in many cases, as the following reprint of a paper read by him before the Royal Horticultural Society, April 1, 1823, on "The injurious influence of the Plum stock upon the Moorpark Apricot" amply proves. All grafting may not be disastrous, but the broad fact remains that it very often is so, and real knowledge upon the point is so limited, that too much watchful observation and care cannot be given to such a subtle question until its effects in any given case are well known.

In selecting stocks for the reception of grafts or buds of different species of fruit trees, the English gardeners and nurserymen generally suppose, that when a stock is employed upon which the inserted graft or bud will grow freely and permanently, everything which is expedient or beneficial is done. It is even supposed that cases exist in which much advantage is obtained by the use of a stock of a different species, and even of a different genus. The Peach and Nectarine trees are thus generally believed to succeed better upon the Plum than upon the native stock, and some varieties of the Pear have been pronounced by Miller to acquire their highest state of perfection upon Quince stocks; but I suspect that Miller formed his opinion rather upon the external colour and size of the fruit than upon its intrinsic qualities, and decided, as every gardener who had honestly sent the best produce of his garden to his employer's table would probably have done, that the sample of his fruit which exhibited the finest colour and the largest size was the best, and it is well known that a young Pear tree, when growing upon a Quince stock, affords fruit of brighter colour and in some varieties of larger size, and that the tree is rendered more governable and therefore more productive when trained to a wall. Taking off a circular ring of bark, or what is called ringing the stock, gives a similar increase of size to the fruit and of brilliancy to its colour; but its pulp is rendered much less succulent and melting, and I suspect that the effects of a Quince stock and of ringing will be found very nearly similar, each operating to interrupt the free and proper course of the sap. Some varieties of Pears are known to be spoiled by the Quince stock, and I entertain little doubt but that the quality of every species of fruit, to some extent, suffers when grown upon a stock of another species or genus.

I have been led to these conclusions by the following circumstances, which have within the last two years come under my observation. I have stated in a former communication* that the Moorpark Apricot succeeds much better upon its native stock than upon a Plum stock. I had observed that its foliage acquired a deeper shade of colour and that it retained its verdure very considerably later in the autumn, and its fruit appeared to me to be singularly excellent. I had not, however, at that period an Apricot tree grow-

ing upon a Plum stock upon quite the same aspect, and I therefore hesitated to ascribe the superiority of the fruit to any operation of the native stock. But I have subsequently planted two trees growing upon Plum stocks and two upon Apricot stocks, upon the same aspects and in a similar soil, giving those upon the Plum stocks the advantage of some superiority in age, and I have found the produce of the Apricot stocks to be in every respect greatly the best. It is much more succulent and melting, and differs so widely from the fruit of the other trees, that I have heard many gardeners who were not acquainted with the circumstances under which the fruit was produced contend against the identity of the variety. The buds were, however, taken from the same tree.

I have also some reasons for believing that the quality of the fruit of the Peach tree is, in some cases at least, much deteriorated by the operation of the Plum stock. My garden contains two Peach trees of the same variety—the Acton Scott—one growing upon its native stock and the other upon a Plum stock, the soil being similar and the aspect the same. That growing upon the Plum stock affords fruit of a larger size, and its colour, where it is exposed to the sun, is much more red; but its pulp is more coarse and its taste and flavour so inferior, that I should be much disposed to deny the identity of the variety if I had not inserted the buds from which both sprang with my own hand.

Having tried experiments only in one soil and in the same situation, I, of course, have stated the foregoing circumstance chiefly with the view of exciting other horticulturists to make similar experiments, and it is particularly desirable that such should be tried in the garden of the society.

I think it probable that the quality of the Nectarine will be still more affected, its pulp being less succulent than that of the Peach, but I have not at present any facts worth adducing in support of this opinion.

One valid objection to the use of Peach stocks must be admitted. Trees budded upon them certainly cannot be transplanted with an equal certainty of success, and particularly trained trees, but those I am very much disposed to call spoiled trees, which appear calculated to gratify the impatience of the planter, but which often ultimately disappoint his hopes. I have never found any difficulty in transplanting young budded Peach trees with perfect success.

The Peach stones, having been protected from severe frost through the winter, may be planted in drills at about 8 inches distant from each other, and a space of about 2 feet was left between the rows. The plants will spring up in April, and in August and September will be of proper age and size to be budded about 2 inches from the ground. The nurseryman, therefore, will have the advantage of taking his buds from the trees whilst the fruit is upon them, and he can in consequence easily guard against errors, which must too frequently occur, and he may be quite certain that none of his buds will break prematurely. Buds may be inserted in the early part of October, and in the last autumn I introduced some with perfect success in November. Late in the autumn I generally shorten the roots of my young Peach stocks, particularly those roots which descend perpendicularly into the soil, by introducing a spade into the ground on two sides of each plant, but without moving it or further disturbing its roots. Thus managed the buds shoot very freely, and with proper attention to preserve their fibrous roots and to pack them properly, they may, I am certain, be sent to the most distant parts of the island without danger of their being killed by their removal. Older trees possibly cannot be removed without danger of their failing, but I transplanted a Peach tree in the last autumn of ten years old, which grows upon its own roots, and was more than 10 feet high, and it is this spring emitting its blossoms as freely as those trees which have not been transplanted. Its roots were, however, well preserved and its branches properly retrenched.

Peach and Nectarine trees, particularly of those varieties which have been recently obtained from

seed, may be propagated readily by layers either of the summer or older wood, and even from cuttings without artificial heat, for such strike root freely. But the most eligible method appears to be that of sowing the stones and budding the young plants in the same season; and I will venture to assert that Peach and Nectarine trees may be thus raised with much less expense and trouble than by the ordinary method of budding upon Plum stocks, and that the rapidity of their growth will amply compensate for the small size at which it will be expedient to plant them. An opinion prevails amongst gardeners that such trees will prove very short-lived. In opposition to this, I have nothing further to say than that I have plants of more than twelve years old, one of fourteen years old, which certainly show no disposition to die nor any appearance of having grown old.

APPLE DUMELOW'S SEEDLING.

It is not so many years ago that the above excellent Apple used to be spoken of as the best late variety for cooking, but latterly it appears to be the fashion to speak disparagingly of it. True, it may not succeed so well within the radius of the London smoke, although twenty years ago I have a vivid recollection of its succeeding well a few miles west of the metropolis. I look upon it now as the finest flavoured late cooking Apple in cultivation. Even at this date it is quite free from that mawkish taste so noticeable in several other late kinds. In outward appearance it bears a strong resemblance to the well-known Newtown Pippin, a variety so admirably portrayed lately in the pages of THE GARDEN, although devoid of the characteristic eye, a well-known feature of the Dumelow's Seedling, or Wellington, a name by which it is better known. According to the opinions expressed by various correspondents from time to time, it does not appear to succeed so well as one would wish, but happily there are soils where it will succeed. Even on our cold soil, where the New Hawthornden, Lord Suifield, and even Northern Greening fail, it is one of the best varieties we have. Dumelow's Seedling appears to be a variety which will not succeed on the dwarfing stocks. The best form to cultivate it is as low standards, a style of tree well adapted for the variety, and on which it comes early into bearing. Where it has been proved to succeed, a good sized plantation would prove very profitable, as the fruits would most surely command a high price. This is certainly a kind which would pay well for storing, as it remains plump and fresh to the last, and does not deteriorate in quality. The flushed cheek also improves its appearance. This blush shade of course would be laid on previous to gathering, but it is enhanced by the yellow colour, which is taken on by storing.

A correspondent lately, when remarking on the causes which lead up to colour, was wondering why fruits changed to yellow after storing. This appears to be the colour taken on naturally by all fruits when stored, either in a dark or even a light structure. It is the natural change to maturation.

Stourport.

A. Y.

The Filbert crop—It seems early yet to form an opinion as to the crop of Filberts, but from present appearances I fear it will be bad, as though female flowers were abundant and the bushes looked quite bright and pretty with them, there have been but few catkins, and these the frost injured, so that I doubt very much if there has been enough of pollen to fertilise the nuts.—S. D.

Lime and soot dressings for Gooseberry caterpillars.—Permit me to advise "S. D." to use dressings of soot and lime for these (p. 270). The indirect benefits of these dressings in the destruction of Moss and Lichens and the preservation of the buds from birds in the spring are also very great. Some years ago I had a north-east border which was useful for late Gooseberries and Currants. The caterpillars got a footing on it and crippled the bushes. I decided to grub the bushes

* See Horticultural Transactions, vol. ii., p. 20.

up, and as I had no situation to equal this, I replanted with the Warrington and other late sorts. As a precaution and a sure and certain quietus to all larvæ, &c., the border was heavily dressed with gas-lime and other manures and trenched to a depth of a yard, the surface spit being placed in the bottom. It was then planted with Gooseberries and Currants as before, and no trace of caterpillar was seen on the bushes for years. Care is, however, needful in the use of gas-lime, as it varies so much in quality. It must also be broken fine, or the knots or lumps are dangerous to the roots of any plants, such as Strawberries, for example. On this border none of the roots of Gooseberries or Currants suffered, but several of the Strawberries in rows between the young bushes went off. On examination it was found that in every such case a small lump of gas-lime was the cause.—D. T. F.

Restricting the varieties of Apples.—Instead of planting a large number of sorts without

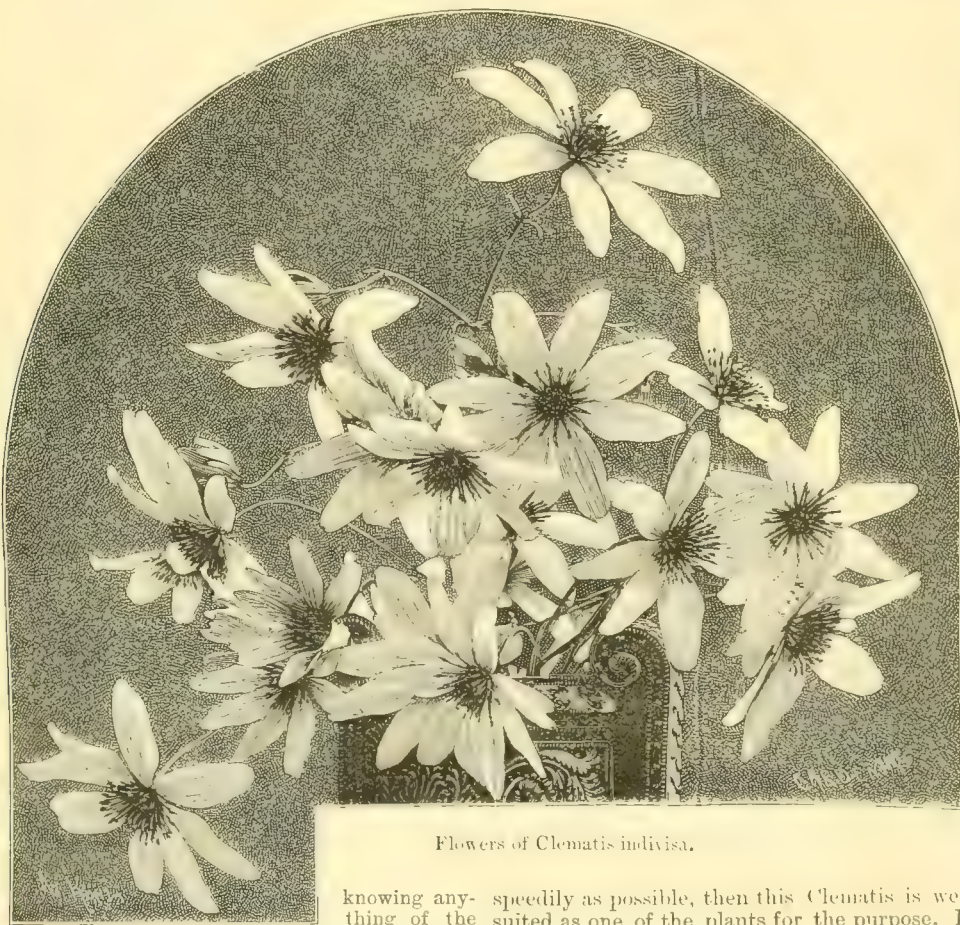
his faith to a few good sorts and grows them well will have no cause for regret.—E. M., *Hants.*

STOVE AND GREENHOUSE.

CLEMATIS INDIVISA.

THIS New Zealand variety of the Virgin's Bower does not appear to be sufficiently known nor is it cultivated to such an extent as its merits deserve. For a cool house from which the frost is just excluded it is a most suitable climbing plant, being a fitting companion for such better-known subjects as the *Lapagerias*. It can be adapted to various purposes to suit each respective case. For instance, if a large break of bare wall in either a greenhouse or conservatory has to be covered, and that as

pests with the greater difficulty of reaching them in the process of extermination. What pruning is necessary should be done immediately the plant is out of bloom and never during its period of growth; this latter plan means a proportionate decrease in the following crop of flowers. If anything at such times is really found necessary in this way, it should merely be a thinning process where the shoots are too thick, removing those that are the least likely to produce flowers later on. Insects, on the whole, are not troublesome, green-fly being the most likely to attack the points of the young shoots and thus cripple the tender foliage. The flowering season is from April to May, when a beautiful effect is produced for a long time by reason of the freedom, the succession, and the lasting properties of the blossoms. This *Clematis* cannot in any sense be considered a difficult plant to cultivate; it is of good constitution, and not over-particular as to the soil into which it is planted. I would, however, choose this as good as possible with a view to lasting properties. Fibrous loam with some well-decomposed leaf soil would suit it well, only using peat when the latter fails to be of good quality. Planting out is preferable to either pots or boxes, for the greater the freedom the roots have the better will be the ultimate results. Whilst in flower and during growth the supply of water should be liberal, but if a late growth in the autumn is apparent, then withdraw the water as a check to the same, such wood not having any chance to become well ripened. Although this *Clematis* is seen at its best as a climber, it does not follow that it is not adapted to pot culture. Only at the last Crystal Palace spring show there was an excellent illustration of this method in the beautifully flowered examples in quite small pots. These little plants bore their blossoms in profusion, causing a large amount of attraction both by their pleasing creamy white colour and their simplicity. For decorative uses, therefore, in pots it is likewise to be recommended. In the most favoured parts of the country it will, with ordinary precautions, without doubt resist our English winters if upon walls. It must not be confounded with another kind known by the varietal name of *C. indivisa lobata*, which differs slightly in its foliage, but more so in its shyness of flowering, being sometimes disappointing in this respect as compared with the type, of which an excellent illustration is now given showing one of its many uses. PLANTSMAN.



Flowers of *Clematis indivisa*.

knowing anything of the nature of the soil, whether particular kinds will succeed in it or not, it would be wisdom to make very full inquiries in the neighbourhood, because it sometimes happens that one sort will not succeed at all in one place, while not more than two miles off the very same Apple will do well. Here Blenheim Orange as a standard on the Crab is a failure, and so it is on the Paradise as a bush, while 12 miles away it succeeds admirably. It would be folly to plant varieties which were known to fail after repeated experiments. Lord Suffield is a splendid sort where it succeeds, but in cold heavy soil it altogether fails. Not far from where I write a market grower planted several hundreds of it some years since, and the results have been very disappointing, and only prove the wisdom of ascertaining first what sorts are likely to flourish. With proper planting, attention afterwards, and the wide range of sorts now at command, I believe it is possible to grow Apples in the majority of soils. I think in the future that the man who pins

speedily as possible, then this *Clematis* is well suited as one of the plants for the purpose. It is well adapted also for training over wire arches of an ornamental character, also for running up the rafters or columns in large houses. In whatever position it is grown, the young shoots should have a fair amount of freedom. When covering a wall, for instance, as soon as the main shoots have reached their proper limits, then let the lateral growths hang down as a drapery: this will check over-vigorous shoots from gaining an ascendancy. Upon arches the same plan should most decidedly be carried out, and again when training up rafters. Not only is the growth itself rendered much more ornamental, but the appearance when in flower is greatly enhanced. When trained closely, a large number of the blossoms must be hidden or so crowded together, as to spoil the effect as well as the lasting properties of the flowers by the accumulation of moisture. Close training is also a greater encouragement to insect

Rondeletias.—These are amongst the very best stove or intermediate house plants. I have a large plant of *R. speciosa* major growing in the stove, and during the last two summers it has given me an abundance of flowers. It is in a 12-inch pot, and is allowed to grow in a somewhat free way. Although it has not been potted for six years, it is in grand health. Every spring it gets a little fresh soil on the top, with a dressing of some artificial manure. This seems to answer quite well; in fact, I believe it is a mistake to keep on potting plants when they are in large pots and doing well. The main thing to be successful with the *Rondeletia* is to get the wood well ripened. Three years ago the plant referred to used to be tied in close, then it never bloomed satisfactorily. When I took charge I allowed it to grow more freely with the best results.—DORSET.

Azalea Deutsche Perle—Everyone, I think, who has made the acquaintance of *Deutsche Perle* *Azalea* will agree with what "H. P." says in its favour, as unquestionably it is one of the most valuable plants sent out for some time past, and the demand for it has been very great, as market growers were quick in discovering its merits and grew it most extensively for supplying cut flowers,

which are specially suitable for working up into wreaths, they being of the purest white and of such substance that they last fresh for a great length of time. In habit the plants are free and easy and grow readily, and are naturally early bloomers, for with very little heat, after they have once been forced, flowers can be had during the dead of winter if attention is paid them and assistance given while making their young shoots and setting their buds. The way to render that help is to keep the plants in a light warm house for some weeks after they have done flowering and syringe them overhead both morning and evening, so as to encourage fresh growth, and when this is made and the buds set, the plants should be stood in some sheltered spot outdoors and there left till the autumn to ripen their wood.—S. D.

AMARYLLISES AND SPRING FLOWERS AT MESSRS. VEITCH AND SONS.

DURING the past fortnight the display of Amaryllises in this establishment has been very fine, and will be for some time yet. The development of these gorgeous flowers during many years past has been one sure, but steady series of advances from the normal types, which have proved to be such excellent material to work upon in furtherance of the objects that have been kept in view from the first. The chief features have been to impart further vigour into the offspring, combined with greater substance in the flowers, more breadth of petal, and an increased variety of colours. In all of these points success beyond the most sanguine expectations has attended the painstaking labours of Mr. Heal. There are now to be seen in flower several new kinds which are blooming this year for the first time; these are marked advances in their various colours, showing intenser shades amongst the self-coloured and darker varieties. Reverting to the ordinary types of several years back, there was, generally speaking, a dulness in the colours; this is now but rarely seen, and in the case of the Chelsea collection entirely absent. The growth and vigour of the plants which have arrived at a flowering stage are most remarkable, many of the stronger bulbs throwing up two spikes, and each of these in several instances bearing four flowers to the spike. The lighter kinds, in which probably the greatest advance has been made during the last few years, are more particularly predisposed to this valuable property of twin spikes and the larger number of flowers. Thus seen these fine hybrid Amaryllises make grand decorative plants during the spring season. It does not by any means follow that they cannot be successfully grown in a mixed collection of plants when due care is taken of them, although at Chelsea they are kept exclusively by themselves. This has been conclusively proved in several private establishments where they are grown in considerable quantity as decorative plants, standing well in any ordinary conservatory at this season of the year, and imparting to the general good effect by their truly noble and distinct character.

The following are some of the best of this year's new kinds, viz., Thalpius, faint crimson veins on a white ground with a pale green centre; Idomenius, a light kind with reddish reticulations and fine large flower; Simonia, a dark crimson with a central star or rays down each petal, extra fine; Topaz, salmon-red with lighter veins, a novel colour; Janitor, an extra deep rich crimson with distinct rays; Starlight, a bright crimson-scarlet with darker veins and a distinct star of light colour; Ilfra, a bright crimson with a pure white stripe up the centre of each petal; Touave, of extra fine form with broad petals of a dark rosy crimson; Volunteer, an extra bright crimson-scarlet, shaded with rose; Lecard, a light orange-scarlet, a fine decorative variety; Plutarch, extra dark reddish crimson, and darker at base of petals; Perle, purplish crimson veins and rays upon a light ground, vigorous; Polyxenes, an orange-scarlet with green star and very broad petals; Leonidas, an extra fine and large crimson-scarlet; Leoni, tipped with orange-scarlet on a light ground with

a pure white centre; and Acme, a fiery crimson of fine shape, and very distinct. Acquisition, a bright orange; The Premier, dark crimson; Nemesis, dark red; Sirocco, a fiery crimson; Finette, French white, and Olivette, a rich crimson, are half a dozen of 1891 which are again in fine form. There are in all about 2000 spikes in various stages of growth, the foliage being in the best possible condition, broad, yet sturdy, and of that deep green colour denoting the best of health.

In another house there is a fine assortment of the increasingly popular *Clivias* or *Imantophyllums*; the best of these are *Distinction*, a brilliant orange-scarlet, white at base; *Mme. van Houtte*, a very bright orange, self-coloured, a fine and distinct kind; *Excelsior*, extra large, orange-red, with light centre; and *Acquisition*, a bright orange, with clear white eye. Amongst the many examples of early flowering and forced plants are *Narcissus Bulbocodium*, beautiful for pot culture; *Azalea mollis*, with great variety of colour, the plants dwarf and in profuse bloom; *Spiraea confusa* and *Guelder Roses*, two of the most free-blooming of forced shrubs; *Cytisus scoparius Andreanus*, a new kind of much promise, and decidedly distinct; early flowering *Ericas* and *Epacrids*, with *Boronia heterophylla* (a Veitchian introduction), one of the finest of all early flowering greenhouse plants, and good examples of *Spiraea astilboides*. Sufficient justice could not be done to the Orchids without considerably prolonging this article. It suffices to say that they never looked in better health than at the present time, and that in spite of the increasing and counteracting difficulties to be contended against in regard to the fogs which often do so much injury to the flowers in the metropolitan district, as well as being a great deterrent to the proper development of growths, if so be any foliage is of tender age at the time of a visitation.

J. H.

DESTROYERS.

GARDEN ENEMIES.

BEFORE the spring protection is put up, indeed before the buds on Peach, Cherry, and Plum walls get too forward, we take advantage of a fine warm day when insect life is on the move to give a thorough wetting to all walls and every part of the trees from the garden engine with our home-made insecticide of diluted soft soap and paraffin. Such treatment is always advisable if walls are old and garden enemies locally troublesome. Why some pests are so much more numerous in particular localities is a fact I have not seen satisfactorily explained, but such is undoubtedly the case. In some districts, for instance, very little is seen of red spider, whilst in others, common outdoor plants in the immediate neighbourhood of gardens, as Thorn hedges, will be quite destroyed by its ravages, and when this is the case the gardener must keep a sharp look out not only on Peach and Plum walls, but on the foliage of other fruits susceptible to attack. I have on more than one occasion had to syringe nearly the whole of the Gooseberry bushes, the leaves just as they emerged from the bud being completely covered with the insect. Any insecticide in which paraffin and soft soap figure prominently is about the best thing that can be found for dealing with spider either in or outdoors, the preparation being diluted in proportion to the condition of the foliage or its capacity for standing against destructive agencies of this description. It is also certainly true of the various forms of aphids that they have a partiality for particular localities, and are in greater force some seasons than others, and where and when they are numerous the preservation of healthy foliage necessitates a lot of time and labour. For the effectual destruction of this enemy, there is nothing so good as smoke, and I have often thought if all our walls had an air-tight, but at the same time a movable coping from which cloths could be suspended, long lengths of wall trees could be fumigated, and an immense amount of time expended on various forms of insecticide in the shape

of washes and powders thereby saved. The remarks made on spider and aphids as to their partiality for certain districts are equally true of wasps. We were hoping last year that the dripping summer and the destruction during the spring months of some 600 queens would have kept us comparatively free, but there seemed no diminution in their numbers; about eighty nests were destroyed in a radius of half a mile, taking the garden as a centre. We were bothered, too, last summer with quite a plague of earwigs, and should have had a lot of fruit tapped had not these enemies made their presence known earlier in the season by puncturing the foliage. As it was, the bean traps were promptly resorted to and some hundreds (I had almost written thousands, and certainly this would be no exaggeration) found a watery grave. Preventive measures against earwigs are the removal of a small portion of the soil close up to the wall, replacing by fresh and ramming down hard, but if walls are old this is only partly successful, as at the close of the season the insects that remain will find their way into nail holes and any little crack or crevice of the wall. It is not too late to grapple with American bug if any Apple or Pear trees are affected with it, and I do not know a simpler or more effectual remedy than paraffin. The various mixtures advised may answer the purpose fairly well, but when, as is often the case, they assume the consistency of cream they cannot be so thoroughly worked into all tiny crevices as paraffin. American bug is an enemy that must be always nipped in the bud; like its fellow of the stove, it is very difficult to dislodge if allowed to get the upper hand. Nor is it too late to dress any Pears on north walls that may be suffering from the attacks of the brown or white scale. Here, too, paraffin may be employed, but as if the trees are badly affected all portions will require dressing, sufficient soft soap with a little soot and just enough clay to give the adhesive power should be incorporated with the oil, then the workman has always before him clearly indicated how far the work has progressed. Birds must come under the list of garden enemies, and if numerous and troublesome, the supply of fruit depends entirely upon the amount of netting in hand. We are also obliged to net all seeds of the Brassica family, Turnips, Radishes, &c.; indeed, it is only for a very short time that some portions of the netting are not in use to ward off attacks on bud, seed or fruit. A lot of Apples on small standards and pyramids was attacked last autumn—Duchess of Oldenburg, Peasgood's Nonsuch, Golden Noble and New Hawthornden, from their appearance, being the first to suffer. E. BURRELL.

Claremont.

GOOSEBERRIES AND CATERPILLARS.

I SHOULD like to make a few observations on the remarks made by "S. D." on "Gooseberries and Caterpillars," as he does not seem quite to understand the life history of the insects which destroy the foliage of our Gooseberry bushes. There are two insects whose grubs or caterpillars feed on the leaves—the Gooseberry sawfly (*Nematus grossulariæ*) and the magpie moth (*Abraxus grossulariata*). The grubs of the former are decidedly commoner than the caterpillars of the latter. The female sawfly lays her eggs on the leaves of the Gooseberry bushes, on which the young grubs begin to feed as soon as they are hatched. When they are full grown they fall to the ground, and, having buried themselves, form small oval cocoons, in which they become chrysalides. These cocoons may be found some 2 inches or so below the surface, sometimes in masses of considerable size, where several cocoons have been found touching one another. As these grubs do not ascend the stems from the ground, no applications of any kind are necessary to prevent them doing so; but if a good dressing of lime and soot is applied just as the grubs are hatching or soon afterwards (this generally occurs towards the end of April or the beginning of May, according to the season), it would no doubt be most beneficial, especially if

applied during fine weather when the leaves are wet with dew, and when there is no chance of its being washed off immediately by heavy rain. Syringing the bushes with a wash composed of 10 or 12 lbs. of soft soap dissolved in 100 galls. of water, to which add the extract from 4 to 5 lbs. of Quassia chips well boiled, has been found most efficacious in killing the grubs, but if all the soil round the bushes is removed to the depth of 3 inches and deeply buried or burnt there will be no sawflies next year to lay eggs, unless some come from a neighbour's garden. If everyone would adopt this plan for two seasons this insect would be practically exterminated. The magpie moth also lays her eggs in the leaves, but the caterpillars are not hatched until August; they do not become chrysalides until the following spring, and pass the winter under the dead leaves or rubbish, &c., under the bushes, or sometimes they shelter themselves in a curled up leaf which they attach to the branches with silken threads; then when the warmth of the weather tempts them to leave their winter quarters, they climb up the stems to gain the leaves. At this period a good dressing of lime and soot would prove fatal to them, but in showery weather the dressing would require constant renewing. A ring of ashes soaked in tar laid round the stems of the bushes and about 2 inches from them would have the same effect. Syringing with the same mixture as for the sawfly grubs would be very useful when the caterpillars are on the bushes. During the winter all dead leaves and rubbish should be removed from under the bushes, and any decayed foliage hanging to the branches picked off and burnt. G. S. S.

The white fly.—In suggesting a remedy for the white fly (*Aleyrodes proletella*), it must be borne in mind that this insect in its perfect state is so active, that it is almost useless to try and kill it unless it is made to fly on to newly-painted boards or canvas, on which it will be caught. This insect can be better dealt with in its other stages. What Mr. J. C. Tallack thinks are the eggs of this fly are really this insect in the states which in other insects we know as grubs or caterpillars and chrysalides, and it is to the destruction of these that persons should turn their attention. If only a few plants are infested, they should be gone carefully over and washed with soft soap and water and tobacco juice mixed together, but if there be too many plants, or they are of a nature to render this method inapplicable, I should suggest syringing the plants with soft soap and water—1 lb. of soft soap to 10 gallons of water, to which add the water in which $2\frac{1}{2}$ lbs. of Quassia chips have been well boiled. This may require to be repeated once or twice, as the nest eggs may not be killed. This insect when in the larva state, well described by Mr. Tallack as looking like "minute white or green Gooseberries," is very injurious to the plants infested by it, as it draws off the juices of the leaves by means of a long sucker.—G. S. S.

— On p. 280 Mr. Tallack details his experience with that troublesome little white-fly (*Aleyrodes proletella*), and it will be but poor consolation to him to learn that hundreds of gardeners are quite as much bothered with it as he appears to be. Tomatoes would appear to be the favourite host of this fly, and I have known instances where their cultivation has been discontinued in houses for a whole season with a view to getting rid of the pest. Undoubtedly the wide-spread practice of growing Tomatoes under glass has done much towards fostering and increasing the *Aleyrodes*, but I remember what a nuisance it was in some places long before Tomatoes were much grown other than in the open, and if they cannot settle on one kind of plant, they will, as Mr. Tallack indicates, take possession of another. Frequently fumigating with tobacco paper and fumes generated by means of pouring tobacco water on to red-hot bricks will fetch the fully grown flies down wholesale, but not a few of them recover and return to the plants again, and the remedy must be classed as doubtful. The only remedy that I have found really effective

is a very simple one as far as forcing houses are concerned, but is not so easily applied in conservatories and cool plant houses. If the hot-water pipes are well coated with a paint made of sulphur and milk or sulphur and linseed oil, the fumes generated whenever the pipes are made hot and also when the temperature is raised to about 95° by sun heat destroy the white flies without fail, and it is not long before they are got rid of. I made this discovery accidentally. The sulphur was used with the intention of checking the spread of Tomato disease, and though a failure in that respect, I was yet agreeably surprised with the effect it had upon the *Aleyrodes*. Sulphur fumes as given off from hot-water pipes appear to be perfectly harmless to the tenderest vegetation, and are a good preventive of insect attacks generally.—W. IGGULDEN.

NOTES OF THE WEEK.

Daphne Blagayana, one of the finest of the genus, is now nicely in flower on the Kew rockery. It is not an easy plant to establish, and the best way to accomplish this is to bury the stems under somewhat large stones, leaving only the points above ground. They will then root, and in a short time young shoots will be found coming up everywhere among the stones. It is a delightful plant and well worth coaxing.

Two new Roses seen at the Drill Hall, Westminster, at the last meeting deserve more than a passing notice. *Elise Fugier*, a Tea-scented kind of a lemon-white colour, is very pleasing, and its large shell-like petals remind one of *Niphetos*. The plant appeared to possess vigour. *Madame Caroline Testout* is a large-petalled flower of a salmon-rose shade. This also seems to be a good grower, and it received an award of merit.

Anemone patens.—One of the very finest of the early *Pulsatilla* section of Windflowers is *A. patens*. A fine clump, now nicely in flower on the rockery at Kew, is one of the most attractive things to be seen at the present time. The flowers are almost as large as those of *A. japonica*, of a fine rich purple, and elegantly set off with the involucre of silky leaves. Like all the other *Pulsatillas*, it only requires to be left alone, and will soon establish itself and make a fine show.

A note from Ajaccio.—It may be of interest to some of your readers to know that this season the vegetation is fully a month later than usual in this lovely island, and that therefore April could be certainly better as regards profusion of flower than even March has been. *Crocus minimus* does not, however, seem to have been affected at all, and has flowered at quite as early a date as usual, but at present there are no signs whatever of most of my old friends. For the past fortnight the weather has been quite perfect.—A. KINGSMILL.

Saxifraga luteo-purpurea Malyi is the correct name of this (or it might be written *Maly's* variety); it is a fine, much later form of the type, and was certificated by the Royal Horticultural Society's floral committee when shown by us. We were unaware until told by Mr. Churchill that there was already a *S. Malyi*. *S. Boydii* alba we have also received under the name of *S. Burseriana hybrida*. It seems to be a large growing form of *Burseriana*, and we think should be described as *S. Burseriana Boydii* in contradistinction to the already well-known *S. Burseriana major*, from which it differs.—PAUL AND SON.

Turner Memorial prizes.—The following prizes are offered by the trustees for the present season: A silver cup (value £5) for twelve single tuberous Begonias in flower, to be exhibited at the conference on Begonias to be held at the Chiswick Gardens of the Royal Horticultural Society on August 23 and 24. A silver cup (value £5) is also offered for nine double tuberous Begonias in flower on the same date and at the same place. Further particulars may be obtained from the Royal Hor-

ticultural Society's schedule of prizes for 1892. Two silver cups, each of the value of £5, are also offered through the National Dahlia Society at the exhibition at the Crystal Palace on September 3, 1892; one for twenty-four show and fancy Dahlias, and the other for twelve bunches of Cactus and decorative Dahlias. The prizes are open to amateurs only. The above four cups will be in the custody of the late Mr. Chas. Turner's family at Slough, and may be seen at the Royal Nurseries there by intending exhibitors.—J. DOUGLAS, *Secretary to the Trustees*.

Scilla bifolia.—The varieties of this are well represented in most gardens now-a-days, and *taurica*, *rosea*, *alba*, and *carnea* especially are well worth noting. In their several ways they are very attractive, and as they all flower quite as freely as the type, we find them invaluable for the rockery in spring. *S. b. taurica* has flowers twice the size of those of the type, of a darker and more decided blue; *alba* is very distinct and useful, while *rosea* and *carnea* will be found amongst our choicest spring flowers. Some of the forms received lately from the Taurus are certainly not equal to those already in cultivation in our gardens, the forms of *S. sibirica* especially being pale coloured and very poor.

Dendrobium canaliculatum.—A plant of this curious and uncommon *Dendrobium* is flowering now in the warm Orchid house at Kew, and its blossoms, besides possessing a most pleasing fragrance, are also shown to be of considerable beauty. It is a native of the north-eastern portion of Australia, and was first discovered there by Banks and Solander at the beginning of this century. It was not until 1865 that it was introduced to cultivation, having been about that time again discovered by Mr. J. Gould Veitch. It has Pear-shaped pseudobulbs 2 inches to 3 inches high, from the apex of which are produced a few stiff, narrow leaves. From twelve to twenty flowers occur on the raceme, the sepals and petals being narrow-oblong, the apical portion yellow, whilst the base is white. To these parts of the flower the lip presents a marked contrast: it is oblong, divided into three lobes, and white with a deeply-coloured mauve-purple disc.

Notes on Daffodils.—The *Cyclamen*-flowered Daffodil (*N. cyclamineus*) is now nicely in flower and looks as if it intended staying with us this time. Our best flowers are, however, from bulbs planted in a semi-bog, and this we now find out will be the best treatment. The bulbs are found along the banks of streams and in boggy land, and this treatment certainly answers best. *N. Countess of Annesley* is a fine Daffodil. It is one of the earliest, one of the freest to bloom, and one of the most attractive, but not, in our opinion, a market flower. The segments are thin and somewhat flimsy, there is a want of substance, and the blooms do not last long when cut. As a bulb for naturalising, however, it is certainly one of the few that can be depended upon, and is sure to give abundance of bloom. *N. minor*, when the stems begin to grow up, is a very attractive Daffodil, small, but free-flowering—a veritable gem.

Euadenia eminens.—The genus to which this plant belongs is one of which but little is known, and it consists of only two or three species, all of them natives of Tropical Africa. *E. eminens*, a plant of which has been for some weeks a handsome and conspicuous feature in the stove at Kew, was introduced by Mr. Bull from West Africa some ten or twelve years ago. It is the only species known under cultivation. In its natural state the plant is believed to acquire a shrubby habit, but the specimen at Kew consists of a single erect stem a foot or so in height and crowned with its immense and remarkable inflorescence. It is erect and shaped like a candelabrum, each flower being borne on a nearly horizontal pedicel 2 inches long. The petals are four in number, and are arranged in two very unequal pairs. It is to the upper and larger pair that the flower owes its distinctive character and attractiveness. These two petals are erect, 4 inches in length, narrow at the base, but widening upwards into a broad spoon-shaped apex;

in colour they are sulphur-yellow, and as the inflorescence consists of about a score flowers, the whole has a very striking appearance. The lower pair of petals are so small as to be scarcely noticeable. The stamens add considerably to the general effect; they are an inch long, curved upwards, and terminated by bright yellow anthers. This plant requires stove treatment, and is well worth the notice of anyone possessing a stove, especially as it is quite distinct from any other tropical plant to be seen in our gardens.

A yellow Snowdrop.—Enclosed I send you a few flowers of the new yellow Snowdrop with which Mr. Boyd's name is associated. It appears there are only two yellow Snowdrops in cultivation, and it is rather singular they have both been found in Northumberland. The one sent made its appearance a few years ago in the garden of Mr. John Mills, of Whittingham, who is forester to the Earl of Ravensworth, on his lordship's Eslington Park estate. Mr. Mills has many hundreds of the common Snowdrop in his garden. A few years ago this one made its appearance—a solitary plant, and has been increased as much as possible. When seen in flower in a mass it has a beautiful, distinct, and most charming appearance. It grows quite as freely and blooms just as profusely as the common sorts. The heavy snowstorms and severe frosts we have lately had have been much against Snowdrops blooming, but still, I think, from the flowers sent, you will be able to form a tolerable opinion of what it is like; there is not the slightest weakness or meanness about it.—JOSEPH OLIVER, *Eslington Park Gardens, Whittingham, Northumberland.*

International fruit exhibition.—The list of prizes of the above exhibition, which is to take place on the Thames Embankment, and which will be opened on September 28, is now rapidly approaching completion, and will be issued shortly. It contains several novel and interesting features. Among them, nurserymen are invited to contribute collections of fruit trees, showing the various types and also modes of training for different purposes, so as to have an educational value. It is thought desirable to give intimation of this in advance of the issue of the full schedule, that nurserymen may make the necessary preparations. Other classes for nurserymen have been arranged as follows: Collection of trees bearing fruit in pots, with dishes or baskets of hardy fruits artistically arranged on a space 24 feet by 6 feet; collection of hardy fruits in baskets or dishes arranged on a table 15 feet by 6 feet; collection of English market fruits, including Tomatoes and Cucumbers, arranged on a table 12 feet by 6 feet. It is intended to award medals in each of the foregoing classes at the discretion of the judges. The secretary of the exhibition is Mr. Richard Dean, Ranelagh Road, Ealing, W.

At Drumleck, Hill of Howth.—This is a charming garden in an ideal situation, fully exposed to the sunshine and close to the Bay of Dublin, with Kingstown Harbour five miles away on the opposite shore, and the Wicklow Mountains towering up beyond. Close to the house are the great rocky cliffs and slopes of greensward, thickly set in May with Sea Thrift of all shades from white to rosy crimson, and the Vernal Squill (*Scilla verna*), which absolutely paints the grassy sod blue with its myriads of starry little flowers; while in the rocky caves the Sea Spleenwort (*Asplenium marinum*) is at home and, happily, inaccessible. One special feature at Drumleck is the great lean-to greenhouses, which are quite unwarmed so far as fire-heat is concerned, and in each of the three divisions there is a noble specimen of the dainty *Acacia Ricana* which is now in full beauty, some of its pendent branches being 7 feet to 9 feet in length, and each a close-set garland or wreath of soft primrose flowers. No description could give one the faintest conception of the luxuriance and free-flowering character of these plants as here grown. In a shady part of one of these cool greenhouses the Killarney Fern is fresh and vigorous, and its older fronds are fruiting freely. Old scented *Pelargoniums*, *Verbenas*, *Mignonette*, and double-flowering *Stocks*

scent the place, and in one of the vineries *Aponogeton distachyon* is flowering very freely. One of the most distinct and brightest of the old-time plants here cherished, and there are many, is *Alonsoa incisifolia*, and there are healthy plants of the Blue Gum, the "Heavenly Bamboo" (*Nandina domestica*), and *Habrothamnus Newelli*. One of the trophies in the hall is the largest known head (female) of the now extinct Irish elk, discovered a few years ago near the place, and in a very fine state of preservation.—F. W. B.

New Holland plants from seed.—A correspondent of THE GARDEN (p. 308), in recounting his success with seeds obtained last year from Australia, mentions that, amongst others, *Callistemon rigidus* is already in flower. If he has made no mistake in the name, this is a most unusual occurrence. During the last few years I have raised a great many *Callistemons* from seed, *C. rigidus* amongst them, but it is only on plants a good many years old that flowers have been obtained, and such is the general experience with these plants. The way to obtain small-flowering specimens is to raise them from cuttings furnished by old plants that have already reached the flowering age. *C. rigidus* is one of the best; its flowers are arranged round the stem in cylindrical form, their beauty being due to the long brilliant scarlet stamens. With regard to the raising from seed of most Australian *Acacias* and others of the same tribe, I find that immersing the seeds in boiling water for a second or two greatly accelerates their germination. This method was generally pursued by nurserymen forty or fifty years ago, when this class of plants was as much appreciated as *Orchids* now are. Soft-skinned seeds, of course, do not require it, and in any case it is safer to steep say half the quantity sown.—B.

Eucharis Bakeriana.—Until within the last few years *Eucharis amazonica* and the lesser-known *E. candida* were the only representatives of the genus in cultivation. Latterly, however, the number of species known in gardens has been increased to six or seven. Of these, none has anything like approached in popularity the famous *E. amazonica*, nor indeed are they likely to. None of them possess to such a degree either the free-flowering qualities of that species, or its size of bloom. It is very possible, nevertheless, for a plant to be of great garden value without altogether rivalling *Eucharis amazonica*, and this much, at least, may be said of a beautiful species now flowering in the stove at Kew. It is named *E. Bakeriana*, in compliment to Mr. J. G. Baker, of the Kew herbarium, and was introduced from the United States of Colombia by Messrs. Sander and Co. about two years ago. Except in being of smaller growth it is practically the same as *E. amazonica* in habit and foliage, the handsome leaves having the same deep shade of green. The flower-scapes are each a foot or more high, and the plants that have flowered up to the present have borne about half-a-dozen blooms. These are each 2½ inches in diameter, the six segments of the perianth being ovate and pure white. The flower is distinct from that of the other species of *Eucharis* on account of the length of the corona on which the stamens are inserted; it is three-quarters of an inch long and has quite a *Narcissus*-like aspect.

Aotus gracillima.—Whilst this is certainly one of the most beautiful of Australian plants, it is also one of the most easily cultivated. It may, indeed, be said to possess all the good qualities of a perfect greenhouse plant. It can be propagated readily from cuttings, and plants only two years old flower freely. In habit also it is most graceful. It belongs to the Pea-flowered section of leguminiferous plants, the flowers being densely packed on slender arching shoots, which are from 2 feet to 4 feet long. Individually, the flowers are small, the keel being of a brownish crimson and the rest of the flower yellow. In regard to temperature, it requires little more than protection from frost in winter, more important points being that it should have abundant light, and, when practicable, air. It is at the same time a good plant in the neighbourhood of London,

as it is not affected by fogs. A mixture of good peat and silver sand is the best soil in which to grow it, and, like most plants that prefer that compost, the roots ought to be kept in a uniformly moist state throughout the year. After flowering the shoots should be cut back to within a few inches of the old wood, and no more pruning is then required. If repotting should be necessary, it should be done when the young shoots are an inch or so in length. This plant is, however, one which does best when somewhat confined at the roots. The time at which it flowers varies a few weeks according to the temperature under which the plants have been kept, but in the cool greenhouse it is at its best during the next three weeks.

PUBLIC GARDENS.

An open space for Poplar.—The Metropolitan Public Gardens Association has come forward with an offer to expend £500 in laying out the old Poplar Churchyard if the Board of Works for the district will undertake to maintain it. The necessity which exists for the acquisition of every inch of breathing space in crowded areas should convince the Board that their duty lies in the direction of the undertaking.

Chelsea Hospital grounds.—The Parks and Open Spaces Committee of the London County Council have endeavoured to open to the public that portion of the grounds of the Chelsea Hospital on which the Naval and Military Exhibitions were held. But the governors of the hospital have asked the preposterous rental of £3000 a year for the 11½ acres. It is to be hoped that the result will not be to lose an agreeable open-air promenade, and that a more reasonable spirit will eventually prevail.

Open space for Tottenham.—The wholesome desire for acquiring open spaces as parks and recreation grounds in the suburbs of the metropolis has at length extended to Tottenham. The surprising growth of this northern suburb within the last twenty-five years has forced on this question. The number of inhabited houses in Tottenham is about 17,000, and when it is considered that of these nearly 11,000 are under £20 in annual rateable value, the necessity for recreation spaces becomes apparent. The need is still more recognisable when it is known that the population of Tottenham and Wood Green now numbers very nearly 100,000. Some months ago a movement was set afoot for the purchase for the public of Bruce Castle and its 20 acres of beautiful grounds, and the Local Board of Health resolved to take advantage of an offer which had been made to sell the whole—including the castle, containing about seventy rooms—for £15,000.

Names of plants.—*T. Stirling*.—1, *Dendrobium crataegum*; 2, *D. Pierardi*.—*S. H. Warren*.—1, send when fertile; 2, *Goniophlebium appendiculatum*; 3, *Aspidium macrophyllum*; 4, *Phymatodes Billardieri*.—*Anon*.—Hardy perennial, Foam Flower (*Tiarella cordifolia*); stove plant, *Acalypha musaica*.—*A. B. B.*.—Flowers shrivelled, impossible to identify.—*J. H.*.—1, a very large and good form of *Masdevallia bella*; 2, *Pleurothallis Grobyei*; 3, *Masdevallia Wageneri*.—*Mary Morrison*.—1, *Pteris aspericaulis*; 2, *Adiantum reniforme*; 3, *Doryopteris pedata*; 4, *Gymnogramma rufa*; 5, *Davallia Tyermanni*; 6, *Cyclopeltis semicordata*; 7, *Pteris scaberula*.—*L. Wheatly*.—1, *Anemone blanda*; 2, *Azalea mollis*; 3, *Primula obconica*.—*J. B. W.*.—1, *Oncidium ampliatum*; 2, *O. sarcodes*.—*W. W.*.—1, *Epidendrum radicans*; 2, *Gorgora maculata*; 3, *Dendrobium superbum*; 4, *Cypripedium Calypso*, a somewhat new hybrid.—*H. James*.—1, *Sophranitis rosea*; 2, *Odontoglossum Andersonianum*.—*W. B.*.—1, *Primula sinensis*; cannot name the Fern; send when fertile.—*T. A.*.—1, *Burlingtonia decora*; 2, *Odontoglossum crispum*, a very fair variety. —*J. Hobson*.—*Cirrhopetalum picturatum*.

Names of fruit.—*Anon*.—Apples next week. —*T. A. P.*—Apple Guernsey Pippin.

WOODS AND FORESTS.

ASPECT OF THE SCOTCH FIR.

PROBABLY no other tree is capable of imparting that warmth of tint and generally furnished appearance to a place that is so remarkable a feature of the Scotch or Highland Pine. The by no means stiff outline of the tree, its cheery cinnamon bark that seems lit up by every glint of sunshine, and the unusual bluish-green of the foliage all combine to render it perhaps the handsomest conifer that is hardy in these islands. Unfortunately, the timber is of little or no value, but a tree that is capable of imparting the warmth and comfort of the Scotch Pine to its surroundings makes up in this way for any little deficiency in its economic value. To partially counteract the fault—if fault we can call it—of inferior timber, the tree grows where few others could survive, poor, thin, gravelly soil or rocky chasms affording it the scant requirements for building up at least a fair-sized stem and ample head of the brightest foliage. To marauders of the Middle Ages as well as speculative individuals of our own time we owe a grudge for the wholesale destruction of many of our finest forests of Oak and other valuable wood, but, fortunately, this has not been the case to any great extent with the Highland Pine, for its comparatively worthless timber has saved it from being felled wholesale where mercenary points were of first consideration. But in returning to the ornamental question of this Pine, it is a fact worthy of note that English commons on which Scotch Pines abound are held in greatest esteem, there the largest number of holiday-makers resort, and there, too, the umbrella of the artist is most often erected.

What a dreary monotonous stretch of ground would there be by some of the railway lines in Surrey and Kent were it not for the natural forests of Scotch Fir that spring up wherever a footing can be effected. The same applies, and applies more forcibly, too, to the hundreds of acres of waste land and commons that are usually only tenanted by the Gorse and Birch, and which when interspersed by a few clumps of the Pine in question put on quite a different appearance and gradually impart warmth and shelter to hitherto cold and wind-swept lands. The winter aspect of an estate or common is vastly improved by the free use of the Scotch Fir; and in so far as value is concerned, it is admitted by all that a property containing clumps and woods of this Pine will find a more ready purchaser than that composed wholly or for the greater part of deciduous trees.

There are many valuable adjuncts to the use of the Scotch Fir as well as those just stated; for instance, few trees are capable of drying the soil and disseminating superfluous moisture to such an extent, while the salubrious effects of a Pine forest need no upholding from me. The question may be asked, How are we to furnish our estates and commons with the Scotch Pine? and the answer is not far to seek. For estate work plant the tree, and for commons and waste grounds sow the seeds or let Nature perform the operation. It may, however, be useful to state that once a few trees of the Scotch Pine become established, the seeds are disseminated in great numbers, and should a suitable medium for their growth—waste heathy commons, for instance—occur, there need be little fear that the trees will not spring up in numbers, and far more natural will the arrangement of such trees be than those planted by the hand of man.

There are several noteworthy instances in Southern England of Scotch Pine clumps and single trees having been originated by standard specimens planted in private grounds, on the edges of commons, &c., the seeds from which have got blown and otherwise transported about. This is all the more remarkable, as in two well-known instances the planting of Scotch Pines in private grounds has been the means of covering commons and waste lands with this tree, and where, previous to their being planted, not a single specimen was known. Unthinkingly, and at no expense whatever, owners of small properties adjoining heathy commons and waste lands may do great good by dotting a few specimens of the Highland Pine around the outskirts of their grounds, particularly such as are contiguous to bare and uncultivated spots.

That such lands would be immensely improved by planting, particularly the Pine in question, must be admitted by everyone who at all interests himself in the beautifying and rendering pleasant spots that are so prized by the dwellers in our large towns and cities.

A. D. WEBSTER.

Forest fires.—On Sunday the inhabitants residing at Snaresbrook, close to Epping Forest, were greatly alarmed about three o'clock by seeing a dense volume of smoke mingled with flame arising from the forest contiguous to the Orphan Asylum there. Some careless person had thrown a lighted match among the Bracken, and owing to the drought of the past week it took light and flamed up in a serious manner. Some eight or nine acres of Gorse, with shrubs intervening, and a plantation of young Oaks and Hollies were destroyed, in spite of the efforts of a number of voluntary helpers, who did their utmost to extinguish the blaze. Several other Furze fires occurred near London lately, the most serious being in Wimbledon Park, where six acres of Furze and Grass were destroyed.

—A disastrous fire broke out lately in Dunham Massey Park, near Altrincham, the historic seat of the Earls of Stamford and Warrington. The park is famous for its Oak trees and its avenues of Beeches, which rank with the finest in England, and among these noble trees it is feared irreparable damage has been done. The mansion on the estate, one of the seats of Catherine Countess of Stamford and Warrington, escaped uninjured.

—An alarming fire broke out in Woolmer Forest, Hants, on Sunday, beginning near the railway adjoining Forest Mere, the residence of the late Sir Henry Cotton, and spreading over Weaver's Down to Liss Forest and Greatham. It covered thousands of acres in extent, and plantations of Fir trees, as well as Furze, were destroyed. The flames went in close proximity to the grounds of Lord Selborne. Most of the ground covered by the fire is the property of the War Department. A similar fire took place about three miles distant on Bramshott Common, extending from Wagners Wells to Kingshot Firs. Such fires are frequent at this season of the year, but they are seldom so extensive as this one.

Sowing Conifer seed.—The best time to sow the seed is in March, when the pans may be placed in a cold frame. When sowing under glass is resorted to, except in the case of very common kinds, it is better to thus ensure to the seed that amount of protection during the germinating period. Well drain the pans or pots, and place a pinch of soot on the drainage to keep out worms. Water the soil well before sowing, cover the seed with about its own thickness of fine soil, press it down firmly, making an even surface, water gently, cover the surface with Moss, and plunge the pots up to their rims in a cool shady frame. Keep the Moss damp, and when the seed-

lings are coming through, remove it and expose gradually to the full light and air, throwing off the lights in fine weather, and protecting against heavy or continuous rains. The first season the young plants may be allowed to remain in the seed-pans, and should be wintered in cold frames, taking care not to enervate them by close confinement, but giving plenty of air, only shutting up close in case of hard frosts. Plant out the following March in 4-foot beds, in well-stirred, free soil, watering when needful, and paying strict attention to cleanliness, not allowing weeds at any time to encroach upon them.

TUSSECKY PARKS.

I DARESAY the great difference in appearance between a park and a well-mown lawn during the winter and spring will often have been observed. The first has a dead and withered appearance, while the other is always green and pleasant. Some people imagine this to be due to the lawn being more frequently manured, but that is a mistake. The fresh and verdant appearance of the lawn is due simply to the Grass being constantly cut by the scythe or lawn mower, and if by any means we could keep our parks more closely shorn, they would always be green too. Parks round country seats are never ploughed, and consequently they get matted and tussocky on the surface, no matter how well they may be pastured. In autumn the tussocks die and become withered, and remain in that condition till the young Grass begins to grow through them the following summer, but the young blades, being greatly obstructed by the dead herbage, are not seen, and hence the park has a brown, rusty-looking appearance long after the Grasses begin to grow. This is bad for cattle, too, because in nibbling the sweet young Grass they eat a proportionate quantity of the dead and withered herbage along with it, and to their injury, because there is no nourishment in it and all such dead herbage is difficult of digestion. This state of things could easily be remedied if we had a harrow powerful enough to scarify the surface of the Grass early in spring, so as to tear the dead tussocks to pieces and scatter them over the surface as a manure. Some time ago I was in correspondence on this subject with a noted agricultural implement maker, who quite agreed as to the advantage of such a harrow, if one could be devised sufficiently powerful to effect the object in view. Samples of the sod from the parks were sent to him, and it was found that the dead Grasses were from 6 inches to 9 inches deep in many places, and as thick and tough as a door-mat; consequently a common chain harrow scarcely touched them. Paring and burning are effectual, but out of the question on the scale contemplated. The productive power of old pasture land and parks is very greatly impaired by this accumulation of dead herbage, resulting in substantial loss to the grazier, while the beauty of the landscape is marred for several months in the year.

Y.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols. price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

No. 1165. SATURDAY, April 16, 1892 Vol. XLI.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ORCHARD AND FRUIT GARDEN.

SETTING GRAPES.

A SPELL of very bright hot weather has stimulated and strengthened the growth of successional and mid-season Vines surprisingly, while those to produce late crops are breaking very satisfactorily. By far the greater number of Vines grown under glass are yet to flower, and it remains to be seen what effect the summer-like weather so early in the season will have on them. Probably it will have done much good, for it is very certain that the best set is usually had on Vines the growth of which has been solidified and matured under the full benefit of a maximum amount of sunshine. Not only should the young growth have the benefit of all the sunshine going, air being given freely when it can be done without unduly lowering the temperature, but the bunches, too, must be equally as much exposed. I consider exposing the bunches to the full sunshine the most important factor in effecting a good set, a variety of other details being of little avail when the bunches are weak and the flowers open feebly. Thin training is most desirable, especially in the case of shy-setting varieties.

When this subject is discussed, the remarks are too often confined to the setting of Muscat of Alexandria, Mrs. Pince's Muscat, Muscat Hamburgh, Black Morocco, and Alnwick Seedling; whereas all other varieties ought also to be taken into consideration. A great point with judges of fruit, and also with fruiterers when buying Grapes, is a large size of berry. Now large berries are very rarely seen poorly furnished with seeds or stones, as they are generally termed, and I will go further and maintain that to have the Black Hamburgh, Buckland Sweetwater, Madresfield Court, Gros Maroc, Gros Colman, Gros Guillaume, and Lady Downe's to their full size, the berries must be perfectly set, the very finest berries having four, sometimes five, stones. Experienced thinners leave as many well-quartered berries as they possibly can on each bunch, these usually resulting from the strongest and best fertilised flowers. If, therefore, large berries and perfectly set bunches are desired, these should be thought about long before flowering time, or, as I have more than once pointed out, in the autumn previous. Those Vines that have greatly exhausted the soil in the borders should be well fed at the roots before the foliage has ceased to perform its natural functions, liquid manure being again given just before or when they are re-started, and be well attended to subsequently, this ensuring a strong start and the production of stout bunches. In some cases an autumn or winter dressing of lime would act most beneficially, this being especially the case where either lime is absent from the water or the border is somewhat manure-sick. If the Vines are either starved at the roots or are in bad health, the bunches produced are very feeble and will almost inevitably set badly. I do not say the berries in this case will invariably fail to swell to a fair size, but maintain that they will not be well furnished with stones, and as a consequence cannot possibly swell to their full size.

Cultural details, as far as the roots are concerned, may, however, be most correct and

yet a good set not be effected, owing, as already suggested, to crowding the laterals and smothering the bunches before they flower. I do not deny that good crops of Muscats even have been produced where the rods have been trained not more than 2 feet apart, but where there is one success under such conditions there are fifty failures, and in any case it pays better to adopt more rational methods. Some of the grandest crops of Muscats to be seen anywhere are produced on rods trained 6 feet apart, and I have seen pollen from the bunches when in flower flying in clouds, or nearly enough to smother those that tap them. In this case the set is usually most perfect, though it would perhaps prove equally so if less space were allowed. As a rule, private gardeners cannot afford to train their Vines more than 4 feet apart, and I find this distance answers well with Muscats as well as the more free-setting varieties. The rods ought to be either permanently trained or temporarily slung sufficiently far from the glass to admit of the laterals being allowed to remain in a nearly erect position till after the bunches have flowered, and the latter then are less likely to be unduly shaded. Who has not found that bunches left for some reason on the upper side of the laterals or leaves set remarkably well, too thickly perhaps, while those that are underneath, and with which extra pains in fertilising have been taken, have behaved most disappointingly? That shows what plenty of light will do, the effects of too much shade also being demonstrated.

Extra high temperatures during the flowering period I hold to be weakening rather than otherwise, and personally am well content with a comparatively slight increase. Thus if the Muscats have been kept up to the flowering time at about 60° by night, and ours rarely exceed that figure, an increase to 65° is ample, while the temperature in the daytime, hitherto ranging from 65° to 75° with sunshine, is advanced to 70° and 80° respectively. In dull or showery weather damping down wholly ceases during the flowering period, but on clear, hot days it is practised in the morning and again in the afternoon at closing time, though only lightly. Towards mid-day, the atmosphere being buoyant either by the admittance of air freely on clear days or very slightly on dull days accompanied by more fire heat, the capsules shatter off and the pollen is distributed freely, and not unfrequently Muscats set well without any aid other than smartly tapping the rods or laterals. It is not advisable, however, to depend upon this, but the pollen should be transferred from the anthers to the stigmas either with a camel's-hair brush or by the palm of the hand. I have long adopted the latter plan, and never seen other than good result from it. The palm of the hand is quite soft enough for drawing over a bunch when in flower, and this practice has the effect of dislodging capsules that do not part freely, also removing the tiny globule of viscous matter often lodging on the stigmas, and which, unless either dried or removed, militates against a perfect fertilisation. The practice of cross-fertilising, that is to say, the use of pollen from well-known free-setting varieties, such, for instance, as Black Hamburgh, Foster's Seedling, and Madresfield Court, has much to commend it, and drawing the brush or hand over these when in flower in order to have pollen to transfer to the Muscats benefits rather than injures them. Pollen from free-setting varieties can be collected and stored if need be in paper, and appears to keep and be quite as potent as Aucuba pollen similarly treated. Medium-sized to small

bunches of Muscats, and the Muscat Hamburgh in particular, usually set the most evenly, and the mistake is often made of selecting extra large clusters when smaller ones are more certain to give the best results.

The temperatures I have given for Muscats prior to and again during the flowering period appear to suit all other varieties, the former, if started early, doing well in mixed houses. For reasons already implied I adopt the same practice with most of the reputed free setters, tapping the rods, and in many cases using the hand as well as cross-fertilising. Alnwick Seedling left to itself fails completely to set, and those glistening globules of sticky matter must be removed, or the pollen is powerless. Black Hamburgh, in fact most other Grapes in robust health, also produce this spot of moisture, and in dull showery weather this ought to be moved with the hand, or the set may be imperfect. As far as my experience with the syringe in setting Grapes is concerned, I must confess to having doubts as to the wisdom of the practice. It may answer very well in some cases, but in others it might prove a risky business. Any way, it is not the aid to setting that I can conscientiously recommend.

W. IGGULDEN.

FLAVOUR IN FORCED STRAWBERRIES.

THE want of flavour in early forced Strawberries is generally owing more to the sort than the treatment, as those selected for starting first are invariably such kinds as are known to set freely and swell and colour quickly, the most reliable as regards these points of any I have tried being Noble, but then the less said about flavour and quality the better, as these are sadly lacking. It would appear from what has recently been said that John Ruskin is the coming variety, as Mr. Gilbert speaks well of it, and has made the high price of two guineas per lb. He was good enough to send me plants and I shall shortly have fruit ripe, and hope I shall find it as good as he has had it, and that it will be a long way better than Noble, which I shall be glad to discard for a better. I always grow some Vicomtesse Héricart de Thury, as that is a good kind for early work, and being firm, packs and travels well, and the flavour is fair if the fruit is well exposed to light, sun and air and finished off in a cool house. This, as "G. W." mentions, does much for Strawberries, and careful watering has a good deal to do in helping their flavour. Liquid manure should never be given after they begin to colour, as it is sure to impregnate the fruit if it is. The fruit should be gathered early in the morning while cool and before the sun gets on it, as after it loses aroma and freshness. My standard Strawberry for forcing to get the main supply is British Queen, and there is none to equal it, as it is first-rate at all points, for it possesses appearance, size, shape, combined with the highest quality, and travels well. It cannot be had very early, although it stands forcing well. Not only is the British Queen the best under glass, but it is superior to any other outdoors. It appears that some experience a difficulty in growing it, this probably arising from unsuitability of soil, as it does not succeed well on that which is heavy and cold. Mine is light and dry and I trench before planting, plant the rows a yard apart, mulch heavily, and thus obtain very fine crops. As a rule, the plants I make use of for forming fresh beds are those which have been forced. These bear abundantly the following year, and after standing another season they are destroyed, as I do not believe in old crowns.

Suffolk.

S. D.

Gooseberries and caterpillars.—What I took exception to in "S. H. B.'s" remarks anent Gooseberries and caterpillars was his recommendation of the removal of the surface soil under the bushes, which I consider not only useless, but injurious, as the less disturbance the earth has

about the roots the better, and though lime may not be absolutely needful, it can never do harm, and in most cases is highly beneficial if the soil to which it is applied is not impregnated with calcareous matter, as all fruits need a portion to perfect their seed or pips. Top-dressing is quite another matter and wholly distinct from removing soil, and I am a strong advocate for giving fruit trees and bushes a mulching, a work that is always carried out here annually at or soon after this season, as I have constant and strong proof of the great good it does, and know that without it we should not get along very well, our land being light and quickly affected by drought. We therefore apply half rotten manure around our walls, laying it from them about a yard wide, and cover the ground completely where our pyramid Pears are, and the same with the Raspberries, as then what water we give tells, and a good soaking lasts a long time.—S. D.

PEACH BUD-DROPPING.

THE notes that have recently appeared in THE GARDEN on the above subject recall to mind a correspondence of some two or three years ago in the matter of Camellias, arising from a theory that bud-dropping in their case might be traced to a similar cause—insufficient exposure of the plants to exterior atmospheric influences. So far as Camellias were concerned, I think it was ultimately conceded that such a theory was not in keeping with actual experience, evidence being forthcoming that in several old-established structures Camellias that occupy permanent positions in beds do remarkably well and show not the slightest sign of bud-dropping, not only without any annual exposure, but under very effective ventilating arrangements. It is just the same with Peaches; there are scores of houses scattered here and there about the country from which good crops are annually taken where it is impossible to remove top lights, or where top ventilation is defective either from the fact that a certain proportion of the lights are fixtures, or that instead of such lights sliding down a considerable distance, the arrangement is confined to the lifting up of a number of small sashes, causing the temperature at the apex of the roof in very hot weather to resemble a hot blast from a furnace. Bud-dropping even more than non-setting may be traced to three causes—unripened wood, too much water, and too little. As to the first named, is unripened wood a necessary following of non-exposure? By no means, or, as I have said, hundreds of trees would never have a bit of well-ripened wood in them. If facilities are at hand for complete exposure, there is no reason why it should not be effected at the same time. Facts prove that such treatment is not absolutely essential either to the general health of the trees as a preventive of bud-dropping, or to secure good even crops. I remember well going through some houses where front ventilation was confined to the opening of a narrow strip of board, and only half the top lights came down perhaps a yard at most, and, asking if there was any trouble with bud-dropping under these conditions, the answer was, no, except occasionally very slightly, in the case of one or two trees on the back wall; therefore, the little loss was experienced just where the exposure was possible. All front-trellis trees were always right. The judicious application of water and a necessary amount of air are important factors in the proper ripening of wood, but the chief factor is emphatically suitable soil, and hanging on this comes in a personal matter of failure and ultimate success it may not be out of place to chronicle. When I made the inside Peach borders here I used a shallow top spit from the park. This looked to the eye fairly sound and lasting. Very foolishly, I neither made a careful examination of the soil nor took pains to ascertain its general local character. The trees started away well and made a lot of strong growth, but neither in the second nor third season from planting was the wood well ripened or the crop satisfactory; there was a certain amount of bud-dropping and more non-setting. It was not a

question of water, as, knowing the borders were well drained and inferring the soil was on the light side, I watered heavily and persistently. An examination of the border at the end of the third season revealed the fact that the soil had degenerated into little but sand. There was not the slightest hold in it even in a damp state; it ran easily through the fingers. Nearly all this was taken out and the border re-made with a stiff loam mixed with an equal proportion of stiff road sidings. The result has been most satisfactory. The crop, with perhaps an occasional tendency to the thin side on a few trees on the back wall, is invariably good, the best results (strange if one is to accept the exposure theory) being on the trees on front trellis, which is always sheltered by immovable top lights. My idea of the wood produced from a stiff loamy compost is that it is invariably shorter-jointed, less in diameter, but harder, more solid, and quicker in ripening up. The soil then, I take it, comes first and foremost in successful indoor Peach culture, and next comes the question of water. An excess of moisture at the root is responsible for bud-dropping when the watering is very heavy on a close, retentive soil and a badly-drained border. The observant gardener will soon correct this, but it occurs sometimes when starting in a new and unknown place; one goes to work in the generally recognised fashion before there is time either to examine the border to ascertain the system and extent of drainage, either natural or artificial, or the character of the soil. Given a fairly suitable soil and a subsoil from which water will run away freely, the water-pot or the hose may be applied in a liberal and persistent manner, and to their non-application under favourable conditions may also be traced a good deal both of bud-dropping and non-setting. As to the temperatures at the early forcing stage, it is, I think, generally known that strict attention to this matter has much to do with success.

So far as the selection of varieties for indoor work is concerned, there is one matter sometimes lost sight of—how far Peach culture is practicable out of doors. If there is little chance of doing this successfully, by all means have a number of varieties under glass for successional purposes; but if plenty of good fruit of Noblesse, Violette Hâtive and Barrington can be grown out of doors, there is not much to be said in favour of giving Lord Palmerston and Osprey or even the Admirables the protection of a house. There is no doubt that, take them in their all-round excellence for flavour, combined with size, good constitution and general disposition to do kindly under glass, our second early and midseason Peaches are decidedly the best. Restricted to half-a-dozen, I would grow Hale's Early, Early Alfred, Dr. Hogg, Dymond, Noblesse and Violette Hâtive. All these are good Peaches and pretty sure setters, with the exception of Hale's Early, which is inclined to be shy. If Early Beatrice were about twice its natural size, one would not have to travel farther for a first early, but it is certainly too small to suit modern requirements. I have not tried either Amsden June or Alexander, and should not feel inclined to do so after the experience chronicled by several correspondents.—E. BURRELL, *Claremont*.

—As a rule, there are two causes for Peach trees dropping their buds—the roots being too dry during the autumn and winter months and keeping the house too close and warm just previous to and after the falling of the leaves. A particularly strong case bearing out the last-named reason has been under my notice during the last three years. A Peach house 100 feet long, having a southern aspect in a very warm garden, was well stocked with trees, which bore well; in fact, it was necessary to thin the fruit freely. The house was not heated in any way artificially, and as the roof is built of iron rafters, it was no uncommon thing to find several degrees of frost in the house, which evidently did more good than harm, judging from the healthy appearance of the trees when in bloom. Three years since a change was made in the internal arrangements of the house. Two rows

of hot-water pipes were laid along the front of the house with the idea of bringing the trees on a little earlier and rendering the house more useful as a plant structure during the winter. In arranging the Chrysanthemums thickly together on the border near the back of the house, where they could obtain head-room and light, the Peach trees were so covered with the foliage of the Chrysanthemums, as to receive but little light in any way. To secure an even temperature of 55° by night, allowing a free circulation of air at the same time during the day, but not so much at night, the hot-water pipes were made warm. The result has been that the Peach trees have dropped a very large number of their buds, in some cases to such an extent, that thinning the fruit is not now necessary. Here then is a proof that the altered conditions which the trees received were conducive to a large loss of fruit buds.—OBSERVER.

—All gardeners who cultivate Peaches under glass are only too well acquainted with the evil for at some stage or another of their career they have undoubtedly had it to contend with. As stated by "J. E." (page 296), bud-dropping appears to be on the increase, and this, to a certain extent, is through cultivating these early American Peaches under glass, and also in departing from the old-fashioned principle of having movable lights over the trees, and which could be removed directly the fruit is gathered, so that the whole tree may be exposed to the elements until far on in the autumn. Cheap glass structures are no doubt answerable for this, as in these the roof is a fixture and the trees cannot be exposed enough. In years gone by it was usual to remove the roof-lights, not that there were many varieties of Peaches prone to this evil, for the old Noblesse was about the only variety that there was any difficulty with. If the trees when grown in pots in the orchard house are removed to the open air directly the fruit is gathered and allowed to remain there until taken in for forcing, the evil rarely, if ever, asserts itself, that is, if the trees be plunged and kept well supplied with water. I think it is a mistake to plant these early American kinds in a structure with a fixed roof. If there is no choice in the matter, it must be done, as most gardeners and employers as well like to have Peaches as early as possible. Cultivating, then, these early American kinds as pot trees, or in a small structure by themselves, is evidently the best plan. Bud-dropping in trees in the open air is almost unknown. As stated by "J. E.," with whose observations I fully agree, the removal of the roof-lights directly the fruit is gathered is the mode to adopt with this or indeed any of the old early kinds, which are now classed as second earlies, owing to the introduction of the newer American sorts. Certainly there are other well-known causes which lead up to bud-dropping, but when the grower is very careful to see that his trees are scrupulously clean and also well supplied with water, the borders also being firm and so forth, it is very disheartening to see the buds dropping. The wood in these bud-dropping cases, where the wants of the trees are carefully attended to, evidently becomes over-ripened and the buds too plump. Anyone acquainted with the evil can tell long before the term the buds should commence to swell whether they will drop or not, for these, or at least any which may be pulled off, will, if cut open, be quite brown. Chrysanthemums are answerable for the buds dropping in some cases. The plants are stood in the Peach houses, which are kept too close, and heat is also present to dispel damp—causes certainly which add to the evil, and which should be avoided if possible. I fancy my friend Mr. W. Iggulden takes too doleful a view of the subject as to there not being a remedy. Removing the roof-lights should do it. What say others?—Y. A. H.

—For two years after I took charge of the gardens here I had a Peach tree that cast the greater part of the flower-buds just as the sap began to move. After the first experience of bud-dropping I was most particular about giving the border an abundance of water, but the following year the

buds dropped in the same way. At this time Mr. Burrell, of Claremont, wrote his experience in *THE GARDEN* of the same trouble. He lifted the roots and took away a portion of the soil and added soil of a heavier kind in place of that taken out. I acted on the same plan, and for two years have had a good crop of fruit and this year I have a capital set. The roof of my Peach house is movable, and I have the trees exposed to the weather for three months. I mulch the borders with strawy manure generally twice in the year, using water and the garden engine freely. I attribute my success to lifting and replanting in fresh soil. The soil that I took out from the border was very sandy; what I put in its place was a good strong loam to which I added plenty of old mortar rubbish. — J. HINTON, *The Gardens, Pull Court, Tewkesbury.*

— As bearing upon the subject of the premature falling of the bloom of Peach trees now being discussed, I would invite attention to a question recently submitted to me by an amateur in the midlands. He had Peach trees in full bloom in a house (the varieties were not stated) when a sharp frost occurred, there being 4° in the house, yet the bloom seemed to be in no way injured. Very probably it suffered little, as it was, of course, dry, and Peach bloom outdoors will often withstand twice as much frost if it be dry. Then a week later the trees were liberally watered with strong liquid manure. In the evening of the same day nearly all the bloom on the trees had fallen. As a week had elapsed since the frost, it does not seem at all probable that the falling of the bloom was due to that. What I have assumed is that so strong an application of liquid manure might have either destroyed the young feeders or rootlets of the trees and thus led to the catastrophe which so soon followed, or else that it caused an undue flooding of sap, which would probably only push off the blooms; or it might have arisen from closing up the house after the watering, the rank ammoniacal gases thus enclosed serving to destroy the bloom. Probably under the circumstances the watering freely at all just at that time was unwise, unless the borders had become exceptionally dry, and even in that case the reaction induced by the heavy waterings would have been injurious. The points urged may help to throw some light on a matter which it would seem is not limited to sort after all, but appears to apply to all forced Peach trees. — A. D.

MUSCAT OF ALEXANDRIA GRAPE.

TAKING the varieties of Grapes as a whole, I think the Muscat of Alexandria may fairly lay claim to be the best of all, taking into consideration its handsome bunches, fine amber colour, and quality of the berries. Possessing all the above good qualities, anyone would naturally come to the conclusion that this would be the most popular and generally grown of all Grapes. As far as number of Vines is concerned, this may be true, but speaking generally, the quality is considerably below the standard. Occasionally one may come across noble examples of cultural skill. In days gone by, the splendid examples that used to be exhibited by Mr. Cole, of Ealing Park, Messrs. Lane, of Berkhamsted, and latterly by Mr. William Taylor, show the standard that may be reached. Occasionally others are produced, and I have come across them when least expected. It is on record of a wonderful Vine that was many years ago in the gardens of Bourton House, Berks. This Vine supplied rods in three different houses. The rods in the different houses were started into growth, and Grapes in three stages were produced, all being of the highest quality. Taking into consideration the size and also number of rods these Grapes were cut from, I think it is evidence that the Vines

are too restricted in thousands of cases. Whenever I have seen the Muscat succeeding really well, and also producing the highest quality of Grapes, several rods have been produced from a single root-stock. Occasionally they are planted and also succeed uncommonly well in places where little expected. Mr. Douglas some years ago, when living at Loxford Hall, planted a Vine in a small annexe merely to fill up the space. This Vine succeeded so well, that instead of confining it to its small space, a rod was taken through a square of glass into a Pine stove. This succeeded so well, that eventually the whole structure was filled with rods, and the Grapes produced were as fine as I have ever seen. The space this Vine was rooting in was supposed to be very limited, and although it was highly fed, no doubt the roots had rambed into good "feeding" quarters. Again, some years ago it was recorded of some Muscats succeeding wonderfully well, when all at once there was a collapse. It came about in this way. A drain got choked, and it became necessary to open up the drain and follow it until the stoppage was reached. This happened to be in front of the Vine border, or at any rate in close proximity, and at this very point the drain was full of Vine roots, and hence the stoppage. The Vines were literally feeding on the liquid. The drain was diverted from its original course, and from that time the decadence of the Vines commenced. The above instances are lessons which we should take notice of. The Muscat is evidently fond of sand or a sandy open soil, and under such conditions must have high feeding. Such being assured, and other cultural details closely attended to, good Muscats should be produced. A heavy soil is not the best for Muscats, as has frequently been proved. To prevent the berries shrivelling, it has been recommended to more freely feed so as to alleviate the evil, but where the Grapes are subject to this, feeding will not stop it unless the material the Vines are rooting in is of an open or very sandy description.

It has been said that there are more varieties of the Muscat of Alexandria than one. The variety known as Bowood Muscat, I am of the opinion, is quite distinct, the bunches being more heavily shouldered, besides setting more freely, and the berries also more blunt. In growth Muscat of Alexandria is very vigorous, seldom failing to show less than two or three bunches to a shoot. Although so free in showing bunches, this is no criterion that the Vines must be overcropped, as I know of no other variety which will resent such treatment. In many instances, however, this Grape sets so badly, that there is a difficulty in securing a sufficiency of presentable bunches. But with the roots working in a warm border there should not be the least difficulty on this point. Dusting the bunches over with a camel's-hair brush after being charged with pollen from a free-setting variety, especially the Black Hamburg, also syringing the bunches, and also lightly drawing the hand over them, are all adapted for securing a good set. Rapping each fruit-bearing lateral smartly, say at 10 a.m. and again at 1 p.m., daily until a good set is secured is as safe a method as any to adopt. Now that the setting season is upon us I shall adopt this last method in preference to the others, as I am under the impression that this will do away with that rusty tinge which is apt to show itself after the Grapes are ripe and have hung some time. The temperature must also be raised.

The rods hitherto in the majority of cases have been much too close together for the leaves to perform their proper functions. The rods

should be quite 4 feet or 5 feet apart, and an extra foot would undoubtedly be all the better. A good spread of foliage both on the fruit-bearing laterals and also on the intermediate ones is certainly needed to bring the fruit to perfection. Nor ought the foliage to be in the least crowded, as each leaf must have room for free development and to allow the diffused light to strike obliquely on to the bunches. It is evident that if this noble Grape is to be seen in the highest perfection, exceptional treatment is needed. It must have what is termed freer extension and not be cramped in any way. The roots must also be working in an open and free soil. Some years since a well-known gardener had his Muscat Vines planted in what appeared to a casual observer almost pure sand, and upon moving the surface the border was literally alive with feeders, ready to respond to the bountiful supplies of rich liquid they received. Seeing the price other Grapes now realise, Muscats are the ones to cultivate for market, that is, if they are grown well. In conclusion, I may also say that warm, rather dry air is what is needed to finish the bunches up satisfactorily, as want of efficient heat has been the cause of the failure of many a house of Muscat Grapes.

Y. A. H.

Trellis-trained Gooseberries.—A very successful method of obtaining fine clean, well-preserved fruits of choice dessert Gooseberries is carried out at Claremont. There are two rows some 120 feet long of flat-trained Gooseberries about 4 feet apart, the bushes 4 feet high, trained to four stout galvanised iron wires, strained along wooden posts. The method seems to suit strong growers best, as the weaker varieties take much longer to fill up the trellises, but still these are admirably furnished. Of course the stems and branches are hard spurred, and show that whilst Gooseberries invariably bear on the yearling wood, yet do they stand hard spurring admirably. It is then found very easy to net over these trellis trees in the summer, and because there are two rows it is thus easy for anyone to lift the nets at one end, and, passing along between the rows, to gather fruit as needed without removing the nets. — A. D.

Strawberries and the frosts.—The list of killed is not so heavy as at one time I thought would be the case, but the wounded are far too numerous to please me. Small plants, put out late, have been the greatest sufferers, and if my experience is any criterion, Waterloo is not so hardy as most other varieties. Strong plants of old favourites are now growing freely, and may not be much the worse for the complete loss of old leaves and the severe pinch they received. Laxton's Noble has already suffered from spring frosts, its precocious habit of flowering rendering it peculiarly liable to injury. Where the flower trusses were just starting from the crowns, frosts have touched the most forward flowers, and, as a consequence, what should have given the largest fruit will in all such cases be spoilt. — SOMERSET.

Fruit prospects.—Although most of us were inveighing against the weather in March, it must, I think, be conceded that it has been in favour of the fruit crop, as the severe cold kept trees back, and Apricots and Peaches are now having a happy time of it, for they have opened their blossoms strong under the influence of a temperature during the day and sunshine more like June than early April, and a free set is therefore assured. Plums are fast expanding their flower-buds, and though the crop was heavy last year, there is a fair promise this, which is unusual after trees have borne so heavily, as they generally rest and recoup themselves, or rather they are unable to do two things, bear and perfect much fruit and form and mature flower-buds, unless the autumn is unusually favourable; hence it is that a scarcity follows a glut, which shows the utility of thinning. If thinning be carried out in proper time, trees are not distressed,

but bear regularly each year in succession. Pears have come along very fast during the last week, the blossom-buds having thrown off their scales, but Apples have been less affected by the heat or do not show it in the same degree, and yet it may be clearly seen that they are swelling and full of promise. Cherries are full of bud, and Gooseberries and Currants are showing plenty of fruit, which will soon be sheltered by the leaves, so that if we do get a little frost it will not take much harm, as the foliage is a great protection. Most people who gather Gooseberries green, leave the bushes thick and grow them under other trees.—S. D.

—The fruit prospects for the coming season are particularly promising; all kinds of fruit trees are well studded with buds, and if frosts only keep off and the weather is at all favourable, the year 1892 promises to be an exceptionable one for fruit crops in this district. This is rather to be wondered at than otherwise when we consider the wet and almost sunless autumn of 1891, which was anything but favourable for the ripening up of the wood.—E. S., *Screeby Hall, Brigg, Lincolnshire.*

MAINTAINING THE HEALTH AND FERTILITY OF ORCHARDS.

THE timely extract from *Garden and Forest* (p. 226) and Mr. Iggulden's supplementary comments on the same (p. 270) are as seasonable as important. A great practical point will be gained when fruit growers generally recognise the fact that fruit trees in full bearing need liberal feeding. Whether the American estimate of the amount of nitrogen, potash and phosphoric acid removed per acre by a crop of 150 bushels of Apples be correct or not, it is obvious that a large proportion of the productive force or fertility of the soil must be used up and partially exhausted, at least, in the annual process of finishing a full crop of Apples or other fruit; and yet how many orchards one meets with that are expected to bring forth perfect crops of fine fruit without manure year after year. The fact is, in many quarters the starving *régimen* has succeeded the stimulating, once so common in gardens and not less so also in orchards. In those days no soil was nor could be too rich for fruit trees, especially in their youth; growth was forced and fostered through the strongest manures, including dead horses and other carrion, and at times, and when the roots steered clear of the carrion, the growth of the young trees was prodigious, the net result of very much of this waste of vital energy and manurial force being barrenness, canker and other diseases. The starving *régimen* almost naturally succeeded the old one of feed and cram; and hence, no doubt, comes much of the inferior fruit in our home markets. The fruit is small, the sample poor in colour and flavour, either because it is overcrowded above or unfed underground. Here, as in many other directions, a medium course is generally the safest and the best. Even now, with all our improved knowledge as to the difference between fruit-bearing and wood-making, not a few young fruit trees alike in gardens and orchards are overfed. On fairly good soils, young fruit trees need no manure until they reach the stage and the strain of fruit-bearing. Land that grows good wheat, or from 30 tons to 40 tons of Swedes or Mangolds per acre, will grow good fruit trees without manure. Even the trenching of such land where the tilth is good is very often a hindrance and a check to fertility. Within the last few months I have seen young orchards with the corn and the root tilths of centuries buried 18 inches or 2 feet beneath the surface, now formed of dead, inert subsoils. Such subversion of good soil and substitution of bad are

not only a loss of labour, but of time and money and immediately available growing force.

Hence where the trenching of ground for fruit trees is needful, it should never take the form of a mere subversion, but of deepening and a thorough admixture of soils—still, however, retaining the best soil on the surface. This is the more necessary in these days when trees on surface-rooting stocks are mostly planted, and when even Crab and Pear, or other deep-rooting stocks are compelled to skim the surfaces through root-pruning or frequent transplanting.

Little or no manure before fruit-bearing may, however, mean a good deal and a regular supply afterwards. Fruit-bearing in quantity and of the highest quality (and with the foreign supplies increasing and improving every day—nothing less will pay) is an exhaustive process, and if it is to be continuous, the exhaustion must be made good. The American authority and Mr. Iggulden point to several cheap and convenient sources of supply of food for our fruit trees, such as surface-cropping with Clover and other leguminous plants for nitrogen, chemical, or animal and vegetable manures, and the droppings of sheep or other stock for potash, phosphates, phosphoric acid, &c. Possibly the sheep pasturing of orchards—the vegetable diet of the sheep being supplemented by an additional fourth at least of rich cake or feeding meal—would prove the cheapest, best, and most permanent means of maintaining orchards through a series of years at a high pitch of fertility.

As to the sub-cropping with bush fruits, &c., it is easy to condemn such practices on paper, and draw vivid pictures of struggles for food between the roots of Apples or Plums above and those of Gooseberries, Currants or Raspberries sandwiched with Strawberries below. But is it not a fact that the ground crops and bush fruits frequently return more money than the fruit trees? This, however, is an additional argument why all the roots should be sufficiently fed; and possibly an annual or biennial dressing of manure for most orchards may be one of the first results of the lectures on technical instruction on horticulture recently given in various districts through the influence of County Councils.

Not only is more correct information greatly needed as to the necessity of food for fruit trees and bushes and their mode of converting the same into luscious fruits, but also as to the plan of applying the food. It would hardly be credited that in this year (1892) orchard trees forty or fifty years old are being duly supplied with food in charmed circles of a foot or so round their boles. Surely it is not too much to hope that the next food offered to fruit trees will be placed within reach of the feeding fibres. One great indirect benefit of ruminants as manure distributors lies in the fact that they enrich the entire root-run almost equally and alike, so that every hungry root has its share of the stimulating force of the manures alike of solid and liquid. I agree with Mr. Iggulden as to the potency of house or town sewage as food for fruit trees.

D. T. F.

Apple Sturmer Pippin.—There is no mistake about this being a first-rate Apple for dessert from February onwards. It is of medium size, firm, brisk, and highly flavoured. I have had this Apple keep well till the end of May. At the present time I am sending it to table. It may be cooked, but does not boil as well as some kinds, although splendid for baking. The tree is a good grower and does well in our orchard. It is a constant, although not a heavy bearer.—DORSET.

CROWDED PEACH SHOOTS.

THERE cannot be any question as to Peach trees generally, both outside and under glass, being in a very crowded condition mainly owing to insufficient disbudding. With crowded branches the leaves cannot perform their allotted functions; consequently the shoots are enfeebled, good fruit being an impossibility. As long as the shoots are devoid of grossness it matters little how strong they are, for it is on such wood as this that the best fruits are produced. In the cultivation of Peaches both outside and under glass there are two extremes to guard against, for I think it is equally against the well-being of the trees when the branches are too thin. When disbudding is rationally attended to, the energies of the tree are not frittered away, but are concentrated in the remaining shoots until they increase in size and become proportioned in every way. When disbudding is properly carried out, fewer shoots require to be cut away at pruning time, and a tree which requires a deal of attention in this respect at this stage must have been sadly neglected during the earliest or disbudding stage. What at first sight appears a just sufficient quantity of shoots is before many weeks have passed simply an almost impenetrable mass, and where the trees are trained to a trellis overhead, daylight cannot be seen through.

Disbudding is not at all a difficult proceeding, it being simply the retention of sufficient shoots over the tree to cause an equally balanced growth, taking care not to overcrowd them, or, on the other hand, to have them too thin. When once the operation of disbudding is fairly mastered, there will be but little difficulty in keeping the work in hand, as I find with young men it is more through nervousness than anything else that too many shoots are retained. Judgment is certainly necessary, as with the details fully grasped as it were, a practised eye can see at a glance what shoots are needed.

Take a tree, for example, that is established and has almost filled its allotted space. After it has finished blooming, the shoots will commence to push away, and the first operation will be to remove the strongest shoots, at least taking care not to remove those which would be required to furnish the tree, these being near the base of the shoots—what are termed fore-rights being especially selected for removal, for if these should be retained the tree has not such a nice appearance. Fore-right shoots are those which grow straight out, and are generally produced from strong growths. The superfluous shoots should be taken off by degrees, or at intervals of a few days, until the whole are removed. The main point to consider is to leave a nice growing shoot near the base of the fruit-bearing wood, of course allowing the terminal bud at the end to grow ahead, as obviously this would be necessary to draw the sap. In young extending trees where there is a fair distance between the branches, sometimes two or more shoots must be laid in. In several instances a young fruit will be present along with a growing shoot, and in this case, unless the fruit will not be needed, when the whole may be removed, it will be necessary to pinch the shoot to two or three leaves. This may be removed afterwards if needed when the fruit is being thinned. Whilst the shoots are young they may be easily removed by the finger and thumb, but afterwards when they are getting firmer a sharp knife should be used. The growths which are retained will, upon the bearing shoots being cut away after the fruit is gathered (or at least any not required for the further extension of the tree), have further room for development, and so have free access to light, sunshine and air, the main factors for ripening up the wood.

There is yet another point that I wish to dwell upon, and that is the early removal of any gross or watery shoots. These should be cut clean away unless really required for the extension of the tree, when the best course is to pinch them back. If these gross shoots are allowed to grow ahead, it is astonishing the size they will attain to by the end of the season. They also act as robbers, by taking away support which would be better for the well-being of the tree.

A. H. S.

ROSE GARDEN.

AYRSHIRE ROSES.

It speaks volumes for the beauty and constitution of these grand old Roses that they succeed in holding their own against Tea, Perpetual, Rugosa, Chinese, Boursault, Hybrid Climbing, and Evergreen Roses. For the draping of arches, arbours, summer-houses, scrambling over rocks, the clothing of banks, running up or depending from trees, rambling through or forming rough masses in woods, few Roses equal the Ayrshire. As to the culture of Ayrshire Roses, nearly all depends on their positions. Of course if used to clothe formal arches, arbours, summer-houses, &c., a little pruning and training may be needed to prevent their growing wild or unduly encroaching on other objects, or running all over the place. But to have Ayrshire Roses in perfection they

repeated in certain conditions of food supply and due preparation. For example, we can but seldom have a fresh start. A vacant place where we want to place our plants of Ayrshire or other scrambling Roses is already crammed full of the roots of trees, bushes, weeds, or other plants, or if not, it will be the moment we disturb it or place anything specially tempting or good in it. Place a yard or half a yard of good loam mixed with manure in any of those semi-wild apparently vacant spaces, against trees, rockeries, banks, or walls which we desire to clothe or drape with our Roses, and see what hosts of alien roots will forthwith hasten into and exhaust our Roses' food. This robbery and exhaustion of Rose or other plant food are worst against trees. No tree can be trusted as too old to turn aside its roots from such new and tempting larders. The surest remedy, and it will last for years, is to sink a paraffin barrel or beer cask into the ground where you

be forgotten that such a profusion of growth and prodigality of blossoming cannot be sustained through a series of years unless the root larders are liberally replenished with good things and carefully guarded against the scramble for food, which results in the survival of the fittest, that is, the strongest, which unfortunately under such semi-wild conditions would more frequently prove to be a Blackberry or Bramble.

The subject of the engraving—the Dundee Rambler—stands at the head of its family and is the most generally grown. It has the special merit of being true to name, being a veritable Rambler endowed with almost unlimited capacity of growth. The white colour of its flowers edged with pink is welcome in this class of Roses, in contrast to the green masses of trees, or of Grass or other vegetation which mostly form the background to the sprays of those rambling Roses.

Bonaparte is equally or more vigorous and of a pure white colour. Nothing can well prove more chaste in a landscape than the prodigal sprays or masses of this variety in conjunction with, or as a substitute for, those of the Dundee Rambler. The semi-double splendens, another white edged with red, is probably the next best. Ruga, a larger double variety, is equally or more vigorous, but its flesh colour is less telling in masses than the blends of pure white, white and pink, and white and deep red already noted. There are several other varieties, but the above are as good, if not better, than any other, as proved through being almost the only Ayrshire Roses generally grown. D. T. FISH.



Ayrshire Rose Dundee Rambler.

should hardly be pruned nor trained. Give them a yard or so of good soil to grow in, cut out any weak wood, and unless the plants are strong cut the shoots hard back to force a vigorous start, and then let them have their heads and shift for themselves. Of course they will be on their own roots. No one in his right senses would plant worked scrambling Roses; neither is there much temptation to bud or graft such, as Ayrshire Roses will root as freely as Gooseberries or Currants if put in about the same time and treated in a similar manner. If inserted with a heel, they will root with all the more certainty and despatch. But to grow these or indeed any other Roses to the highest perfection, the roots must have a good larder all to themselves to feed in. This is one of those practical difficulties of detail often overlooked by amateurs and others, to their bitter disappointment. It is so easy to say, clothe that house or wall, cover that bald, ugly roof with Ayrshire or other Roses, or let them run up and drape with beauty an ugly pollard or bald, bare tree. But such scenes of beauty can only be successfully

wish to plant your Rose, first boring a small hole or two in the bottom for drainage; then add a few crocks so disposed as to let the water out and hinder as far as possible the roots from entering in. Then fill the barrel with the Rose soil or compost and plant the Roses in the sure and certain hope that they only will feed at the larder you have so carefully and plentifully filled with good things for them. From this point all will be smooth sailing for the scrambling Roses. A few dwindling or weakly branches, should such appear, may be cut right back to the root-stock, and will result in the springing up of exceptionally strong shoots for running up chimneys or tall trees. And for the rest, let the Roses ramble and grow unchecked at their own sweet will if you would reach a grace and a charm of Nature far beyond and above the power of art.

After the growth and the prodigal blooming of years, should these Roses show signs of weakness, solid top-dressings of good manure or thorough saturations of sewage or other liquid feeders will restore or sustain them in their original strength or beauty. But it should never

FROST PRINTS AMONG THE ROSES.

It is not till the rush of the rising sap floods our Roses with returning life that the full effects of severe winters are seen and felt by experienced Rose growers. During such long cold winters as we have just passed through—if we are through them, as these summer-like days in the first week of April make us fancy we are, in spite of past experience—there has been some hard hitting of the Roses through the frost. We are constantly writing, speaking, and acting as if our Tea, Perpetual, and other Roses were hardy. Well, in general terms and under favourable conditions of perfect maturity, so they are up to and against from 15° to 20° of frost. But the moment we have over 20° or 30° of frost, our Rose beds and borders are strewn with the sorely stricken and the slain.

The mortality rises with cumulative force with every degree this temperature sinks below 12° Fahr., or 20° of frost. The winter on the whole was not so severe as the last, but it made up for any lack of absolute severity by the length, suddenness, and the number of its changes. Besides, in certain districts or zones, chiefly in the midlands, frost cumulating in or exceeding zero occurred. Wherever this happened, Roses were severely crippled or killed unless all but the hardest were more or less protected. Possibly in the ultimate results, all of which are by no means apparent, it will be found that Roses have suffered more through the winter of 1891-92 than through that of 1890-91. The reason is not far to seek nor difficult to find. Last year brought us little summer weather; its close found many of our Roses soft and full of sap—just the pabulum for the frost to pierce through and through, rupture and ruin. And it has done its natural work far too thoroughly for the happiness and light-heartedness of rosarians. Though the latter are amongst the most hopeful and long-suffering of men, they get so accustomed to be cast down, and not wholly destroyed, that they go on hoping, planting, struggling, and succeed in growing marvellously fine Roses year after year against odds of climate that would cast every atom of heart and hope cut of ordinary

metals. There is nothing for it now but to wait patiently for results, which will be the surest and best, as usual with Teas and other classes on their own roots.—D. T. F.

—Compared with that of 1890-91 the past winter may not be called exceptionally severe, but still it has been somewhat prolonged, and at intervals the thermometer reached so low a point, that the hardiness of Roses has had a fair test. At the outset I would notice that the extreme value of mulching is manifest where nothing in the way of covering has been applied, especially among Tea-scented kinds; there are many plants killed outright, and those that have escaped death will take some time ere they recover. I am alluding to open plantations in a nursery garden. I have lately examined, for it may be said, generally, that it is here alone where, through the large number grown and consequently the time, &c., it would take to provide covering, Rose plants must battle with the elements unprotected. But it is also here where a comparative test is afforded. Starting with Teas, Cleopatra, Princess of Wales, and Princess Beatrice are particularly hard hit. All three are from the seed-bed of the late Henry Bennett, so it would appear that they have in them blood of a very tender strain. Comtesse de Nadaillac, Mme. de Watteville, Souvenir d'Elise, Rubens, Mme. Casin, Innocente Pirola, Niphotos, and alba rosea (Mme. Bravy) have come out only fairly well, whilst Marie van Houtte, Mme. Lambard, Catherine Mermet, The Bride, Souvenir d'un Ami, Souvenir de S. A. Prince, Anna Olivier, Hon. Edith Gifford, Ernest Metz, Sunset, and other perhaps less esteemed kinds have passed the winter uninjured. That popular kind Wm. Allen Richardson, too, seems to have pulled through very well indeed as compared with last year. In regard to Hybrid Teas (a class which may almost be said to have its origin with the raiser named), Lady Mary Fitzwilliam is almost exterminated. Even mulching in the case of this kind is of little avail. Viscountess Folkestone will probably share the same fate. There are others besides among the Perpetuals, namely, A. K. Williams, Horace Vermet, Louis van Houtte, Xavier Olibo, Duchess of Bedford, Mrs. Baker, Mons. Noman, Dr. Sewell, which are barely hardy in such a time as we have lately passed through. Still, taken altogether, the Hybrid Perpetuals have come out uncommonly well. The fine new light Rose Margaret Dickson possesses the necessary virtue of hardiness to make it popular. I notice a very small number of deaths among dormant buds either on the stems of the Brier or near the ground, so that recently worked Roses begin the season with much promise.—H. S.

STOVE AND GREENHOUSE.

ANTHURIUM SCHERZERIANUM.

At the present season of the year the brilliant flowers of this Anthurium are conspicuous in most gardens where there is a structure maintained at a stove temperature, for *A. Scherzerianum* and its varieties possess many claims to recognition. In the first place, they are of very easy culture, provided a few simple rules are observed; next, they flower profusely and the blossoms remain a long time in perfection, while the vivid tints of some of them are unsurpassed among stove plants, and in the case of the occupants of the greenhouse there is little else but the zonal Pelargoniums that are so brightly coloured. Anyone who can recall the forms (or rather forms) of this Anthurium that were in cultivation twenty-five years since, and compare them with those grown at the present day, will find that great strides have undoubtedly been made. At that time the little spathes were, as a rule, much twisted, so that they then appeared smaller than they really were, while only the scarlet variety was then in cultivation. As a

contrast to these may be mentioned Wardi, with a spathe 6 inches or thereabouts in length and two-thirds of that in width. This has been now for some years recognised as one of the very finest of the bright-coloured Anthuriums. The prestige attached to the name of Wardi has caused it to be applied to seedlings that approach it in conformation of the flower, and as plants raised in this way naturally vary considerably, it follows as a matter of course that some individuals are much superior to others, even though the same name may be applied to both. Many other varietal names are to be met with such as maximum, giganteum and grandiflorum, all expressing size of flower, but as they appear to be generally given according to the individual opinion of the cultivator, which of course varies in different persons, little notice can be taken of these names. Such forms as Hendersoni, Palmeri, and Woodbridgei often crop up, and much the same remarks will apply in their case, though in some of them the spathes are narrow and more pointed than in others. A curious little variety was sent out by Messrs. Veitch about ten years ago under the name of pygmaeum, which, in addition to its miniature character, possessed a distinctly stalked spadix. The white forms of which Williamsi is the best known are in themselves not particularly showy, but by fertilising a bloom of the ordinary type with pollen from a white-flowered variety, a distinct class of spotted flowers has been obtained. These spotted forms vary considerably in their marking, some having a pure white ground freckled with minute dots of red, while in others the spots are much larger, and, apart from the different ways in which the spotting is arranged, the ground colour varies a good deal in tint. The first of this class was raised by M. Bergman, gardener to Baron Rothschild at Ferrières. To this the name of Rothschildianum was applied. This name is by some bestowed upon all the spotted Anthuriums, though they differ widely from each other. A coloured plate well showing the different markings was given in Vol. XXX. of THE GARDEN. Of coloured varieties there are some of a much richer and deeper tint than those usually met with, and under the names of sanguineum and atro sanguineum I have seen some very desirable forms. The finest white-flowered variety that has ever come under my observation was shown by Messrs. Sander a couple of years ago under the name of *A. album maximum*.

The Flamingo Flower will thrive in a moist stove, provided the roots are in good condition. Various composts are employed, but a very suitable and safe one consists of peat, Sphagnum, silver sand and a little charcoal, which, if the pots are thoroughly drained, as they should be, will allow the water to percolate rapidly through, for stagnant moisture is very detrimental to this Anthurium. After the flowering season is over, that is towards the latter part of the summer, is the best time to repot, and in doing so the greater part of the old soil should be removed, as owing to the copious supplies of water it will in all probability be partially, if not quite, decomposed, and consequently before another year would be in a state very detrimental to the health of the plant. To propagate any particular variety, division is necessary, as plants raised from seed vary a good deal, yet it is this variability which renders seed-raising so interesting. The seed takes about a year to ripen, and when this stage is reached, the pulp in which the seeds are embedded becomes of an orange-scarlet colour, and they will then in a little time drop to the ground. Care should be taken not to gather them till they are on the point of dropping, when

they may be rubbed up with a little very dry sand, in order to remove the glutinous pulp which surrounds the seeds, as the sowing of them is greatly facilitated thereby. Peat, chopped Sphagnum and silver sand form a very good compost in which to sow the seed, and whether pots or pans are used for the purpose it is necessary for them to be thoroughly drained. The pot having been filled with the compost to within half an inch of the rim, the seed may be sown thereon and just covered with some silver sand, when, if placed in a close propagating case where there is a gentle bottom-heat, the young plants will not be long in making their appearance. By keeping them thus close, the soil is maintained in a more even state of moisture than would otherwise be the case, and consequently the seed germinates more readily, while the young plants during their earlier stages will do better in a case kept moderately close than in the ordinary atmosphere of the stove. H. P.

Impatiens Hawkeri.—As a useful plant for general purposes this is not equal to the older and better-known *I. Sultani*; still, the flowers are of such a vivid tint, that a plant in full bloom is always attractive. Its flowering season is not limited to any particular period of the year, but perhaps the blooms are most appreciated early in the spring and again in the autumn just before the dull winter days set in. This Balsam needs liberal treatment, otherwise it soon acquires a starved appearance. The necessary stimulants may be supplied in a liquid form, so that large specimens can be grown in comparatively small pots. It is very liable to be attacked by a form of minute yellow thrips, which cause the young leaves to curl up and finally drop. This often happens when the plants are in too dry an atmosphere or suffer from want of water at the root. This Balsam has not to my knowledge produced seeds, though various attempts have been made to employ it for hybridising. Cuttings, however, root so readily, that, as far as propagating the original species is concerned, seeds need not be troubled about.—H. P.

Euphorbia splendens.—This is somewhat a formidable plant, being thickly set with long and sharp thorns. At this season it is covered with clusters of bright red flowers. The flowers are admirably adapted for cutting, but they should be laid on one side for a little time to allow the sap to dry up. This milky sap is poisonous; therefore the necessity of drying it in some manner. It is a native of Bourbon, but, notwithstanding, it will stand some rough, cool treatment with impunity. *E. Bojeri* is a more slender plant of a similar habit, but it produces rich scarlet flowers. Both plants, although somewhat old-fashioned, are very serviceable when grown in a dry stove for winter and early spring decoration.—W. H. G.

Cyrtanthus McKeni.—Few bulbous plants are so accommodating or bloom so continuously as this *Cyrtanthus* and its near relative, *C. lutescens*, both of which can be recommended, not only where there is ample glass accommodation, but also to the amateur with but a single greenhouse, for, given the same treatment as Pelargoniums, Fuchsias and such things, which can be grown by everyone, these two species of *Cyrtanthus* will flourish and flower for months together. That they are never troubled with insect pests of any kind is another great point in their favour. *C. McKeni* forms a bulb about the size of a large Snowdrop, from which are produced rather long Grass-like leaves, which are evergreen in character. The flower-stem, which attains a height of a foot or so, is terminated by a small cluster of blossoms. These flowers are tube-shaped, somewhat curved, about a couple of inches long and agreeably scented. They are of an ivory-white tint, while those of *C. lutescens* are of a beautiful clear yellow. This last-named also differs from *C. McKeni* in the foliage being deciduous. These two species of *Cyrtanthus*

are both seen to greater advantage in the shape of little masses or clumps than they are when grown singly. As they are not particularly deep-rooting subjects, pans of moderate depth will suit them better than pots, but in any case ample drainage must be secured. Like many other bulbs, they dislike being disturbed at the roots, and consequently a soil that will remain sweet for a long time should be used. These bulbs must not be subjected to a period of drought at any season of the year.—T.

Pyrus malus floribunda.—Among our hardy flowering shrubs that are available for forcing prematurely into bloom the order Rosaceæ is strongly represented, there being the various Plums, Peaches, Cherries, Thorns, Spiræas and other things, including the subject of this note, which is one of the most graceful of all. The blooms, which are borne in great profusion, are drooping and suspended on rather long stalks. When fully expanded they are, under glass, pure white or nearly so, but coral-tinted in the bud state. Out of doors, however, the flowers acquire a richness of colouring much superior to that borne by forced plants, and it is as a lawn shrub or bushy tree that this *Pyrus* is seen at its best. The branches are spreading in growth, while the minor shoots all have a drooping tendency. When studded with myriads of long-stalked buds each of a coral-red colour, it is one of the most beautiful objects possible. As the blooms open they become lighter in colour, but are even then more deeply tinted than those of most members of the *Pyrus* family. Neither grafting nor budding is required in the case of this Japanese Flowering Apple, as cuttings strike readily if formed of clean well-ripened shoots, taken at a length of about a foot, and inserted firmly in the open ground under conditions favourable to rooting.—T.

RHODODENDRON VEITCHIANUM.

THIS Moulmein species of *Rhododendron* merits all that is said in its favour on page 314, and at the same time, as there pointed out, a very prominent and most desirable feature is the beautiful crisped margin of the corolla. In this respect, however, there is much individual difference to be observed, for in some plants the flowers are much more crisped than in others, while in one to which I have seen the varietal name of *lævigatum* applied the edges of the petals are quite smooth. This variety is consequently much less ornamental than the type, as it is wanting in the one feature which causes the ordinary *R. Veitchianum* to be so much admired. Plants raised from seedlings vary considerably in this respect; hence the best forms are usually increased by means of cuttings or grafting. I have recently flowered a number of seedlings raised from one of the very best forms, but few of them are equal to their parents. Differences in habit, in size and texture of the flowers are also to be found among them. *R. Veitchianum* is very apt to be thin and straggling during its earlier stages, and to obviate this as far as possible the plants should be stopped occasionally when young. As it grows up, however, these undesirable features gradually disappear, so that when large and in a healthy condition it forms a very handsome shrub, whose leaves are dark green on the upper surface and more or less glaucous underneath. Though this *Rhododendron* has been known in our gardens for so many years, it has not been employed by the hybridist to anything like the same extent as some of the other white-flowered species—*R. ciliatum* and *R. Edgeworthi*, for instance. There is, however, a very desirable variety, *exoniense*, whose parents are *R. Veitchianum* and the little Himalayan *R. ciliatum*. This variety forms a free-growing compact bush, that at a casual glance appears to partake more of the character of *R. Veitchianum* than of its other parent. Traces of *R. ciliatum* show themselves in the dwarfier and more compact habit, slightly hairy character of the young leaves, and in the flowers being somewhat tinged with pink on the exterior. The blooms of this, which average about 3 inches in diameter, are

very sweet-scented. *R. exoniense* was raised by Mr. Robert Veitch, of Exeter, and when first exhibited in London about ten years since it attracted a considerable amount of attention. A second hybrid variety in which *R. Veitchianum* has played a part was raised between that species and the Himalayan *R. Edgeworthi*, so much employed by the hybridist. This variety known as *Forsterianum* was raised by Mr. Otto Forster in Austria, and is of rather tall growth, but the flowers are grand, being about the largest of all of this class, pure white, except a small lemon blotch in the centre, and most deliciously scented. The flowers of this are somewhat larger, but a good deal in the way of those of *R. fragrantissimum* and *R. Sesterianum*, two hybrids from *R. Edgeworthi* and *R. formosum*. Besides the above, Messrs. Veitch sent out a variety four years ago which, under the name of *La Belle*, was announced as a cross between *R. Forsterianum* and *R. ciliatum*. It is a good compact-growing, free-flowering *Rhododendron* of this section, and was awarded a first-class certificate by the Royal Horticultural Society, March 8, 1887. T.

Ouvirandra fenestralis (the Lace-leaf of Madagascar) is not now seen in many collections. It is now in splendid condition in Sir Trevor Lawrence's collection, finer indeed than I have ever seen it. When seen as Sir T. Lawrence's plant it is a magnificent sight. There are many seedling plants, so that I hope it will again become more plentiful in the collections of this country.—W. H. G.

Two useful winter-flowering Begonias.—These plants are well grown at Burford Lodge by Mr. Bain, and just now *B. Triomphe de Lorraine* is most beautiful, being thickly clad with rosy carmine flowers. So profuse are the trusses of bloom, that in many cases the foliage is completely hidden. Another very fine kind is *Gloire de Sceaux*, with lighter and larger blooms. These two kinds I cannot too highly praise, and I commend them to the attention of all who wish to have fine flowers through the winter months.—W. H. G.

Thysacanthus rutilans.—A fine spike of this is now before me from C. Dickson, who says of it, "This is one of the many old-fashioned plants that have been ruthlessly cast on one side by the majority of gardeners who are searching for something new." There is much truth in this statement. It is a quick and free-growing plant, and produces all through the winter and spring months pendulous racemes some 3 feet and 4 feet long, laden with tubular, bright scarlet flowers. As it can be easily propagated, it may be used in the house for table and hall decoration, producing a striking effect. It should be potted in loam, leaf-mould, and well-decomposed manure, the whole made sandy; the pots should be well drained, and the plants be liberally supplied with water during the growing season.—W. H. G.

White-fly.—Like your correspondent (p. 280), we have been very much troubled with the white-fly, and after trying a great many things, I regret that I cannot suggest a remedy, though, strange to say, we are now quite rid of the pest. It is about ten years ago since this fly made its appearance here in such numbers that the undersides of the leaves were in some cases quite covered with them, and if disturbed with the syringe they rose up like a white cloud. The same classes of plants, as detailed by your correspondent, suffered the most, but *Bouvardias* were the worst of all, and following closely on them must be mentioned *Abutilons* and *Solanums*. Fumigation and various insecticides were tried often to the injury of the foliage, but with only partial success, for though the mature insects were killed, the eggs quickly hatched, and the nuisance was soon again as bad as ever. When any liquid insecticide is used a plant may be dipped in it, and directly it is removed many of the insects will emerge quite dry and fly away. The singular part of my experience in connection with these pests is, however, yet to come, for up to the end of 1888 they were just as great a nuisance as ever, but, strange to say, they disappeared alto-

gether during the winter, and on the return of spring none of them were to be seen, while, what is more, we have not been troubled with them since. Their departure was not caused by any lowness of temperature; indeed, I can suggest no reason, but only record the agreeable fact of their total disappearance.—H. P.

A USEFUL WALL.

IN a back number of THE GARDEN I noted the planting and covering of an old disused flue and back wall in vinery, and am pleased to say the experiment has been a decided success, not only in the clothing of a bare unsightly space, but the materials employed have proved thoroughly useful. The *Tradescantia*, planted in the pigeon-holes between the top and bottom flues with the object of covering these as quickly as possible, is gradually giving way to *Ficus repens*, which, originally inserted against the bottom flue in the walk, is now working its way up. The bank built up on the top of the flue to a height at the back of some 18 inches from the same was clothed at first with the common *Selaginella*, dotting it in thickly between the meshes of the galvanised netting used to keep the soil in position. Small plants of *Adiantum assimile*, *Selaginella Wildenovi* and *Smilax* were inserted at intervals, and to complete the work and clothe the portion of bare wall, alternate plants of *Asparagus tenuissimus* and Ball of Fire *Tropeolum* were planted at the top of the bank. Not only have we the whole space well clothed, but, as I have said, it is a very useful bank and an easy matter to secure from the same for dinner-table vases and tracery an abundance of bloom from the *Tropeolum* and plenty of foliage from *Smilax*, *Asparagus* and *Selaginella*. I planted also at the outset some corms of *Achimenes* and *Begonia* tubers, thinking if they would come up annually they might give a bit of colour to the bank, but they did not like the amount of water given during their dormant season, and have gradually rotted away. There is very little room now for anything, the rambling propensities of the *Adiantum* and *Selaginella* having caused them to monopolise nearly the whole of the bank, but a little bit of colour is secured during the summer months by the insertion early in the season of a few small tubers of *Begonia* that are fairly on the move. About the best variety for the purpose is a seedling, a rich glowing scarlet, somewhat in the way of *pendula*, but not quite so straggling in habit as that variety. E. B.

Raising Begonia seedlings.—When writing at length upon raising tuberous *Begonias* (see p. 298) I appear to have erred somewhat. In addition to covering the pans containing the newly-sown seed with squares of glass, light also ought to be shut out by means of paper or other coverings. This heavy shading must be removed directly the seed germinates, and subsequently sunshine, but not light, should be excluded, the tiny seedlings not being proof against either dryness or strong direct heat.—M. H.

Camellias at Claremont.—There may be seen just now at Claremont a couple of unusually fine masses of *Camellias* growing in a large house which stands on an elevated site and alone in the pleasure ground. These trees, for they are literally such, seem to have been planted some 50 years at least, perhaps longer. They are in raised beds, having stone margins of about 20 inches above the house floor, the beds being some 10 feet in width and 15 feet long. There are about six trees in each clump. They rise densely to a height of 15 feet, forming all round perfect walls of foliage and flowers, and 10 feet from the ground are fully 54 feet in circumference. The beds get a liberal soaking of water once a fortnight, also occasionally a surfacing of hotbed manure. The value of planting out *Camellias* as compared with pot culture is here fully shown, for though the trees are comparatively crowded, and must materially have exhausted the soil in the beds, yet they are full of health and exceedingly robust. Amongst the varieties may be

found a plant, *Marchioness* of Exeter, Lady Hume's Blush, Rubens, Donkelaari, pomponium japonicum, and other good varieties. One smaller plant put in much more recently, and yet doing well, has historical interest, as it was apparently from a layer taken from a plant of *conspicua* in the first Emperor Napoleon's garden in Corsica. Mr. Burrell said, in reply to a question I put to him, that Camellias had been tried outdoors at Claremont, but did not thrive. Certainly the soil seems to be all that Camellias could desire. It is a pity the fine clumps referred to had not now more house room so that they could go much higher and wider.—A. D.

Pelargonium Venus.—Some weeks ago this *Pelargonium* was to be seen in good flowering condition in Covent Garden Market, thus showing its great value for early blossoming, while last year I saw it in full flower at Messrs. Cannell's nursery about the middle of February. It is a free, yet sturdy growing variety, with neat foliage, and a great profusion of bloom. The flowers are of the purest white, with the exception of a slight feathering of purple at the base of the upper petals, thus supplying a tint that is always in demand. It is usually classed under the head of decorative *Pelargoniums*, most of the popular market varieties being so indicated, as they are of a good sturdy, free-flowering style of growth, and meet with a more ready sale than the show varieties which are not sufficiently robust, and are consequently more difficult to grow in a satisfactory manner, added to which very few of them carry trusses of sufficient size to satisfy the market salesman. The small-flowered class known as fancy are by no means popular at the present day, while some of the regal or semi-double section are too tall to be generally grown as flowering plants in pots 5 inches in diameter.—H. P.

SOLOMONS SEAL FOR FORCING.

THIS good old-fashioned hardy plant is deservedly popular for forcing, and where there is a good stock of it to work from it can with very little trouble be had in plenty for months in succession. There is no more useful plant for cutting from either as greenery for associating with tall flowers or for providing quiet and graceful effect when used by itself. In the garden its merits are often overlooked, but it may be made most effective when planted with that object in a suitable situation, and though its leafage changes colour early, it turns to a beautiful golden-yellow, which is equally or even more striking than when green, and these yellow leaves it carries for a long while. The bluish black berries are seldom borne freely enough to be very effective. Few plants can be so easily prepared at home for forcing as this, for the growth being ripened early, the crowns soon respond to a little heat as soon as the forcing season commences. The only extra precaution I take with the very earliest batches is to see that the crowns are potted deeply enough to be well covered with the soil, or if the pots used are too small to admit of this, they should be covered with a little cocoa-nut fibre, fine soil, or something of the sort until brought in to start. The crowns not so covered are apt, in common with many other things, to be somewhat sluggish very early in the year. The cultivation is very simple, and here I lift the plants, select the crowns, and replant those not wanted at the same time. It is sometimes recommended to lift the clumps bodily, and, after selecting enough for pot work, to store the rest for replanting in spring, but as I grow them on or near the same spot year after year, it is far easier to complete the work at once. Possibly in heavy wet soil the other plan might be safer, but in light soil there need be no fear of the crowns rotting or refusing to grow. In potting, I make up a few special pots for use in the house, and after filling these with crowns as thickly set as possible, the remainder are put into pots, deep pans, boxes, or anything that will hold them, large quantities being required for cutting. I do not throw away the plants when they have done flowering the first

season, but stand them in the frame ground for the remainder of the year and then force them again, as they give a great number of small growths, of which only a few bloom, but all are valuable for using with small flowers with which stronger growths would be too large. Many people find the peculiar sweet scent of the flowers a great attraction.

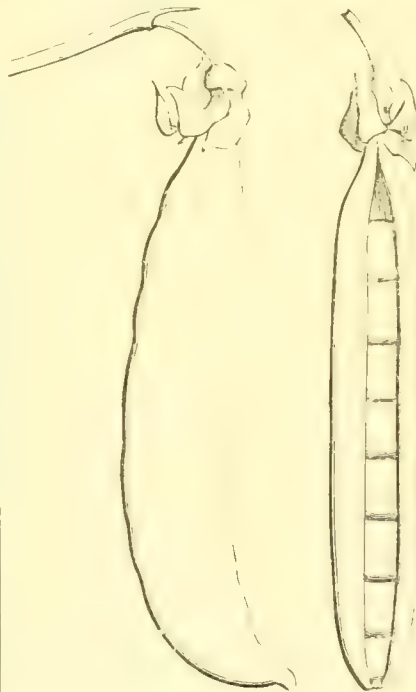
The plant does not appear to be subject to any disease, but it is liable to be attacked by the grub of the cockchafer, or May bug, which eats off the roots of this, as well as those of its near relative (the *Lily of the Valley*) and many other things. Some years ago I was puzzled by the sickly appearance of a portion of an established row of plants, but on lifting them I found that there were thousands of grubs in the soil, and these had eaten off all the roots as far as they had gone, and they would probably have spoiled the entire row during their long period in the grub state had they not been stopped. Many were picked up and the ground was well stirred two or three times during the next week or two, so that the birds might find those remaining, and by this means I got rid of them before replanting the plot.

J. C. TALLACK.

KITCHEN GARDEN.

A GOOD SUCCESSION OF PEAS.

It should be the aim of all private growers to maintain as nearly as possible an unbroken supply of Peas throughout the season, gluts and fitful supplies being, to say the least, most



Pea William the First.

undesirable. Naturally, the weather largely determines the matter, the calculations of the most experienced cultivators being not unfrequently upset by either too much wet or again by a spell of very hot and dry weather. Then there are mice, birds, slugs, mildew and thrips to contend with, and it is not to be wondered at, therefore, if the supply of Peas does fail at times. A judicious choice of varieties largely affects the question, some being far more liable to fail than others. Varieties of medium height, though the list comprises many excellent

forms, this class also being the least expensive as far as stakes are concerned, are yet not often recommended by me, for the simple reason they are among the first to fail from either too much moisture or the other extreme. The taller growing varieties possess, as a rule, much the strongest constitutions, being the last to fail in either a dull, wet season or a very dry one. Then, again, though appearances may be against them, they are yet the heaviest and most continuous bearers, the season extending from the end of June till severe frosts intervene. No better variety than *Telephone* can well be recommended to succeed *William I.* or some other other selected early variety, and in close succession to this come *Criterion*, *Huntingdonian* and *Duke of Albany*. For the main crop and late supplies those who can afford tall stakes might well rely exclusively upon *Ne Plus Ultra*, but there are plenty of gardeners who still find *Emperor of the Marrows* and *British Queen* well worthy of being extensively grown. All three are of tall-growing, robust habit, being the last to fail from various causes.

The first four named are far from being mildew-proof, and I am of opinion it seldom pays to make more than two good sowings of either or all of them. Supposing *Telephone* is sown with the second sowing of *William I.*, directly the plants show through the ground a successional sowing should be made, and at the same time a row or rows of either *Criterion* or *Huntingdonian* (any other selected successional or third crop variety may be substituted), and which in my case was done about April 6. In the course of another fortnight, or when the last-sown Peas are coming up, the time has arrived for sowing *Duke of Albany*, and with this *Ne Plus Ultra*. The last-named is by no means slow in reaching a full bearing state, being far more of a summer Pea than many growers seem to think. After about the first week in May it is the most serviceable variety that can be grown, and in my case it will, all being well, be sown from that date at fortnightly intervals up to the middle of July, this carrying on the supply till severe frosts intervene. By depending principally upon known disease resisters, and there are several varieties other than those I have named that succeed well in most seasons, there is far less likelihood of a failure occurring than is the case when the selection of varieties is much fuller and the quantities of each grown necessarily correspondingly limited in extent.

I have frequently tried the plan of sowing several varieties at one time with the view to obtaining a natural succession, and I once knew a case where about twenty varieties, these being early, successional, and main-crop sorts, were sown at one time, or about the middle of March, that actually turned out most satisfactorily, a very long succession being had. As a rule, however, this plan does not work well. Should we have too much wet and cold weather, much of the seed may perish in the ground, or, it may be, the plants generally will take the mildew all at one time. On the other hand, a dry, hot time for a few weeks, say, brings the late varieties into bearing very quickly, or nearly as soon as the reputed earlier sorts. My experience teaches me that it is usually a mistake to sow many varieties at one time, and, in fact, to grow many sorts at all.

Crowding the rows is a frequent cause of an early collapse, and it is the practice of ordering so many varieties of various heights that often leads to arranging the rows too thickly together, or if the latter are not too close the seed is perhaps sown too thickly. It must be understood

that I do not utterly condemn varieties of medium height, as there are several of these that are of superior merit, and if sown according to their order of maturing, much the same as I have advised for the taller growers, success may attend the efforts of those who cultivate them. But give all good room to grow. Perfectly isolated rows are invariably the most productive, but as isolating the rows would in many cases mean scattering them all over the garden, this plan has almost insurmountable drawbacks—at any rate, is not to be recommended for large gardens. The last that can be done is to dispose the rows fully as far apart as the known height of the varieties sown, while if a few feet extra were allowed and the intervening spaces cropped with Cauliflowers, early Broccoli, Potatoes, Broad Beans, and such like, the results would be even more satisfactory. A fairly rich and deeply worked root-run is necessary for Peas, especially if they have to withstand a period of drought. Preparing Celery-like trenches answers well enough when the soil is naturally of a somewhat loose nature, but is a failure as far as clayey soils are concerned, the roots in this case, owing to the drying and shrinkage of the sides, being almost as much confined as they would be in a flower-pot. By all means open deep drills, or much the same as are formed for Potatoes, and after the seed is sown cover with about 2 inches of soil, 3 inches being none too much after the present time. Then instead of moulding up the rows support early with stakes and mulch with short strawy manure. Not being moulded up, but, on the contrary, a basin or trough of soil formed, every facility for soaking the Peas thoroughly with water, liquid manure or sewage water is afforded, or quite as much so as when they are sown in trenches without the disadvantages attending the latter practice. M. H.

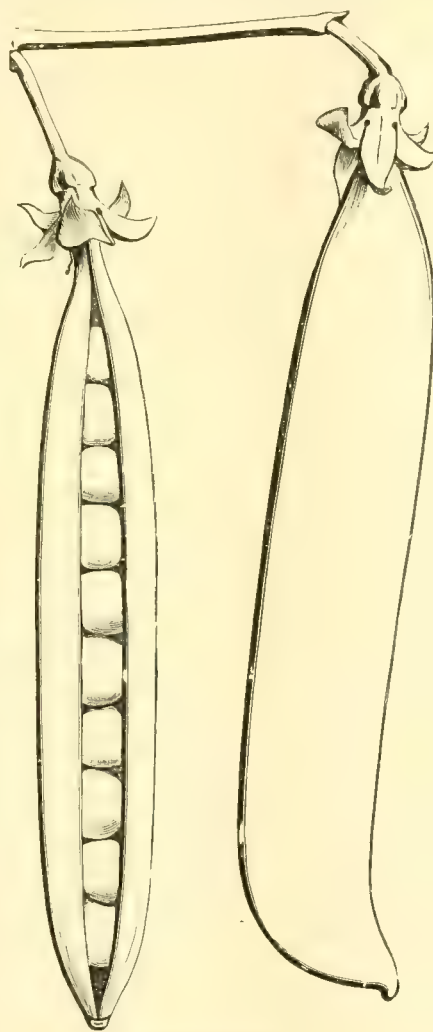
CLUB IN THE CABBAGE TRIBE.

IN some districts club is very destructive, and gardens being small there is but little opportunity for change of ground. I have had cases brought before me where it is practically impossible to grow any of the Cabbage tribe, so badly do the plants become affected. That club is a very destructive disease there can be no doubt. It appears to be the work of insects, and it seems as if the germs of the disease remain in the ground and attack anything in the way of greens. Many are the remedies suggested. One is change of crop, which is sometimes difficult to effect in a small garden. Some say a good dressing of lime will greatly assist in effecting a cure, but in the case of cottagers lime is very difficult to obtain and expensive when obtained. Wood ashes is strongly recommended by some, and these are more readily obtainable than lime. Others advocate the use of common salt, of soot, and nitrate of soda. Some gardeners recommend making a liquid paste of soot and water, with the addition of a little saltpetre, and at the time of transplanting from the seed bed dipping the roots in the paste before putting them into the ground. One precaution is necessary, that of taking care not to plant out permanently any plants the roots of which show signs of being affected. Some go the length of cutting away the protuberances, but frequently the plants fail to rally to any great extent.

I was recently informed by a gardener at Bournemouth—a district in which club is said to prevail to a great extent—that he had overcome the pest to a great extent in the case of Brussels Sprouts by planting in trenches, and then as soon as the plants show signs of being affected, earthing up as in the case of Celery, but not nearly so deep, the result being that the stalks put forth roots into the newly added soil, and they then start afresh and produce good crops of sprouts. Having had

an opportunity of inspecting one of the plants treated in this way, I found the original roots had completely perished, and in their place, but higher up the stalk, there was a complete frill of fibrous roots that had taken a firm hold upon the soil and given the plant a new lease of life. It appeared that the disease, having destroyed the old roots completely, mercifully let the others alone. This may not be a new remedy, but it is one worthy of being mentioned. That it effectually answered its purpose could be seen in the vigour of the plant and the capital crop of sprouts produced. As the practice of earthing-up does not find a place among the remedies put forward to arrest the course of the disease, I venture to think it is not generally known. R. D.

Radishes.—Radishes require to be well grown to be really palatable. Grown on an open sunny spot and in poor soil, Radishes are always in-



Pea Telephone.

ferior. Unless for the earliest crops, which may be grown on an open or southern aspect, Radishes are best grown on a cool site during the heat of the summer, preferably on an east border, but not overshadowed. The soil must be rich, but not loaded with manure; it must be fertile and also sandy. I never could grow Radishes satisfactorily on heavy soil until a border was made especially for them. A mixture of old potting soil, burnt refuse, and Mushroom-bed manure was spread over the border to the depth of 5 inches or 6 inches, and I have had no trouble since. If the seeds are sown in drills and the Radishes watered during dry weather, there never need be cause for failure. The French Breakfast Radish is, of course, indis-

pensable for summer use, but for turning in early, Ne Plus Ultra is a capital variety. The Olive-shaped forms are those most appreciated.—A. Y. A.

THE COTTAGER'S KALE.

I THINK there is no more valuable type of winter green than the Cottager's Kale. I am now using daily sprouts from a batch of it of a selected dwarf character, the result apparently of some impregnation from a very dwarf form of the curled Scotch Kale, which, while generally retaining the character of the Scotch Kale, is yet of a mixed character, but not at all inferior. I have marked three or four to grow on for seed in order to see what they will produce. But the tall form is equally valuable at this season of the year, and I have seen patches of it that have withstood the rigours of the winter much better than any other type of winter green. It is said this Kale originated some years since in the gardens of Sherburn Castle, Oxfordshire, the residence of the Earl of Macclesfield. It was the result of a cross between the Brussels Sprout and a curled Kale. Some of the seeds of this cross passed into the hands of Mr. Prior, at that time gardener at Midgham Park, Berkshire, and the produce of some he fertilised with pollen from the old purple Broccoli, and thus obtained what was aptly named from its productiveness and hardy character, the Cottager's Kale. It was grown by Mr. Prior for several years, who sold the stock of seed to the late Mr. Charles Turner, Royal Nursery, Slough, who sent it out; its distinctiveness and value were at once acknowledged, and it took a place among our established winter greens. Perhaps it may be best described as the tall, strong stalk of a Brussels Sprout, which will not heart, but which is nevertheless crowded with little open Cabbage-like sprouts that are particularly tender and delicate when cooked. Some of the plants are tinged with purple; others are green. This mixed character appears to run all through the progeny; some are seen to be green, some purple, but the true character remains the same despite the colour. I well remember when Mr. Prior brought plants of it to Slough for Mr. Turner's inspection, the stalks were 3 feet to 4 feet or so in length, and of a distinctly purple tint. I notice in the dwarf strain I am growing that purple and green tints also prevail; they are quite hardy and singularly productive. I am not sure it is an advantage to have a strain of dwarf growth, except that it is better suited for small gardens, and the plants can be placed closer together in the ground. Seeds of the Cottager's Kale should be sown at the end of March or early in April, and the plants put out in a deep, rich soil, and ample space allowed them in which to grow. R. D.

NOTES ON LETTUCES.

It must be admitted that the French, although adepts at making salad, are also the same in growing the material with which to make it. Early forced Lettuce is a noted commodity for which the French are celebrated, although the same may be produced in this country. At the present time we are cutting capital little heads of that grand forcing Lettuce, the Early Paris Market. Besides having some hundreds in ordinary cutting boxes, I planted an early Vine border which was formed this season, and on which splendid heads have formed, every leaf being fit for use. It would be a good idea, where there are any light heated frames in which beds of rich soil could be formed, to utilise them for forcing Lettuce of the type mentioned above. Two batches could be produced in them, commencing at the turn of the year until Lettuce could be cut from the open, after which time the frames or pits could be used for summer Cucumbers or Melons. Lettuce being the principal material for salad during the summer months, it must have careful attention, so that a regular supply is maintained right throughout the season. This, I fear, especially in the smaller gardens, is far from being the case, as during the warmer months sweet and fresh Lettuces are generally conspicuous by their

absence. Whether the Cos or Cabbage forms are preferable is a matter of fancy. The Cabbage forms, or at least the variety Early Paris Market, are indispensable for forcing or growing in frames, Veitch's Golden Queen also being excellent for the same purpose. For summer use the comparatively new variety New York is well worth growing, and I am under the impression that it will become a standard variety. Veitch's Perfect Gem is another excellent summer Cabbage Lettuce. There is now a good selection to what there was formerly, although there are still people who pin their faith to the old All the Year Round. Amongst the Cos forms there appear to be still greater differences of opinion, some people maintaining that the old black-seeded Brown Cos is the best either for summer or autumn. I grow it for spring and autumn; also Hick's Hardy White Cos, this turning in quite a fortnight earlier than the Brown Cos in the spring. For summer use I have found none better than either Veitch's Superb White or Sutton's White Cos, these being perfect types of summer Cos Lettuce.

To keep up a supply of sweet Lettuce requires close attention and a rich soil. The culture of Lettuce is a simple affair, comparatively speaking. I make a small sowing about every fortnight, as in this way young plants are always coming on. The first sowing or two is made on a south border in fairly rich and friable soil. Later on the sowings are best made on an east border. If there is one detail more than another which requires attention, it is thin sowing. Thick sowing, especially of the Cos forms, causes the plants to run to seed instead of forming hearts.

Y. A. H.

THE FLOWER MARKETS AND FLOWER-MARKET GARDENS OF PARIS.*

A PARISIAN of the present day has not to go back very far in his recollections, before he can recall the time when flowers held a much less important place in the public estimation of his fellow-citizens. In private family life, no doubt, they have always maintained their high position as the most ancient and most familiar embellishment of dwelling-rooms, and as the necessary and symbolical accompaniment of some of the great events of life, but never until of recent years have they formed such an extensive part of the requirements of everyday existence. One may truly say that they have now become one of the necessities of life, and one of the most current of the mediums employed in the interchange of the amenities of society. People would naturally like to know what means are taken to produce the vast quantity of flowers which is every day brought into Paris, some of them to be sent away to distant localities, the rest to find their way to the interiors of the lofty and lowly dwelling-houses of the great city, to adorn the button-holes of gentlemen and the corsages of ladies, to decorate dinner-tables, drawing-rooms, and ball-rooms, to deck chapels and churches, and to be wreathed into crowns and crosses for funerals of note, where one sometimes sees the grave almost entirely hidden under a heap of flowers. Whence comes this bountiful supply, which is renewed every day in the year in spite of storm and frost? By whom are those flowers grown, sent off, received, retained, and distributed through all parts of the city to meet the requirements of flower-lovers, that is, of everybody, for now-a-days everybody buys flowers? Not the least interesting part of the subject—for this would not be fully dealt with if we omitted its economic or social aspect—is the question of how many people subsist by this branch of industry, and therein find not only the necessities of

life, but sometimes also an easy competence for themselves and their families. These are matters respecting which it is both profitable and pleasant to obtain information, and no one will hesitate to acknowledge that the Association française have made a happy selection in the subject which they have chosen for the address to be delivered before you this day. They have not, perhaps, been quite so happy in their choice of the speaker, but, fortunately, his shortcomings will be amply atoned for by the magnificent display of flowers which has been kindly furnished by some of the leading cultivators and florists of Paris; so that if your ears do not this evening enjoy all the satisfaction which they might receive, your eyes, at least, will have no reason to complain. My task with these flowers will be limited to bringing under your notice, one after another in due order, the pleasing subjects of this discourse, which need nothing beyond their own beauty and freshness to recommend them.

In Paris—that metropolis with whose attractions no one can avoid being impressed—at the present day flowers are everywhere to be seen; every night in wholesale bulk at the Halle, every day in two or three particular public markets, and constantly in the district shops. The Parisian florists generally carry on their business successfully and increasingly, because they are admirably skilled in tempting the customer and in satisfying him so well with his purchases as to induce him to come again. This talent, which is common enough amongst the Parisian shopkeepers, is developed in a double measure amongst the florists, even those of the Halle, where one meets with a prepossessing welcome which is not at all so likely to be received from the neighbouring dames of the fish market.

THE HALLE.

In this place, which is situated between the fish market and that for vegetables, under a wide and spacious arcade that is in no way sheltered at the sides, without any fixed stalls, and terribly exposed to icy blasts from the north, the flowers first touch the ground on their arrival in Paris. Those that are grown in the city, the suburbs, and even in the most distant parts of the environs of Paris are brought in at the close of the evening in the carts of the growers and market gardeners. About the same time, and during the night, the heavy trucks of the railways bring in shaking piles of wicker or reed baskets containing the supplies that come from a greater distance. At eleven o'clock in all seasons commence the taking-up of positions and the arrangement of the packages on the foot-way and that part of the asphalted road which adjoins it; the centre is left open for the traffic of the latest arrivals and for the purchasers later on. Then, for those who, by arriving first, have gained the advantage of taking up the best positions begins a period of very long and, in cold weather, painful waiting. The flowers in their baskets are wrapped up in canvas and often in woollen coverings. The poor vendors often have not so much to protect them from the biting wind and the damp air of the night, so the hours slowly drag on up to the moment when the commencement of the sales and the bustle of the biddings so engross their attention, that they forget the cold and the weary waiting for the morn. In summer these wholesale auction sales commence at three o'clock a.m., and in winter one hour later. On occasions when the celebration of certain festival days causes a greater than ordinary stir in the business, the sales commence at eleven o'clock p.m. and last the whole night.

Season, temperature, and sometimes accident-

tal circumstances bring about a considerable amount of fluctuation in the number of these consignments of flowers. Last winter, for instance, the general interruption of activity in business matters which was caused by the influenza epidemic was felt in a very marked degree by those who were engaged in the flower trade. Taking the average, it may be computed that about 2000 baskets are daily deposited on the floor of the Halle. From 200 to 300 growers and market gardeners (in summer their numbers are greater than in winter) send, one with another, about 800 baskets each. Forty factors, great and small, receive and sell from 1000 to 1200 baskets daily. In winter their business is chiefly fed by supplies from the southern parts of France. These factors, through whose hands passes a considerable portion of the flowers that are sent to Paris, discharge a very useful office in going over the consignments, which for the most part are put together rather hastily by the growers, and separating the very best flowers from those that are of only mediocre or ordinary quality.

The pick of the packages, which often pays for the whole consignment, is the only part that is disposed of to the leading florists, or is sent away to the provinces or abroad. The remainder, at a reduced price, passes into the hands of the retail vendors of the Halle and of the street hawkers; and this explains the circumstance, strange at the first sight, of flowers from the south sometimes selling at Paris for less than one would have to pay for them at Nice or even at Cannes. In the same manner as "Flora's clock" is constructed, by putting together flowers that open at different hours of the day and night, a floral calendar might also be arranged for tabulating the consignments which arrive during the various seasons of the year. Of this I have given a rough sketch when speaking of the street hawkers, who, ever on the look-out for cheap purchases, carry on their dealings in each species of flower when it is supplied to the markets in the greatest abundance. Reverting to the wholesale auction sales at the Halle, whether they take place under the arcade, as is mostly the case, or in the underground apartments, where they are held when the weather is too severe, they continue going on up to eight o'clock a.m. in summer and up to nine a.m. in winter. The purchasers are retail dealers, both those who occupy positions in particular markets or in licensed booths or stalls in some hundreds of places in Paris, and also the numerous individuals who are authorised by the Préfecture de police to carry their wares through the city in small handcarts which supply the most distant streets with the fresh produce of the season. Besides these there are the florists who have established shops and who come here to make up occasional deficiencies in their supplies, which, for the most part, they receive direct from the producers; and, lastly, there are the exporters, who forward to the provincial towns and to places abroad the remarkably large quantity of flowers for which the flower dealers of the various capital cities of Europe are indebted to the flower trade of Paris. It is certainly no exaggeration to say that at the Halles centrales alone from 300 to 400 persons are daily employed in work connected with the traffic in cut flowers.

THE FLOWER MARKETS.

The flower markets of Paris, eleven in number, are not mere repetitions of the market at the Halles, for, although a good many bouquets and cut flowers are sold in these markets, they deal principally in living plants which are

* Address delivered by M. H. L. de Vilmorin, at the Congress of the Association française pour l'avancement des sciences, held at Paris, January 17, 1891.

exposed for sale either in pots or with the roots simply balled. Many of these markets are of ancient date. That of the City, which since the year 1809 has occupied its present position (known as the Quai aux fleurs), in the last century was situated on the Quai de la Mégisserie. It was first established under regulations in the year 1799. The market of the Madeleine dates from 1834; that of the Château d'Eau, the present Place de la République, from 1836; that of the Place Saint-Sulpice from 1845; the other seven were opened since 1870.

It is a scene quite Parisian in its aspect, and one would not willingly exchange, even for an improved arrangement, the assemblage of covered stalls, open at the sides, or only partially closed against wind and rain, furnished on floor and shelf-tiers with flower-pots wrapped each in a sheet of white paper twisted like a grocer's sugar-bag. In the midst, the market-woman, well sheltered under a warm cape of some common fur, and with her feet on a foot-warmer, by voice and gesture invites customers to purchase her plants, which are always fresher and better value than those of her next neighbours. With some differences in the accompaniments the scene repeats itself every day in the week in many places in the central quarters and in the adjacent communes which are set forth in the following table:—

Name of market.	Date of opening.	Number of stalls or places.	Area of places.	Rental of places per diem.	Market days.
Marché de la Cité	Dec. 10, 1799	About 300	6 & 2 metres	20 & 15 cent. per metre	Wed. and Sat.
" " Madeleine	May 2, 1834	" 182	6 metres	15 centimes "	Tues. and Fri.
" " place de la République	April 14, 1836	" 179	5 m. 61	70 " " place	Mon. and Thurs.
" " St. Sulpice	May 1, 1845	" 73	6 metres	10 " " metre	Mon. and Thurs.
" du boulevard Clichy	Nov. 1, 1873	" 84	6 "	10 " "	Mon. and Thurs.
" de l'avenue des Ternes	Aug. 1, 1874	" 93	6 "	10 " "	Wed. and Sat.
" de la place Voltaire	Aug. 1, 1874	" 57	6 "	10 " "	Tues., Fri., and Sun.
" de Passy	April 20, 1877	" 20	4 "	10 " "	Tues., Fri., and Sun.
" des Batignolles	April 2, 1879	" 51	4 "	10 " "	Wed. and Sat.
" de la Chapelle	April 4, 1888	" 40	5 "	10 " "	Wed. and Sat.
" du boulevard Raspail	June 30, 1890	" 40	4 "	10 " "	Thurs. and Sun.

During the fine days of spring, before Paris empties itself, these markets are in their full glory. Flower-loving customers are numerous and eager, and only find it difficult to determine what they will select from amongst the flowering bulbous plants—the early Roses, *Deutzia gracilis* (a favourite flower at this season), early Pinks, Chinese Primroses, and Cinerarias still in bloom, Gilliflowers innumerable, alpine Myosotis, Indian Azaleas (now in full season), Hoteias, Gardenias, feathered Pinks, and a hundred other various kinds of plants. At the same time Lilac flowers in armfuls, Mignonette, and Poet's Narcissus invite attention by their perfume; while the baskets of Pansies, double Daisies, and Ranunculi suggest the furnishing of villa gardens and of the flower-boxes perched on the window-sills.

In the middle of summer the China Asters hold the highest place, with Pinks of various hues; Gladioli, now so wonderfully diversified in colours; Agapanthus, *Gaura Lindheimeri*, with flowers like white butterflies; *Amaranthus* of all kinds; *Perilla nankinensis*, with its dark brown foliage; *Lilium speciosum* (lancifolium of gardeners), with its white and red varieties; the Golden-rayed Lily of Japan, so powerfully scented; the Tuberose, not less strongly perfumed; *Plumbago capensis*, with its clusters of delicate blue flowers; *Rhodanthes*, Madagascar Periwinkles, *Gypsophila* and *Stevia*, which impart a lightness and an airy grace to bouquets. Then in the baskets we have *Mimulus*, *Verbenas*, *Balsams*, *Ageratums*, *Lobelias*, *Nemophilas*, and all the charming annuals that are grown in the open air.

In autumn the Chrysanthemums now take the lead. Grown in pots, or as severed bunches, or as cut flowers, they are seen everywhere, and no one would think of complaining of this, so pretty, varied, and ornamental are they. From the small pompons to the large reflexed flowers termed Japanese, they have all sorts of forms—regular, symmetrical, hairy, cockade-like and plume-like; they adapt themselves to all sorts of uses, and exhibit all sorts of the freshest and most original shades of colour. They are dwarf or tall, slender or tufty, and the cleverness of our cultivators is shown in the production of flowers varying in size from that of a Buttercup to the dimensions of a Pæony, and of plants ranging from 1 foot to over 6 feet in height. They are disposed in large groups, in sheafs and in clumps, or grown as isolated plants—in fact, they can be employed in almost every way, and have the great advantage of lasting for a long time, so that it is not to be wondered at that they are the queens of the season. With the Chrysanthemums, however, we still find some Michaelmas Daisies in tufts, or cut back, or raised from head-cuttings—charming miniature forms; also some *Laurustinus* and Christmas Roses, and presently we shall have the Persian Cyclamens to form the commencement of the series of indoor plants which supply the winter's flowers. Towards

season. Every morning before daylight these hand-carts are to be seen drawn up in long rows all round the Halles and in the adjacent streets. Their owners, keenly attentive to the progress of the sales, prudently invest their little capital, taking advantage of all favourable offers, but seldom departing from the usual routine of the fruits, flowers or vegetables which they purchase. When the sales are over, the whole army breaks up and disperses in all directions, with 4000 hand-carts laden for traffic in the city itself, while 2000 more set off to make the rounds of the suburbs. At no season is this traffic entirely suspended, and although on some days few hawkers are visible in the streets, this is entirely owing to the severity of the weather, and not to any want of supplies at the Halles. From November to March the growers in the neighbourhood of Paris only send in, as thaws occur, irregular supplies of their winter flowers, such as Christmas Roses, Quatre Saisons Violets, Wallflowers and winter Heliotrope. But, on the other hand, that is the time when the southern growers send in an abundance of white, bi-coloured and yellow Narcissi, Roman Hyacinths and variously-coloured Anemones. That is the time for the yellow Acacia (the "Mimosa" of the Parisians), the early Tulips, and the white Neapolitan Allium, while the south sends us Mignonette, Ten-week Stocks and yellow Chrysanthemums. Even our native wild plants furnish their quota. The lilac-flowered Heath (*Erica mediterranea*) comes in in January from the neighbourhood of Ciotat and Ollioules, and in March the white-flowered Heath (*Erica arborea*) reaches us from Cannes and Estérel.

With the revival of vegetation in March the woods around Paris furnish Wood Anemones and those single yellow Daffodils which share with the common Primrose the popular name of "coucou." These are brought from the Bois de Vincennes and the forest of Sénart, made up in spherical bouquets, surmounted by a tuft of green leaves. Then we have Hyacinths of Paris (single and double), Campanelle Jonquils, Poet's Narcissus, Lily of the Valley (which is generally sold while the flowers are still in bud—so eager are the growers to be in advance of their competitors), Stellarias, with their airy-looking little flowers, and the white Arabis in basketfuls of silvery bloom. As the warmth of the season increases, Lilac grown in the open air comes in, together with pompon Roses, feathered Pinks, early Pæonies, Syringas, Guelder Roses, Laburnums, Sweet Williams, wild Cornflowers and Crown Imperials. The appearance of the white Lily announces the approach of summer. Along with it come Moss Roses, bunches of meadow flowers, Ox-eye Daisies, Cuckoo Flowers (*Lychnis Flos-cuculi*), Meadow Sage and Buttercups. In the middle of summer we have Ten-week and other Stocks of all colours, China Asters, Carnations, Larkspurs, Lupines, Sweet Peas and Gladioli, which, together with the Dahlias, continue in bloom until frosty weather approaches, when they are succeeded by the Chrysanthemums, which are now ever increasing in numbers and are almost the only flowers we have from the commencement of November until the first Wallflowers and the early Violets make their appearance in spring.

It is very difficult to estimate with any degree of exactness the amount of business which is done by the hawkers, but it is certain that in very frosty weather, which compels these humble traders to lie up, the transactions at the market fall off to the extent of at least one-half. Last December, this was the sad experience of the hawkers. Between the hawkers and the shopkeepers comes the class of those

Christmas, the foliage and berries of the season begin to make their appearance in the markets—the Mahonia, with leaves bronzed by the frosts; the Holly, with its pretty red berries; the prickly Butcher's Broom; the bunches of Mistletoe, with its glutinous berries, sent from the southern parts of France; the branches of the Japanese Spindle tree (*Euonymus japonicus*) and the Californian Pepper Tree (*Schinus molle*), with its clusters of pink berries.

The severest frosty weather does not discourage all the plant-sellers of the fair sex who ply their trade in our open-air markets. Some of them may be seen who, having covered their portable shop with thick cloths and lighted a fire in a cast-iron stove, get up a sufficient temperature to keep themselves warm, without, at the same time, injuring their plants. Others of them simply post themselves near their covered and heated hand-carts. These are the dauntless ones of the markets.

THE RETAIL VENDORS.

The flower markets at Paris, as may be seen, are never at a loss for customers. Many lovers of flowers, however, are, through bodily debility or want of time, unable to make their purchases there in person, and people of this class, who of necessity must stay at home, and also those who would not trouble themselves to go to market or who have very slender means, mothers of families whose time is engrossed by household duties—all such people as these are supplied by the male and female hawkers who go round with hand-carts variously laden with the flowers, foliage, vegetables or fruits of the

flower-sellers who occupy the kiosks or sheds that have been put up in many places in Paris, and especially in the vicinity of the churches. Better equipped, in general, than the hawkers, and selling plants in pots, which the others very seldom do, they nevertheless stock themselves with simple and low-priced flowers, for it is rarely the case that the richest people are the readiest to buy flowers to deck the altars. White Gilliflowers, Paris Daisies, Lily of the Nile, Deutzias, and white Dahlias are the favourite flowers here. At these kiosks trade is briskest during the month of May and whenever any of the great church festivals are drawing near. These festivals, the celebration of which very largely increases the sale of flowers in Paris take place on the following dates :

La Saint-Joseph, March 19; La Saint-Jean, June 24; La Saint-Pierre-et-Saint-Paul, June 29; La Saint-Vincent, July 19; La Sainte-Anne, July 26; L'Assomption, August 15; La Saint-Louis, August 25; La Saint-Augustin, August 28; La Saint-Charles, November 4.

At the Quai aux fleurs the market is held on the eve of these festivals when they happen to fall upon one of the regular market days.

I may here also mention the flower-sellers who post themselves about the approaches to the cemeteries, where they are most numerous on All Saints' Day and All Souls' Day (November 1 and 2). The Parisian is faithful in placing flowers on the graves of those who were dear to him.

THE FLORISTS.

Although the consignments of flowers which are sold at the Halles centrales and the other flower markets constitute the greater part of the daily supply, they are far from representing the total amount that is daily received in Paris or including what may be termed the "cream" of the flowers that are sent there. Almost all the choicest flowers and plants come direct from the growers into the hands of the florists who are established in shops, and who now form a very numerous class which is every day increasing, and whose spacious shop windows, always carefully and tastefully dressed, and at night brilliantly lighted up, contribute in no small degree to embellish and enliven the streets and boulevards of Paris. It would be difficult to estimate their number exactly. Bottin puts it down at 200, while in 1880 he mentioned only 104, and in 1870 not more than forty-five. Now, if we may judge of the rest of Paris from the boulevard Saint-Germain, where there are at least eight florists established, although Bottin mentions only one, we may compute, without much risk of exaggerating, that in the whole of the city there are fully 500 florists, and that these are not doing badly is evidenced by the fact that new ones are constantly setting up in business.

Is it not pleasant to pay a visit, even in imagination, to one of these handsome, well-lighted, warm shops, where, on entering, a wholesome odour of fresh Moss comes to you and makes you think of the woods? But the enchantment here is chiefly for the eyes. On every side, in the windows, on the shelves, on the stands, on the brackets, or in the hanging baskets is expanded, or stands erect, or is pendent, everything that the gardener's art can produce of what is freshest, most dazzling, most beautiful and most fragrant. Palm trees and Tree Ferns, whose fronds reach to the ceiling, tower above the Azaleas and forced Rhododendrons, the Dracenas, with their broad, coloured leaves, the Bouvardias and the Stephanotis, the Clivias, with their broad, ribboned

leaves and orange flowers, and the Poinsettias, with their collars of bright red bracts surrounding the small yellow flowers. In the tall, narrow vases sheafs of white Lilac alternate with Reine de Safrano or Souvenir de la Malmaison Roses. In the windows, between the symmetrical little Araucarias and the broad Cycads, are heaped up bundles of Hyacinths, Anemones, or Narcissi, according to the season, while a vast number of plant holders of various designs contain tastefully arranged forced bulbous plants, white and pink Lily of the Valley, and the large-flowered Cyclamens, which have been brought to such wonderful perfection at the present day. Various kinds of Bromeliads, such as Tillandsia, Vriesia and Aechmea, furnish the hanging baskets together with carmine-flowered Epiphyllums, Begonias and stoloniferous Sedums. On all sides are visible the weird, diversified, handsome flowers of Orchids, which promise to take a foremost place in floral decorations, and on all sides the verdure of the Selaginellas, Ferns and Isolepis forms a pleasing relief to the vivid hues of the flowers. Amid all these pretty flowers and plants the shop girls move actively about, plainly dressed in black, waiting on the customers, but busy all the while setting up flowers in bouquets with their nimble fingers.

The weeks through which we have just passed, including Christmas and New Year's Day, are those in which these florists' shops are in their greatest glory. They have, however, no absolutely dead season of business. All the year round fêtes, entertainments, receptions, &c., create a demand for bouquets, baskets of flowers, and floral decorations of all kinds. In spring and in summer Irises, Gladioli, Lilies, Peonies, Foxgloves, perennial Larkspurs and large-flowered Poppies furnish a supply of very effective flowers, all grown in the open air. The vicissitudes of winter, however, do not affect these florists so detrimentally as they do the hawkers. Their customers are rich, or at least well-to-do, people who can afford to pay for hothouse productions, and it is money that heats the forcing houses and pits by which Nature is compelled to alter the course and order of her operations.

Although these florists do not disdain to make good any deficiencies that may occur in their supplies by occasionally resorting to the Halle, their regular consignments come to them direct from the growers. One of their chief occupations is in working up the materials which they receive from the gardeners and other cultivators. In arranging flowers in bouquets, in the matching and contrasting of shades of colour the taste and talent of the Parisian florists are pre-eminent. The airy lightness of their compositions, which also implies a very appreciable saving of the materials used, at the same time imparts more grace to the whole design. It would seem as if our floral artistes knew how to solidify the air at their pleasure amongst the flowers which they put together in their bouquets. It is generally in the afternoon or in the evening when their consignments come to hand. The flowers are at once unpacked, sorted, and marked out, some for choice bouquet work, others for baskets or decorations which require only second-class materials. All are then placed in water for the night, and next day, when rested and refreshed, they are worked up as required. Infinite are the variety and ingenuity of the devices by means of which the artiste makes good any shortcomings which the flowers may exhibit in firmness of appearance, length of stem, or rigidity of attitude. The rushes used for lengthening short stems, the almost invisibly fine wire for fastening them,

and the pads of Moss for keeping them asunder are employed in turn or simultaneously. But it may be mentioned that the finer and more perfect the flowers are, the less do they exhibit any sign that the artiste has been exercising his skill upon them; so that in bouquets of the most expensive class the most consummate art is concealed under an aspect of perfect simplicity. Ribands are largely used as an accompaniment to flowers, and although some florists employ them rather too freely, one cannot avoid admiring the skill, inspired by the studies of M. Chevreul, with which they adapt the shades of these ribands to the tints of the flowers and foliage with which they are made up.

In addition to the selling of flowers and plants, these shop-keeping florists also undertake the flower-decoration of private apartments either for special occasions or for the whole season at a fixed rate of subscription. They have many subscribers, but probably very few who pay them £1000 per annum. It is said that the same amount is not looked upon as an extraordinary annual subscription in New York.

(To be continued.)

GARDEN FLORA.

PLATE 853.

THE OLEASTERS.

(WITH A COLOURED PLATE OF ELEAGNUS PARVIFOLIA.*)

SEVERAL of the Oleasters are very beautiful shrubs, and deserve to be much more widely known and cultivated than they now are. No doubt the accompanying coloured plate will impress the merits of one species on a considerable number of readers, and if the plant is inquired for to any extent, there is no doubt at all that nurserymen will soon get together a stock sufficient to meet all demands, although at present I know of very few nurserymen who possess the plant. In fruit *Eleagnus umbellata* is a most interesting and beautiful bush. The leaves at this period are deep green and glabrous on the upper surface; in a young state earlier in the season they are silvery grey, and silvery white beneath. The creamy-white flowers are produced in the greatest profusion in June. In some localities the plant is practically evergreen; in the neighbourhood of London, however, it is—at any rate during such winters as the two last—to all intents and purposes deciduous. It is probably perfectly hardy throughout Britain, as it withstands the much severer winters of Northern Germany without protection. In a wild state it occurs from the Himalayas to China and Japan. *Eleagnus parvifolia* is a name under which this species occurs in some gardens.

E. LONGIPES, a thoroughly deciduous Japanese species, is one of the most desirable members of the genus. Professor C. S. Sargent thus writes of it in *Garden and Forest*: "The plant may well be grown for the beauty of its fruit alone, which, moreover, is juicy and edible, with a sharp, rather pungent, agreeable flavour. Both the size and the flavour can doubtless be improved by careful selection, and it is quite within the range of possibility

* DRAWN FOR THE GARDEN by Champion Jones from specimens sent by Mrs. Robb, Sept. 13, 1891. Lithographed and printed by Guillaume Severeigns.



that it may become a highly esteemed and popular dessert and culinary fruit. To some persons, even in its present state, the flavour is far preferable to that of the Currant or the Gooseberry." The fruit, as implied by the specific name, is borne on long stalks; it is bright red in colour and covered with minute white dots. The branches are covered with rusty brown scales, and the somewhat leathery leaves are dark green above and silvery white beneath. Pheasants are said to be very fond of the fruit, and I can vouch for the fact that black-birds and other fruit-eating birds will soon strip a bush unless it be netted. Some French growers make a preserve of the fruit, and this is said to be very similar to that made from the fruit of the Cornelian Cherry (*Cornus mas*); a spirit, too, with a taste like kirsch, has also been made from the fruit. *E. longipes*, known in some gardens under the names of *E. edulis*, *E. odorata edulis*, and *E. rotundifolia*, is apparently as hardy as the first named species.

E. ARGENTEA, OR *E. CANADENSIS* (the Silver Berry or Missouri Silver Tree), has very fragrant tubular yellow flowers, followed by an abundance of nearly globular, dry, mealy, edible fruit. This species gives a characteristic feature to the vegetation of the Upper Missouri valley, and in a wild state grows 8 feet or 10 feet in height, and throws up an abundance of suckers, a habit which, at any rate in a young state, does not appear to obtain so much under cultivation. The oval leaves are silvery white. In nearly all British and foreign nurseries this species is confused with the Buffalo Berry (*Shepherdia argentea*), a genus belonging to the same natural order as the *Elæagnus*, but altogether different from it.

E. HORTENSIS, a somewhat variable plant with a wide geographical distribution, is cultivated in many countries for the sake of its fruit. In Dr. Aitchison's "Botany of the Afghan Delimitation Commission" it is described as a shrub or tree occurring at an elevation of 3000 feet and upwards, near running streams, and cultivated largely in orchards for its fruit.

E. ANGUSTIFOLIA, the form which grows wild in South-eastern Europe, is the wild Olive of the old Greek authors, and in some modern books is called Jerusalem Willow. The long silvery grey fruit is constantly sold in the Constantinople markets under the name of *Ighidé agâghi*, and is sweet and pleasant to the taste, abounding as it does in a dry, mealy saccharine substance; it possesses the property of retaining, for a considerable time after being gathered, its usual size and form. The general aspect of this form is much more that of a Willow than an Olive, the long lanceolate leaves being greyish above and silvery white beneath. Under cultivation I have seen this thrive in a dry, hungry, sandy soil and attain tree-like proportions with a stem as much as a foot in diameter. This deciduous species is capable of being turned to good account by the landscape gardener; the yellow tubular flowers are produced in profusion.

E. MACROPHYLLA, an evergreen species from China and Japan, has large roundish leaves, greyish above and silvery beneath. Old plants are said to produce suckers freely, but the species is a somewhat recent introduction to British gardens, and all the specimens which I have seen up to the present have not shown any tendency to sucker. It is quite distinct in appearance from any other hardy cultivated shrub, and is worthy of much more general employment in the ornamental shrubbery. In its native habitats it is said to sometimes attain tree-like dimensions; under cultivation I have only seen it as a dense bush.

E. PUNGENS, *E. GLABRA*, AND *E. REFLEXA* are beautiful Evergreens, which are not very dissimilar in general aspect, and which without long dry scientific descriptions it would be impossible to distinguish. Variegated forms exist of all three, and any of them, as well as the types, are thoroughly well worthy of a place in the garden or pleasure ground. They are all natives of Japan, &c., but do not appear to be quite as hardy as the species previously mentioned; all could be tried, however, with every prospect of success in the southern

counties. Some of them in the south of Europe assume a somewhat climbing habit, and round the north Italian lakes, for example, grow up to the tops of high Fir and Pine trees.

E. SIMONI, said to be a native of China, seems quite hardy, but is the least ornamental of those which have been mentioned in these notes. A variegated form of this with leaves margined with dark green and with the centres constantly variegated with golden yellow and yellowish green, originated in the Belgian nurseries a few years ago: it is highly spoken of in some of the Belgian periodicals.

G. NICHOLSON.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

CUCUMBERS ON HOTBEDS.—In the majority of gardens even where there are heated structures, Cucumbers during the summer months are grown on hotbeds. But it is only in the smaller gardens where there are no heated structures available that this method has to be resorted to. The present is a good time for forming the beds, and success or failure depends upon how these are formed at the outset. The fermenting material should be well prepared beforehand, so that when made up the bed will maintain a steady heat. If the litter should be at all dry, see that it is well watered, or else fermentation will not make much progress. If a third of leaves could be added, so much the better for the regular maintaining of the heat. The bed should be 4 feet deep, be firmly beaten, and of sufficient width to allow a margin of 6 inches after the frame is placed in position. After the heat has risen and also expended its noxious vapours by fermentation, the soil should be placed in each light—a hillock for planting out the plants, with a layer equally over the surface. If young and healthy plants are procurable, see that they are received without injury, but sooner than use stunted plants which are pot-bound it is much the best plan to raise seedlings in the frame.

PLANTING OUT CUCUMBERS.—In planting, lay the plant on the side and settle the soil about the roots with water heated to 90°. Directly the plants commence to grow, pinch out the point at the third or fourth leaf, training the resulting growths equally over the bed, the laterals which form from these leading growths being pinched to each leaf which is formed. After planting, care must be taken that the leaves are not injured by the sun, a slight shade for a few days during the hottest part of the day guarding them from injury. Care must also be taken with the ventilation, for the first month or two, at any rate. With the heat in the bed, the sun will quickly raise the temperature, so ventilation must be put on as occasion requires, guarding against cold draughts; but on cold days with a bright sun, a little shade for an hour or two is safer than over-ventilation. Nor should a little ventilation be neglected at night-time to let off rank vapour, especially if the lights should be tightly glazed.

ASPARAGUS.—The present spell of warm weather will bring the heads on apace, but although the weather is now very genial for the time of year, changes quickly occur. For instance, I have known a sharp frost blacken all heads which were above the surface. Whenever a frost appears imminent, a little clean litter lightly laid over the heads will often save them. As the heads commence to rise do not neglect the periodical dressings of fertilisers, which should be given from now onwards at intervals of a fortnight. Heavy dressings are not needed, but the value of a light sprinkling of soot, salt, and best Peruvian guano strewn over the surface in equal quantities will be apparent in the strength of the heads. Where blanched produce is appreciated and the crowns are not far from the surface, it will be found more advantageous to add some material to assist the process than to dig into the beds to get a length of stem. The best method is to place a small hillock of leaf soil

and sand over each crown, and directly the heads appear above this they will be fit for cutting. The advantage of these small hillocks will now be seen, as all that is necessary is to move the material on one side and cut the stems off at the surface, the material being replaced again.

CUTTING ASPARAGUS.—There appears to be a mistaken opinion that by leaving the small heads of Asparagus as they rise, the crowns are strengthened. This is certainly not the case, for the best mode of procedure is to cut all that appear, big or little, excepting in the case of very weak crowns, and then the best course is to leave these untouched and allow all to grow ahead. Leaving the small growths on strong crowns prevents stronger ones appearing. The weaker stems obviously draw off the root force, and instead of strengthening the crowns the very opposite is the case. Where there are several beds and the produce of all is naturally weak, it is a good plan to leave one bed untouched.

PARSLEY.—A main sowing of Parsley should now be made, choosing an open site. The soil must be in a fertile state, but not over-rich. A dressing of either lime or soot, but not both, should be worked into the surface if there is the least idea of injury from grub. A firm root-run being a necessity, the surface should be equally trodden over previous to drawing the drills.

EARLY CAULIFLOWERS.—The present fine weather and warm nights have brought these on apace, plants raised early in the year and grown on in pots being now very fine. They must not receive the least check, otherwise buttoning will result. The plants will no doubt be in frames, off which the lights should be drawn on fine days and warm nights, so as to prepare them for planting out, which may now take place in early districts. The ground must be in a well-worked and fertile state, with plenty of good manure. In preference to planting on the level draw out deep drills, in which set the plants, as this will protect them from cold winds. After planting, if the weather should happen to turn cold and dry, water thoroughly and protect with a flower-pot for a few days. To keep up a succession, plant a portion on a warm south border, to be protected with hand-lights or cloches, and another lot on an open quarter. If planted on one site, Cauliflower is apt to come in all at once.

A. YOUNG.

ORCHIDS.

THE weather has been very favourable for the healthy growth of the plants during the last week or two—plenty of sunshine by day and the outside atmosphere not very cold by night. A good deal depends upon the use of the shading material and the careful timing of shutting up the ventilators. I allude now particularly to the warmest house, for many of the more important occupants of it have started to make their season's growth, or are about to do so, and a good growing temperature must now be maintained. In all cases utilise to the fullest extent the sun-heat in the afternoon, drawing up the blinds before the sun has ceased shining upon the glass; if the temperature rises to 90°, all the better. We place such plants as the Moth Orchids (*Phalænopsis*) on the shady side of the house, also the *Cypripediums*, which succeed best in this house. *C. superbiens* (Veitchi), for instance, and a few of the hybrids raised from it, such as *Charles Canham*, will have their leaves injured even before those of *Phalænopsis*. It is always best to place all such in a shady position where the declining rays of the sun early in the afternoon do not touch them. The *Phalænopsis*, such as *P. Sanderiana*, *P. amabilis*, *P. grandiflora*, *P. Schilleriana*, &c., may yet need some attention as regards repotting or placing them in new baskets or pans. This should be done before they have started to grow too freely. The new leaves will be showing and the roots pushing very freely soon. It may be better to pick out the old decayed material from the baskets, pans, or flower-pots with a pointed stick and replace with clean live Sphagnum. We pick out all the decayed leaves and grass from the fresh Sphagnum, wash it in

clean rain-water, wring the water out of it by pressing handfuls firmly together cut it up with a sharp knife and use it mixed with clean peat-sherds and small bits of charcoal. The rather difficult-to-manage Orchid, *Grammatophyllum Ellisi*, has an awkward habit of dying before it has grown into an established plant, and is also shy in producing its flowers, but it likes a warm atmosphere, and will do as well with the *Phalenopsis* as anywhere. Established plants might now be repotted or placed in larger baskets. The young growths in process of development must be carefully watched, and no water should be allowed to get down their centres. The plants will now require a fair supply of water at the roots. All the *Saccolabiums* must also be generously treated; they seem to do best in baskets.

Many *Cypripediums* are also in bloom or the flowers are pushing out. Water freely; it is an error to allow the roots to get anything like dry when the plants are in this stage. Any of them still needing repotting should be seen to at once. The winter-flowering species may yet be repotted. Of these may be mentioned the very beautiful species *C. Spicerianum* and the numerous seedlings produced from it. Since *C. Leeannum* appeared in the Burford Lodge collection, and the variety of it (*superbum*) in Messrs. Veitch's nursery, amateurs were so pleased with them, that numerous other crosses have been produced from this species, *C. Lathamianum* being one of the most vigorous-growing, and, with the exception of *C. Leeannum*, I think the most distinct and beautiful. All these may now be repotted, and they do quite as well if some good fibrous yellow loam is mixed with the peat. I usually repot them in February, as the pressure of work is not so great in that month as it is now. Some plants I was examining to-day have not yet made much progress in making new roots, and if repotted now they are likely to start away more freely in the new material; in fact, any *Cypripediums* repotted now or in the summer months very speedily form new roots and make up for any check they receive during the process of repotting. We have evidence of this in the healthy growths made by such plants as are grown purposely for exhibition. A dozen or a score, or even a larger number of plants are grown singly or two or three plants together in small pots, and a day or two before the exhibition is to be held, a large flower-pot, or even a painted tub, is prepared, and all the plants of one species or variety are turned out of the pots in which they have been growing and packed closely together to form a mass, with about fifty flowers or more; after the exhibition they are again turned out and repotted in the smaller flower-pots again. *Cattleyas* and other Orchids are treated in the same manner, and yet the plants seem none the worse. I have noticed that when the plants have been crowded together in these large pots for a period of about ten days, the roots begin to run freely in the fresh *Sphagnum* or other material in which they have been placed. In May, June and July root action is so brisk, that any loss sustained in removing the plants from one pot to another is speedily repaired, and if the plants are not disturbed afterwards, but little harm is done. The *Zygopetalums* should now be in good growth, and in that condition the most vigorous-growing species and varieties amongst them when well furnished with roots must have not only a good supply of water, but weak liquid manure water should be given to them at each alternate watering. *Z. Mackayi* and *Z. crinitum* may be named as requiring liberal treatment, and they succeed admirably in the *Cattleya* house; their distinct colours when in flower are very attractive, especially such as the beautiful hybrid form *Z. Clayi* and a nearly similar one, *Z. Sedeni*. The species *Z. rostratum*, although a native of Demerara, is evidently from a hot district, for it succeeds best in the warmest house. Much the same temperature may be maintained in all the departments as was recommended last week. The tops of the tallest plants of *Vanda* trees are well up beyond our reach, and as the flower-spikes will soon push out, we must watch that green-fly does not cluster round as soon as they appear. *Odonto-*

glossum citrosimum spikes are best left to hang down as in Nature. Care must be taken that slugs do not eat off the spikes. *Odontoglossum vexillarium*, *O. Roezli*, *O. Phalenopsis*, *O. Warszewiczii*, &c., must be kept quite clear from thrips. We see to this in the winter months by regular dipping. All growing plants making roots freely need regular supplies of water; it is easy to err by giving such too little. A moist atmosphere is always necessary with a high temperature. J. DOUGLAS.

PLANT HOUSES.

GREENHOUSE.—EPACRIS.—The majority of these will by this time be past their best. No time should therefore be lost in giving the necessary pruning, and that before the fresh growth, which quickly follows the flowering, is actively commenced. If this pruning be deferred, there is a waste of the energies of the plants to no purpose, with a corresponding delay in securing a good break for the next season. When pruned, the work should not be done in a half-hesitating manner, otherwise the plants will all too soon become leggy; whilst if knifed in fairly close year by year, the plants will remain for several years of a shapely character. After pruning, the plants will break into fresh growth more kindly if they are retained for a few weeks in a moist growing atmosphere where the syringe can be freely plied upon them—such a place, for instance, as a late vinery in which a genial atmosphere is now being maintained. All the light possible should be given them, whilst at the same time they should be kept as close to the glass as possible. Repotting, where needful, should be seen to as the plants are breaking. This work is not needed more than once in two or three years, but when it is done it should be done well, using the best peat obtainable, avoiding any that is devoid of fibre, which is sometimes the case with the under sides of such sods of peat as is best suited to hard-wooded plants in general, likewise that which is of a spongy nature. Peat that is well suited to this class of plants should handle hard with an absence of that sponginess found in some peats. With the peat should be used silver sand in a liberal manner, and a few handfuls of charcoal when the peat is not of the best quality: the charcoal will act as an absorbent, assisting in keeping the soil in a better condition for a greater length of time. Reducing the old ball should be proceeded with cautiously, and should only include the removal of sour and inert soil to which the roots have not taken kindly. The barest possible allowance as a top-dressing is far better than any greater depth of soil. For my own part, I always like to see the central part of the old ball around the stem kept well elevated; this is decidedly better than when it is tending to the other extreme or even level. The potting itself should be done in a firm manner, taking care that no vacancies are left around the old ball. One size larger each time is a very good shift, and far better than larger ones wherein there is no gain, but the reverse in the long run. When the growths are fairly started later on, then cool down to an ordinary greenhouse temperature. These remarks throughout are also applicable to the early-flowering soft-wooded Heaths for winter blooming.

INDIAN AZALEAS.—Those that have been forced early should be now well looked after, so that an early growth is completed as soon as possible. This will be better effected in a moist growing atmosphere with as little shade as possible. A temperature almost equal to that of a stove will greatly assist in starting a new growth in a kind manner, particularly in the case of plants that have flowered well and in consequence thereof have been cut somewhat hard. A high temperature for the time will do a deal towards resuscitating such plants; whereas if they are for a time passed over or kept in a cool house, not nearly such a good break will be secured, this soon telling upon the plants after a few seasons. When the plants are young or where the growths are vigorous, the

plants will be much improved by pinching the strongest shoots; this will direct more strength to the weaker ones and be productive of more shoots in the bargain. Ungainly-looking plants should have a moderate pruning to assist in keeping them in fair shape. Repotting ought to be done at once in the case of forced Azaleas, using peat as recommended for *Epacris*. In the case, however, of such as *indica alba* and *Fielder's White*, two kinds of strong growth, an addition of a moderate quantity of fibrous loam will tend to greater freedom of flowering. All old seed-vessels should be removed, whilst the old enemy of Azaleas, the black thrips, will want close looking after. There is no better remedy in this case for this plant pest than three fumigations in quick succession.

Late Azaleas for flowering in June should now be kept as cool as possible, a house facing north being about the best place, the frost being just excluded. See that they do not suffer from want of water, otherwise the buds oftentimes turn blind. Mid-season kinds flowering from the end of April and through May should have assistance when the buds are bursting by daily syringings; this will greatly assist them just when the greatest strain is being put upon the plants, particularly if flowering profusely. When in flower all Azaleas should now be shaded from the sun, otherwise the colours will fade all too soon. After a season's attention it seems a pity to see this occur when it might be easily avoided. Any Azaleas which may happen not to have sufficient bloom to make a show should have the flower-buds removed; an earlier growth with better prospects of flower another season will then ensue. Small plants of choice kinds, as new varieties, should be allotted good positions, not being in any way overcrowded, so as to make them whilst still young what may be termed one-sided plants. J. HUDSON.

HARDY FRUITS.

APRICOTS.—Very rarely do Apricots flower so abundantly and strongly as they have done this season, and, thanks to the dryness of the atmosphere, repeated severe frosts have been easily warded off. There are very heavy crops set, some of the fruit being already as large as Peas, and seeing that the trees are also being rapidly clothed with leaves, it must be a very severe late frost that will injure much of the fruit. That we shall have some rough, cold weather to contend with before very long there seems to be little doubt, and consequently the material used for protecting the trees must not be too quickly dispensed with as being of no further service. Fish nets, fir branches, and other light makeshift coverings should be left where they are till the fruit is thoroughly well protected by leafy growth. If blinds are used, these ought to be run over the trees early every evening, so as to enclose some of the heat of the walls. This, in addition to protecting the fruit, will also serve to swell it more rapidly, and they may well be used, therefore, for another six weeks or longer. Those trees under glazed copings are liable to be early overrun by red spider, and the best preventive would be a free use of garden engine or syringe and soft, tepid water. In mild weather the syringing may well be done in the evening before the blinds are run over the trees, but if the nights are cold and frosty, then the morning is the safest and best time to do it. It is yet somewhat early to comment on the necessity for commencing thinning out the fruit, but it ought not long to be delayed, at any rate where the crops are extra heavy, the first proceeding being the removal of all not well placed for swelling to their full size. Light disbudding should also take place, especially where the shoots are very thick near the ends of strong young wood. The early removal of all young shoots pressing against the wall must make it better for those in a position to grow freely.

WATERING APRICOT TREES.—Large old trees rarely get enough water, especially close up to the

walls, glazed copings not improving matters, but rather the contrary, the drip from these frequently making the ground sodden 2 feet or more from the wall. It is closer up to the walls where the soil frequently becomes so dry to a great depth as to be almost impervious to ordinary waterings. Now is a better time for remedying this state of affairs than nearer the time when the fruit should be ripening. Commence by first lightly forking up the surface of the border, throwing the bulk of the soil unoccupied by roots well out of the way. It may not be necessary to water all the border between the walls and any crops there may be on the border in front, but the roots should be bared all the same. After the dry portion of the border has been well moistened with clear water it will be in a state to absorb liquid manure, and this should be given freely. Then apply a liberal dressing of partially decayed solid manure and return the loose soil on to the top of it. Another good soaking of liquid manure a fortnight or three weeks hence would further benefit the trees, a fact which should not be lost sight of by those who have already watered and mulched their Apricot borders. Young trees under copings are the first to suffer from dryness, and all, whether protected by glass or not, may with advantage receive the surfacing of manure.

PEARS.—So many hot days in succession have favoured the wall trees surprisingly, a noteworthy fact being the almost simultaneous flowering of the trees. Flower-trusses are more numerous than anticipated, and they appear to be very strong. Very few growers will feel disposed to thin out the flowers, and they are not so very numerous as to justify the recommendation of the practice this season. In late districts the advice to protect the best of the wall trees with doubled fish netting, this being kept clear of the flowers by means of poles or rods, still holds good, and may be the means of saving valuable crops. There should be no hesitation about removing flower-trusses near the points of leading branches, allowing these to set and swell fruit effectually checking healthy progress. Nor ought newly-planted trees or any in a badly stunted state be allowed to bear fruit this season. They invariably try to bear fruit freely during the first and second season after planting, but only those that promise to grow strongly should be allowed to carry a crop during the second season, or otherwise they experience a check from which they do not quickly recover. At the points of unpruned leading shoots young growths are always very freely produced, and these ought to be early thinned out so as to favour a strong central shoot. If rather long-pruned shoots give promise of breaking at the ends only, the lower part may remain perfectly naked, unless the end shoots are rubbed out, this inducing a back break. Newly-planted trees ought especially to be mulched with straw litter, and should never be allowed to suffer from want of moisture at the roots. Large trees in full bearing would pay well for being treated much as advised in the case of Apricots. They do not get enough manure in half the gardens in the country.

BUSH TREES.—Bush trees of Apples and Pears and also pyramids on dwarfing stocks are very abundantly set with fruit buds, only a favourable spring being required to ensure a good crop of fruit. If former experience is any criterion, it is very probable that the unusually hot and dry weather that we have had during the early part of April will be followed by a spell of rough and cold weather, in which case fruit trees in or just out of flower are certain to suffer. In all probability it would pay well to erect temporary net-covered structures over the rows of dwarf trees, scrim canvas and cotton blinds being even more effective. The cost would be trifling, and it is a pity that such good prospects should be marred by frosts. These heavily-cropping, surface-rooting trees ought always to be well fed from the surface, and short manure in immediate contact with roots is the most desirable form in which to apply either plant food or mulchings. Surface dressings of decayed manure are of little service if exposed to the dry

effects of wind and sunshine, and it is best in every way to cover them with fine soil. Strawy manure is preferable for surface mulchings.

W. IGGULDEN.

TREES AND SHRUBS.

CUPRESSUS LAWSONIANA AND VARIETIES.

FEW, if any, Conifers show so great a divergence from the normal form and from each other as is to be found in the case of Lawson's Cypress, for where seedlings are raised in quantity, many distinct ones may always be picked out, while the recognised varieties are now very numerous. *C. Lawsoniana* is certainly one of the most ornamental of all our medium-growing Conifers and one of the least fastidious in its requirements, for it is perfectly hardy and in no way particular as to soil, though a cool house suits it better than where it is dry and sandy. When allowed space for its full development, the usual habit of this Cypress (though individuals vary) is to form rather a broad-based pyramid, whose plume-like branches are disposed in a very graceful manner, the leading shoots and the points of all the principal ones being more or less pendulous. The cheerful green of its foliage, too, is another great point in its favour, for even where seen in a mass the effect is much less sombre than is to be found in the case of most Conifers. A very pleasing spring feature is furnished by the tiny male catkins, which are of a bright crimson colour, and frequently borne in such profusion as to cause the branchlets to droop more than usual. So numerous are they, that in many cases quite a glowing colour is imparted to the entire specimen.

A few well-marked varieties are—

C. L. ERECTA VIRIDIS.—This forms a fastigate specimen of a tapering outline, whose erect-growing branchlets of the brightest green are closely set on the branches from base to summit. The rich tint of the foliage, too, is retained throughout the year. This variety originated with Mr. Waterer, and is generally grown as the Knap Hill Cypress.

C. L. FILIFERA.—This in every respect differs widely from the last, for the branchlets are long and slender and but little divided, while the second year they become more or less tasselled at the points, and from these clusters are again pushed out other slender branchlets of a sub-pendulous character. In the conformation of the shoots this greatly resembles *Retinospora filifera*, but this last forms a dense, broadly conical specimen; whereas the *Cupressus* is much taller in proportion to its width and of a looser, more open style of growth.

C. L. INTERTEXTA.—In this the branchlets are far more robust and open than is the case in any of the others, while the branches are disposed in a more horizontal manner and droop at the points in a very pleasing way. As a specimen it is far less dense than the ordinary form of *C. Lawsoniana*, and is readily distinguished from any other variety by reason of the coarser branchlets.

C. L. STRICTA.—This is an erect-growing kind, blunter and less tapering than in the case of the Knap Hill Cypress, and consequently it forms more of a columnar specimen than that does.

C. L. NANA.—This forms a little, roundish, close-growing bush, which takes years to get a foot high and is rarely seen more than double that height. It is a very desirable dwarf-growing Conifer, suitable for rockwork or similar situations, while where the numerous varieties of *Cupressus Lawsoniana* are brought together, such as this may be utilised for the foreground of the group. There are two distinct kinds of these dwarf shrubs, in one of which the foliage is deep green, while in the other it is of a glaucous hue.

C. L. COMPACTA is altogether a different plant to the preceding, though it must be classed as one of the dwarf varieties. This forms a close-growing specimen with ascending branches, thickly clothed with foliage. In shape it is narrower and more pointed than in the case of the variety *nana*.

C. L. GRACILIS PENDULA.—The name of this is well bestowed, for a good specimen of it will hold its own as one of the most graceful of all Conifers, and where occupying an isolated position it forms a handsome well-balanced specimen. The plume-like branchlets of this variety are unusually delicate, drooping, and of a beautiful shade of green. Besides this there are several of these drooping forms under the names of *gracilis*, *gracillima*, and others, all of which are very beautiful. That known as *gracilis* is a more compact plant than *gracilis pendula*, while the branchlets are less fine.

C. L. ARGENTEA, or **GLAUCA**, as it is sometimes called, is a rather compact moderate-growing variety of a beautiful silvery-grey tint, certainly one of the best of its class.

C. L. BOWLERI.—This is one of the medium growing forms, and very distinct it is, the branchlets being broad and of a deep green tint, while the upper part of the entire plant, principal branches, and all the minor ones are pendulous, so that it forms quite a close-growing mass.

C. L. LUTEA.—There are several forms with the foliage more or less of a golden tint, this being, as far as I know, the best of them. It is a plant of compact habit, whose young growths are of a clear golden-yellow colour, which becomes in the winter less pronounced in hue. This is certainly entitled to a place among the best of golden Conifers.

C. L. ALBA-SPICA.—The young shoots of this are white, but as the season advances they gradually become green, till in the winter it resembles the normal form. It is less sickly in appearance than many Conifers to which the name of *alba-spica* is applied.

Variegated varieties are represented by three kinds—firstly, one in which the branchlets are more or less irregularly blotched with golden-yellow; while in the second the yellow is replaced with white, and the third is a far closer and more compact-growing form, marked, like that immediately preceding, with white. They are as a rule, however, seldom satisfactory; indeed, much the same will apply to most if not all variegated Conifers—that is to say, where patches of yellow or white, as the case may be, are scattered over the plant. When the entire growth is, however, suffused with a golden hue, as in the variety *lutea*, the golden *Arbor-vite*, and others of this class, the case is different, as with them exposure to the sun only serves to intensify their richness of colouring, while those with patchy variegation often suffer from it.

T.

Mahonia japonica.—Of the *Mahonias* it may be said that they are all very beautiful flowering shrubs, and this species is especially noticeable, not so much by reason of the showy character of its blossoms, for they are paler tinted than many of the others, but because they are the first to expand, being during mild winters seen soon after Christmas. This year, however, the earliest blossoms were a good deal later in making their appearance. The Japanese *Mahonia* is one of those stout upright-growing species with long pinnate leaves; other examples of which class are *M. nepalensis* and *M. Bealei*. The last two, though more handsome than the other, are, however, somewhat tender in many localities, and will be very much injured under conditions through which *M. japonica* will pass unscathed. In the Japanese *Mahonia* the leaves, which are on vigorous specimens nearly a couple of feet long, are of a very dark green tint, and confined principally to the upper parts of the branches. The flowers, which are borne in erect spikes well overtopping the whorls of foliage, are of a pale lemon tint, and should the weather be favourable, they remain in beauty a considerable

time, while the berries which succeeded them are large, and when ripe, of a rich blackish-purple colour. This Mahonia succeeds best in a cool, fairly moist spot, as where the soil is light and sandy the leaves do not acquire the same richness of colouring as under more favourable conditions. The North American representatives of the genus include among their number some of our most beautiful flowering shrubs, to a great extent indifferent both to soil and situation. Of them the finest is *M. Aquifolium*, but as all of them vary a good deal when raised from seed, it is possible where quantities are grown to pick out some individuals much more ornamental than others.—T.

A FEW GOOD CONIFERS.

THE loss and subsequent removal of sundry large conifers in various parts of the pleasure ground will necessitate replacing them at no distant date, and the question before replanting has to be well considered, not only as to the best varieties for different soils and situations, but also as to how best they will after attaining considerable size harmonise with their surroundings. This last matter has fortunately attracted the attention of planters of late years, and the rising generation are not likely to see so much of a very objectionable feature that is still occasionally encountered, viz., little paltry specimens of such things as Lawson's Cypress in variety, Araucarias, Irish Yews, and similar subjects in positions where they should never have been tolerated. Within the last few years we have lost from prominent spots in the pleasure grounds many trees that could ill be spared in the shape of Silver Firs, Stone Pines, and Lebanon Cedars. Of the first-named it may safely be inferred that they have lived their allotted time, for the same tendency to decay is apparent in all that were planted in or about 1750. They may be longer lived in stiffer land, but this certainly represents their term of longevity on our West Surrey soil. Well enough for outlying woods, this Fir is scarcely adapted for the pleasure ground; it seems to have been largely planted in various places about the time above-named, owing probably to the fact that planters in those days had not the great choice of varieties among the Silver and Spruce Firs from which to make a selection. Every tree-lover mourns the loss of a Lebanon Cedar, and the desire to replace it by a young tree of the same kind is generally acted on; at the same time it is a question if there are not many conifers far more satisfactory. The beauty of a perfect specimen is undeniable, but how long is that beauty retained? Many of our largest trees, averaging from 12 feet to 15 feet in circumference, are mere wrecks, and almost every gale of extra force or heavy fall of snow adds to the list of windfalls. There is no doubt that the planting of this tree in groups of four, five and six together, and encouraging thereby a closer, more upright growth and a less horizontal tendency of branch, is a great preservative. This matter was alluded to by the late Mr. Marnock in his occasional notes on this his favourite tree, and may be verified here and in other old pleasure grounds where the Lebanon Cedar was at one time extensively planted. I think Deodars are likely to do well here. Many of them are quite 70 feet high, with stems as straight as gun-barrels, the foliage well preserved close down to the ground. Touching the matter of making additions to the existing coniferous harmonise with natural surroundings, I think there should always be an endeavour to find special places for those members of the family that are built on very formal lines; the lighter and more graceful trees will accommodate themselves to almost any situation. Again, it is never advisable to make any portion of the pleasure ground heavy, ponderous and gloomy by extensive planting of the more sombre Pines, when perhaps just outside the enclosed grounds there may exist large areas of dense, heavy plantations of Scotch Fir. *Taxodium sempervirens* makes a grand tree here. It may have been planted soon after its introduction, but at any rate cannot be much more than forty years old. The largest has attained a height of 100 feet and

is in vigorous health, with clean healthy foliage from the ground level. *Cryptomeria japonica* also does remarkably well and grows at a great pace, always provided it has the advantage of a sheltered position. Exposed to the full force of the wind from any quarter, the leader gets bent and partially crippled, and the tree is much longer in making headway. A few Silver and Spruce Firs, planted some three years ago to take the place of the old Silvers, were concolor, violacea, pungens, glauca, nobilis, grandis, and brachyphylla. The last-named was a stranger to me, but was strongly recommended as likely to develop into a handsome tree, and it certainly bids fair to justify the excellent character received. A comparatively new Spruce (*polita*), tried at the same time, is by no means a success, having up to the present made hardly any headway. We have planted very few Pines, the pleasure ground being already somewhat gloomy with its quantity of Cedars and a considerable number of Stone Pines, Scotch Firs, and Yews. So far as the latter, however, are concerned, they were exceptionally well placed in the old planting days in groups of four or five, or in occasional short rows, backed with Beeches and faced with *Rhododendron ponticum*. In the early summer, when the last-named is a blaze of colour and all foliage is fresh and clean, these little bits of planting are striking and beautiful. The same effect has been tried in one or two instances by substituting *Abies canadensis* for Yew, but this is not a success. Hardly any of the Hemlocks seem at home here. There must be something in the soil not to their liking, for the foliage has a yellow sickly tinge and the trees generally a stunted appearance. E. BURRELL.

Claremont.

ARRANGEMENT OF FLOWERING SHRUBS.

RATHER a new, novel, and certainly very commendable feature of shrub-gardening was brought under my notice a few days ago in a rather secluded corner of the "garden of England." It consisted of the large borders and clumps on a lawn being arranged in such a manner that at almost any time from March till September or October the place was a blaze of flowers. Shrubs for early spring flowering were arranged in clumps, each kind separately, and at distances apart all round the borders, the spaces between these being taken up by others whose flowers appeared later on. As an example, at present there is a mass of the pretty white *Mezereon*, some three or four good-sized plants, for the garden is old, and the shrubs old also and well established. A bit further on the very desirable, but unfortunately little-seen *Rhododendron davuricum atro-virens* is flowering profusely, and with hardly a leaf on the bushes, thus setting off the purplish-pink flowers; then comes a spreading mass of that pretty spring Heath, *Erica carnea*; next a big plant of the Cornelian Cherry smothered in its tiny yellow flowers; closely following it, but divided by other shrubs not yet in flower, is the common *Mezereon*, which from being fully established is one mass of purple, each twig wreathed for fully a foot with the sweetly-scented flowers. Jasmines and the Forsythias are not forgotten, with many another good thing that I cannot now recall to mind in this first arrangement of spring-flowering shrubs, and certainly the effect produced is both beautiful and worthy of imitation. In three weeks or a month a quite distinct set of flowering shrubs, similarly arranged to those just described, will be in flower, and so succession after succession is carried out for nearly nine months out of the twelve.

The borders, as I have said, are unusually large, and the lawn clumps irregular in outline and of goodly proportions, but not too large for the place, which itself is laid out on a big scale. One of the clumps has for a centre a fine specimen of the Liquidambar branched to nearly the ground, this being surrounded not at all formally or stiffly with small patches of three or more shrubs of the same kind, adjoining patches being as before composed of distinct shrubs for flowering at stated periods and in harmony with others at distances away.

On a rather high sheltered mound there is a Maiden-hair Tree of dwarfish growth, but covering a wide spread around this are planted masses of the double-flowered Gorse, which when in full flower must alone be a sight. But such is the system carried out through the whole place, different clumps of the same shrubs and that flower at the same time being arranged at intervals apart, that the flowers are diffused over the whole grounds and not kept in close contiguity, as is often the case. By this means wherever one looks, shrubs in flower attract the attention, while the whole place looks gay at any and every time.

A good deal of forethought must have been brought to bear on this spot, for the idea is novel and the whole arrangement excellent. By looking over the same place in another month quite a different set of shrubs and trees would be in flower, and thus is the spot made charming and of the greatest interest the whole year through. There are a few masses of coniferous trees, but they are few, and evidently have not been meant to enter largely into the furnishing of this place. Of the Savin and wild Juniper there are good breadths, but Wellingtonias and Araucarias are wisely avoided. A. D. W.

Pruning and thinning Evergreens.—In a general way Evergreens are planted for the purpose of forming screens or shutting out unsightly objects as well as for ornament, and soon become too thick, and if not seen to, defeat the object for which they were intended by becoming naked below. To obviate this they should be gone over and have some of the branches taken out above, so as to let light in, and it may be necessary to remove some plants altogether. Laurels, Hollies, and indeed most Evergreens will stand any amount of thinning or heading back, and I have seen quite old trees almost beheaded and left with only a few leaves, and they have broken back, become refurnished, and soon formed dense, handsome plants. Those, therefore, who have any that are too large or thin, need have no hesitation in dealing severely with them, especially at this season, as now is the time to thin or prune, as they will quickly form fresh buds up the main stems or branches and become clothed with new foliage. The pruning of Evergreens along the sides of walks or on lawns is often done in a stiff, formal manner by a mere shortening of the shoots, giving the shrubs a clipped, formal appearance, and doing away with all natural outline and beauty. When it is desired to keep them of a certain size and within certain bounds, the pruning should take more the character of thinning, shortening some branches back beyond the line of others, and removing all such as stand out beyond the limit assigned. The best instrument for the work is the knife, as then the cuts are clean without any jamming or bruising, and the healing over of the wounds is quick and sure.—J. S.

LAUREL COVER.

WHATEVER may be the value of Laurels as ordinary evergreen shrubs, it is quite certain that they make capital cover properly treated. They may also be utilised as excellent ground or carpet shrubs if needed, especially beneath tall trees. There is to be seen by the acre on the slopes and hill-sides at Claremont ample evidence of both propositions, for these extensive breadths of very hard-cut Laurels form cover in an admirable way, assuming that such form of cover is desired or pleasing. These are points, of course, open to exception. But several years ago when Mr. Burrell took charge of the grounds at Claremont, Laurels not only vied with *Rhododendrons* in the luxuriance of their growth, but largely over-topped them, so that considerable views of the trees, which there grew so luxuriantly, the slopes, glades, and other beauties of the place were shut out from those using the broad walks which run so sinuously about the pleasure grounds. Whilst it would not have done to have entirely cleared the ground of the shrubs, it was necessary to do something, and, therefore,

the Laurels were cut hard down and encouraged to make new growth from the roots. The course was so far successful, that not only was the new growth less robust, but it was very dense. It has since not been difficult to keep it at a comparatively even height of from 30 inches to 36 inches, and thus whilst cover is afforded the ground is well carpeted, the trees are fully seen, for many of the stems are noble objects, and nothing interposes between them and the more distant scenery. As to how far the growth of such a dense body of Laurel may be injurious to the trees which so freely adorned the slopes is quite another matter. Probably there is very much harm done, and for the trees' sake it would be better to grub out a large portion of the ground covering. In some places where trees are thin, that is being done as time and circumstances will admit, the places being filled with a nice selection of flowering shrubs, thinly planted, so as to allow ample room and enable each shrub to exhibit its beauties individually. In many spots on these tree slopes or at their feet there have been planted breadths of Daffodils with capital effect. It is not merely that Narcissi thrive well in the sand at Claremont, and in all directions whether in cultivated ground or on the grass slopes, or beneath trees, but the rabbits let them alone, and that is a capital feature in a place where sand and cover provide a thorough paradise for them. Turning to the Laurel undergrowth, the keeping it in form is chiefly done towards the spring, but it may be done with comparative impunity beneath the tall trees in hard weather. The present is perhaps the worst time to see it, because the face is rather stiff and formal, except where the Rhododendron clumps break its monotony. A. D.

FLOWER GARDEN.

THE HEMP PLANT.

(CANNABIS SATIVA.)

THE Hemp plant, a tall and graceful member of the Nettle family, is generally believed to be a native of Asia, although cultivated for centuries nearly all over Europe and also in Africa. It is in northern climes that its fibrous qualities or bast tissues are best developed; but in India it is largely grown for its resinous narcotic products, such as Gunjah, Bhang, or Hashish. The Hemp plant is dioecious, a fact long known to agriculturists who have grown it as a fibre-yielding crop. Thus Threlkeld in 1727 especially tells us that the more attentive husbandmen observe that in a fat soil you have more female plants of Hemp, and in a lean soil more of the male. The use of Hemp seed in the fattening of poultry is not so well known as it deserves. It is a matter of history that Queen Elizabeth used a milk like emulsion of Hemp seed, and so escaped the markings of small-pox, and the oil of the seed is a specific for burns. In the garden, however, we are mainly concerned with Hemp as an ornamental plant, of which there is a giant form, but even the ordinary kind attains a height of from 5 feet to 10 feet in good rich soil. As shown in the illustration, it is a plant of very elegant habit, and a good group of it serves admirably as a background for more showy flowers, while its light feathery growths contrast well with Castor oil plants, or with the stiff-leaved Yuccas and Dragon trees, Ara'ia or Ficus during the summer months as

used in the open air. Hemp is a robust annual plant, very easily raised from seed. Sown in a gentle bottom-heat, strong young plants may be had for planting out about the middle of May, and as the plant grows very rapidly, it is peculiarly effective and distinct from most other annuals commonly met with in the open-air garden. The engraving also well illustrates the grace and beauty of a good-habited plant as well placed near a suitable background of shrubs, instead of being mixed with other things. F. W. B.

Violets from cuttings.—I consider that Violets are always best when raised from cuttings.



The Hemp (*Cannabis sativa*).

I very much doubt if it is possible to obtain them so fine from division. It is for frame culture that I recommend raising Violets from cuttings. Last year I took the cuttings of Marie Louise and other double kinds somewhat early, putting them into shallow boxes in sandy soil in a close frame. When rooted they were transferred to an old Asparagus bed that had been well cultivated during the spring in the most open position in the garden. Here they remained till the first week in October when they were lifted and placed in frames. The very best blooms I ever have seen were at Cricket St. Thomas, Chard, and Mr. Lyon is a strong believer in obtaining them from cuttings. In a large garden in Norfolk I have seen the old double blue Russian in much better condition than anywhere else; this arises from taking cuttings every year. Previous to seeing this kind

grown in this way I was under the impression that it had no merit, the flowers being small and short-stemmed. When grown from cuttings, however, it is a fine kind and has long stems and fine large blooms.—J. C. F.

HARDY PLANTS AFTER THE WINTER.

MUCH good would result and many a hint be learned if growers would send notes on their failures as well as successes with hardy plants of all kinds, trees and shrubs, after a trying winter like the two last. Such information would also be much more interesting if the locality, the situation the plant is growing in, kind of soil, &c., were given. *Alstroemerias* with me are coming away strongly, and no doubt benefited by the thin coating of leaf-mould placed over them through the winter. Ours are planted moderately deep, but for all this, one big patch suffered in the winter of 1890-91 in an exposed situation where not protected. *Alstroemeria aurea* spreads in a marvellous way in a south border where the soil is light and moderately deep. *Campanula Hendersoni* stood last winter, but has been killed this year, although it was a strong plant. This is a very pretty Harebell, growing 12 inches high, with mauve-coloured flowers; it is very free-flowering. *Inula glandulosa* is dead in exposed places, although strong last summer. *Senecio pulcher* is not hardy here in a low situation in West Dorset. The plants are grown on a south border in open soil. *Calandrinia umbellata*, planted out last summer from pots, is killed, as is also *Phlox Vivid*. This, too, was planted out last summer. I am surprised at this *Phlox* having been killed, as the mossy varieties are quite hardy in most places. I have found *Nelsoni* to be the most tender, and this no doubt arises from its close foliage holding the wet. Several strong plants of *Matricaria inodora plena* are dead this winter, although they stood the last winter and appeared none the worse. This, I believe, was from their growing and blooming so late last year. *Montbretia crocosmiæflora* is showing very strongly; this I have protected with a little leaf-mould. This spreads wonderfully in our garden. *Myosotis dissitiflora* is almost all killed, except where planted under shrubs on the Grass. Most of the shrubby *Veronicas* are killed, except *Traver's*. *Amaryll's Belladonna* is killed, although planted at the foot of a south wall. *Lobelia cardinalis* Queen Victoria has stood in a south border at the foot of the wall. Some kinds of *Tritomas* are not so hardy as others, although growing side by side. *Ecchreocarpus scaber* has stood in a warm place at the foot of a west wall, although only planted last year and raised in spring from seed.

Having mentioned some of the failures, I will now speak of some things that have evidently benefited from the past wet summer. Snowdrops I never remember to have seen so fine or last so long. We have them here on the Grass; in fact, in almost every place except in bare borders and beds. When thus planted, it is astonishing how long they last in bloom. A correspondent, speaking of winter Aconites, mentioned them as blooming before the Snowdrops. With me it is just the reverse. Crocuses are very fine this year under trees. No doubt the cause of their being finer than usual under trees is from their having plenty of moisture at the root while they were making their growth last summer. I note that where the leaves are cut off when young and the bulbs make another leaf-growth, the blooming is later the next year. *Pulmonarias* are useful plants for shady spots in the wild garden. We had them in full bloom under trees on March 25. *Iris reticulata* deserves a passing note. It is one of the very best spring-blooming bulbs. Iceland Poppies are beautiful, but they should be raised from seed every two years. The same holds good with *Delphinium*

nudicaule. I have just planted out a fine lot from seed sown last spring.
WEST DORSET.

BLUE FLOWERS.

It is a very common complaint that blue flowers are scarce; if so, it is more true of summer and autumn than of the present season, when we have quantities of blue flowers, all the more conspicuous because as yet no flowers are very abundant out of doors. It is not so much that there is a great variety as that those we have are so very beautiful and free-flowering. Scarcely ever is spring-time so enjoyable as it has been this year, when a continued spell of dry weather has tended very much to prolong the blooming time of our earliest flowers which one short period of rain will almost destroy. The warm sun has been succeeded, it is true, by sharp frosty nights, until this warmer April brought a change of wind; but even so, frost in a dry time is nothing like so destructive to outdoor flowers as heavy rains. Crocuses are abundant still; we had them under a south wall at the beginning of February, and we have them now in shady places, but as brilliant as if they were in the full sun. Blue and purple Crocuses are beautiful in themselves, but they look best when mixed with pure white and the golden-yellow varieties. The difficulty in getting them to flower together is that the purple is naturally so much later in coming out than the yellow; the white seems to come between the two. This year I find that in shady beds, Crocuses (blue, yellow, and white mixed) are flowering simultaneously, and the effect is exceedingly good. It seems that the shade delayed the flowering of the early yellows, but the warm spring air brought on the blue and purple at their usual time; hence all three are flowering at once, while in general the masses of yellow Crocuses have passed away.

Anemone apennina, with its lovely sky-blue flowers, is just opening in the clear sunshine. It is a beautiful spring flower, and can be made to grow anywhere and everywhere. It likes the rockery best, and it will nestle up against a large stone as if it thoroughly enjoyed the greater warmth which comes from the reflected heat. It is surprising how quickly this plant comes up from the bare ground, becomes clothed with ample and pretty foliage, then pushes forth its bright blue flowers, which bask in the pleasant spring sunshine and presently disappear, the whole plant being lost sight of till another March calls it forth from its hiding-place again. In two or three months its whole work is done. But it is indeed a thing of beauty while it lasts, and on a fine day its sheets of blue flowers are most attractive, and add immensely to the enjoyment of the spring garden.

But the bluest of blue flowers is the common Squill. It should not be near *Anemone apennina*, for its shade of blue is so much stronger and deeper, that the *Anemone* would suffer by comparison. This little plant has flowered profusely with me this year. Bulbs of the little *Scilla sibirica* bought at an exceedingly low price have given abundance of bloom. I have tried growing this from seed, but it requires too much patience. Seedlings several years old do not seem inclined to flower yet. But Squills increase so rapidly when they are let alone, that I cannot help thinking that self-sown plants are the best, and somehow come to flowering size quicker than when the attempt is made more artificially.

But the pride of one of my rockeries just now is the double blue Hepatica, a plant which I find is not very common, but well worth much trouble to cultivate carefully, its colour being so rich and beautiful. It is hard to say why this plant is not often met with, for it seems to grow as readily as other varieties. It certainly has not increased much with me, and I have been tender with it, knowing how easy it is to spoil Hepaticas in attempts at division, and unwilling, therefore, to interfere with the abundant flowering of my double blue plant. Year after year there is a regular display of bloom on this double blue Hepatica. I cannot say the same of other varieties. They

seem to have their years of blooming and their years of almost entire absence of flowers. The single blue is very pretty and free flowering. Here it gives plenty of seedlings, but sometimes they have a poor washed-out sort of colour.

I am very much pleased this year with the blue Hyacinthus Muscari, or Plum Hyacinth, sometimes called the Starch Hyacinth, or Grape Hyacinth. Its flowers are well thrown up on long conspicuous stalks, so that the little dark blue heads form an interesting part of the flowers on the rockery just at this time. This Hyacinth has also a pleasant Plum-like scent, and it is certainly a great addition to a flower when it has both scent and beauty. I think this little bulb is well worthy of a place amongst our spring-flowering plants. The flowers are decidedly blue, although the shade is so dark in some that it approaches to purple; in others the blue is paler and more effective.

Gentiana acaulis belongs more to May than April, but I have seen it in flower already this year, though my own plants are only in bud. I saw it recommended lately to move this Gentian from time to time. There may be some truth in this recommendation. A patch which I took from an older sod of Gentian about two years ago seems to flourish and flower much better than the old piece left behind. But I am inclined to think that aspect has more to do with it than anything else. I have known it grow and flower most abundantly for years as a border in the old-fashioned way close to gravel walks. It was never disturbed, but it grew and flourished better than I can get it to succeed with me. Some years it does much better than others. I fancy it likes a good deal of sun and plenty of moisture—things not always compatible. But they are the concomitants of its native haunts, for I have found it just as many others have done when the water from melted snow or ice trickled near it or close beside it in the blazing sun of an alpine summer. It is a beautiful flower in itself, and looks lovely when gathered and placed in a saucer with Moss, the Bluebells forming a circle. It is a common plant in our flower markets in May, but it is hard to get it to grow well after being caked up in stiff clay. One secret of growing this plant no doubt is to wedge it in well with stones.

Lithospermum prostratum is one of the most beautiful blue-flowered rock plants we have. Where it succeeds, it is very free blooming, the whole plant becoming suffused with its brilliant little blue flowers. It is specially a rock plant, as its weak stems want to throw themselves over warm stones. It is in flower already, and adds its very effective quota to our early blue flowers.

A GLOUCESTERSHIRE PARSON.

Tufted Pansies.—The spring is a capital time for dividing these or planting those that were raised from cuttings last autumn. By planting them early, they get hold of the ground before much head-growth is made and before the hot, dry weather sets in. There are few hardy plants that give better returns for liberal treatment than do tufted Pansies. They are at home in a good loamy soil, well enriched with hotbed manure. It should be dug in during the winter months, thereby becoming well decayed by planting-out time. During the past summer I had a striking illustration of the advantage of growing these in good, well-cultivated soil. In February, 1891, I made here three beds for Roses. I had the soil taken out 3 feet deep and removed. I filled these beds with turfy loam (top spit from a good pasture field), and to this was added plenty of good hotbed manure. In this I planted the Roses early in March, and when all was finished I resolved to plant tufted Pansies round each bed. This was done by dividing old plants of the following kinds: Duchess of Albany, Ardwell Gem, and Countess of Kintore. In a very short time they began to grow, and early in May they started to bloom and continued till the end of October. Needing something to fill up between the Roses in the centre of the bed, I decided to use a few plants of *Lobelia cardinalis* Queen Victoria, one plant in each opening.

These just suited the place, and had a splendid effect. I well remember on visiting Impney Hall, Worcestershire, some years ago, when Mr. Temple had charge of these gardens, seeing a lovely mass of colour made by tufted Pansies planted on a new Vine border. The effect in August was grand. Some people think tufted Pansies will not thrive on a light soil. This is not so. They will succeed if the ground is deep, well manured, and kept well mulched till they cover the ground. By keeping moist and watering frequently with liquid manure, the results will be still better.—J. C. F.

Hardy Primroses.—Residing as I do in West Dorset, where the land is most favourable for the growth of all kinds of hardy Primroses, it is astonishing how much larger the blooms even of the common wild form are where the plants get a little natural shade compared with those of plants in the open. In hedges where the Grass grows over the plants during the hot weather, also at the foot of high banks, is where we see the best plants. In the pleasure grounds here I have both the wild and the coloured kinds growing in large quantities. Large masses under trees are lovely. I raise from seed a large quantity every year for placing in the Grass and otherwise. My usual way is much the same as "A. D." recommends. When large enough the plants are pricked out into good soil under a north wall and removed from there the next winter or spring. The best effect is produced by keeping them to colours, so that they may be massed together. The bright yellow and white kinds are very effective when thus placed. "A. D.'s" remarks on these in pots should lead many others to try them thus. This spring I had a good batch in pots and under glass. Here they bloomed very early, and I found them useful in many ways.—J. Crook.

THE OLD CLOVE CARNATION.

AMONG plants that have been particularly unfortunate in not being able to survive the past long and treacherous winter, the crimson Clove Carnation must be included. In a garden not far from here which is well situated on a hill, and where this much-esteemed flower has hitherto done so well, about five in a hundred only have lived. In my own case fortune has been rather more kind, for I can count about twenty-five per cent. The soil here on clay is naturally wet, whilst that in the above-mentioned garden is light and sandy, but in both instances the plants appear to have rotted away. I cannot think the old Clove is less hardy than other Carnations, because I have noticed that in another garden, where the practice of potting up the layers and wintering in frames is carried out, almost the whole are lost. It must be said, however, that the maggot had something to do with the decay of many of them. Treating the Carnation as any other but a hardy plant has often been condemned in these pages, and I am more than ever convinced that placing the plants in pots and protecting them in frames through the winter is a mistake. In the case alluded to the owner has the vexation of having almost lost a collection which had been got together with some amount of expense and trouble. I have no cause to regret leaving mine in the open all the year. Such favourite selfs as Mrs. Reynolds Hole, Germania, and Contesse de Paris have stood the frosts practically uninjured. The same can be said of the florists' varieties of Carnations and Picotees, which are generally associated with pots. At a recent visit to the residence of Mr. Martin Smith I could not observe many gaps in the large and well-prepared beds, yet all layers were cut from the old plants and put in their permanent quarters for the season last October. In a locality some distance from here (Hants) another instance came before me a few days ago that protecting Carnations during the winter is, to say the least, not a profitable proceeding. The collection is a mixed one, and out of 500 not a fifth part shows any signs of life. Dressings of soot had been applied to stop the ravages of the maggot and other measures taken to save the plants, but it certainly appeared to me

that the one great mistake was lifting them from the open ground.

Considering the ease with which seedlings of the Carnation may be raised, it is a wonder that this mode of obtaining a stock does not become more general. There is plenty of good strains of seed in the market, and in watching the progress of young plants that are quite new, there is always pleasure in anticipating the gems which it is thought will appear at flowering-time. This is a capital time to begin. The seed may be sown in a light sandy compost, and it germinates readily in a shady corner of a cold frame. H. S.

Shirley, Croydon.

DAHLIAS.

THE propagation of these should be proceeded with without delay. A Cucumber frame or an ordinary propagating pit will do well. A thin layer of soil should be laid on the propagating material, the roots kept over from last autumn placed on this, and then nearly covered with soil, leaving the crown, that is the centre of the root at the base of last year's stalk, clear, as that is the point from which the growths are put forth which are to form the cuttings. The first shoots are generally sappy and hollow, so it is best to cut those away and wait for the second, as they will be of a more woody character. In taking off cuttings the cut should be made just below a joint and when the shoots are 4 inches or 5 inches long. These can be put into small pots of a fine light sandy soil and plunged in the propagating bed. At this season of the year they will root in three weeks. As soon as rooted the cuttings should be potted singly into small pots, and as soon as the pots are full of roots into larger ones, and then be gradually hardened off for planting out the first or second week in June, which is quite early enough, seeing how frequently the late spring frosts cut off many tender things. When the young cuttings are potted off, they should be kept close for two or three days and be sprinkled overhead with chilled water. Young plants of Dahlias are greatly helped by sprinklings overhead, and when placed in cold frames to harden off previous to being planted out, they should be shaded from the sun in the middle of the day. If the plants flag, they are soon restored by giving them a sprinkling overhead and shading them.

The nurserymen who grow Dahlias largely for sale commence to propagate in February, and the days being then short, dark and cold, the cuttings require nearly six weeks in which to root. As the days lengthen and the weather becomes warmer, the cuttings root in a much shorter time. It is the great quantity required of some sorts which necessitates early propagation, and for the space of two months or longer cuttings are taken off almost daily. The Dahlia nurserymen have their young plants in what are known as large thumb-pots, which, when filled with roots, can be packed in baskets and sent long distances without harm. During April the plants are placed in cold frames to harden, but are protected at night if frost threatens. Advantage is taken of a fine sunny morning towards the end of April to sort the plants into their several varieties; they are then returned to the frame, sprinkled overhead, kept close for a few hours and shaded, and then they are ready for the execution of orders. Some varieties are in large demand; they are what are known as constant flowers—varieties which can be depended upon to produce good blooms for the exhibitor. Mrs. Gladstone is a case in point. It is very likely more plants are propagated of this popular delicately-tinted variety than of any other large-flowered Dahlia. R. D.

Pinks.—The plants are commencing to put forth their spring growths, and these give flowers. Advantage should be taken of the fine drying weather to loosen the soil about the plants, not going deep enough to injure the roots, and then a good top-dressing of good yellow loam and well-decomposed manure should be added. The warm

April rains wash down to the roots the fertilising properties in the top-dressing, and a good growth and fine head of bloom result. As the branches lengthen, it is well to secure them from harm by being blown about by the wind. It is curious how birds will sometimes attack the young growth of Pinks, eating, or at least tearing the leaves. It is sometimes thought it is done by slugs, but it is in reality the birds. It would appear there is a wantonness about them, as they will tear Primrose and Polyanthus blooms to pieces as well as other flowers without much apparent purpose. Perhaps they yield some kind of secretion appreciated by the birds at this season of the year.—R. D.

Anemones in cultivation (R. W. S.):—

A. albana (Caucasus)	A. multifida (N. America)
alpina (Europe)	narcissiflora (Europe,
a. var. apifolia (syn. America, Hima-	layas)
sulphurea) (Europe)	nemorosa (Europe)
angulosa (Transyl-	n. fl.-pl.
vania, &c.)	n. Robinsoniana (co-
apennina (Europe)	rulea)
baldensis (Europe)	n. rosea
blanda (Europe)	obtusiloba (Himalayas)
cernua (Japan)	palmata (Europe)
coronaria (Europe)	p. alba
cylindrica (N. Ame-	patens (Europe)
rica)	p. Nuttalliana (N.
decapetala (N. Ame-	America)
rica)	pennsylvanica (Ame-
Fannini (Cape)	rica)
Hackeli (Europe)	p. lantha (Himalayas)
Halleri (Europe)	pratensis (Europe)
Hepatica (Europe)	Pulsatilla (Europe)
hortensis (S. France)	P. dahurica
h. var. fulgens	P. lilacina
h. var. stellata	P. rubra
japonica (Japan,	ranunculifolia (Europe)
China)	rivularis (Himalayas)
j. Honorine Jobert, or	sylvestris (Europe)
alba	vernalis (Europe)
j. hybrida, or rosea or	virginiana (N. America)
elegans	vitifolia (Himalayas)
montana (Europe)	

—D.

ORCHIDS.

ORCHIDS AT PALACE ROAD, BRIXTON.

On a recent visit to the residence of Mr. J. T. Gabriel I noted healthy and free-flowering specimens of *Odontoglossum Andersonianum*, *polyanthum*, and *crispum*, whilst good varieties of *Rossi majus*, the pretty little white *Oerstedii*, *blandum*, and the charming *pulchellum majus*, which is here represented by a grand variety, were also in bloom. With these also were numerous examples of the charming *Sophrontis grandiflora*. There were also fine plants of *Masdevallia ignea* and *M. Chelsoni*, which will continue for a long time. Passing into the next house, I found a fine specimen of *Cymbidium Lowianum* having seven spikes of flowers expanded. It is a remarkably rich-coloured form, with a broad, deep chocolate border to the lip. Associated with this were many forms of *Cattleya Trianae* and several of the sweet-scented *C. Schroderae*, *C. Lawrenceana*, and *C. citrina*. Very good forms of *Lycaste Skinneri* and *Laela harpophylla* were also in flower. *Oncidium Papilio* and *O. Marshallianum* were beautiful. *Odontoglossum citrosium* promises to be grand. *Dendrobium Wardianum* was good, but the many forms of *D. nobile* were fast declining. *D. nobile nobilium* was showing flower, and Mr. Ransom, the gardener, says he finds this a very shy bloomer, but I think, after a year or two when the rage for propagation is passed over, it will be found free enough. It used to flower freely enough with me at the Messrs. Rollisson's at Tooting. In another house associated with Ferns and *Phalenopsis* now past, I observed fine plants of *Calanthe Regnieri*, *Trichopilia*

suavis, and *Angraecum Leonis* blooming beautifully, whilst *Schomburgkia tibicinis* was making a giant spike. There was also a plant here of *Epidendrum bicornutum* showing several spikes of bloom, as it has done annually for some years. I was assured that the plant was not watered once a month, but that it lived wholly upon the moisture it absorbed from the atmosphere.

AT MR. SHERWOOD'S.

Here I noted many things of great excellence, amongst them being a fine spike of bloom of *Odontoglossum Edwardi* and good forms of *O. gloriosum*, *O. Andersonianum*, *O. Pescatorei*, *O. Halli*, and *O. crispum*. Here also I observed the pretty small-flowered and distinctly coloured *O. roseum*, now very seldom seen, *O. maculatum*, *O. cirrhosum*, and many others. In another house I noted a plant of a very fine form of *Dendrobium albo-sanguineum*, which although seldom seen is one of the most beautiful of the genus. It is one of the discoveries of Lobb, who sent it home to the Messrs. Veitch and Sons some forty years ago. One of the reasons, I think, of the failure to keep this in a thriving state under cultivation is the want of exposure to sunlight, for we are told it is always found upon the tops of the highest trees. Mr. Jones, the gardener here, told me that it is always kept close to the glass in a good sunny position, and to this fact I attribute his success in flowering it. A very good form of *D. primulinum* was also very gay, while *D. Findlayanum* was also very showy. *D. Brymerianum*, although in bloom, with its curious papillose fringed lip, which excites so much wonder, has not proved itself a showy plant in cultivation, giving only about two flowers upon a spike in a scattered manner. Although the flowers are of a rich golden yellow, they lack effectiveness. *Cattleya Lawrenceana* was also flowering here, as elsewhere, thus showing its value as a spring bloomer. *Dendrobium stratiotes*, introduced by M. Linden, of Brussels, is here represented by the best variety of the species which I have seen, the flowers being large and pure white, the lip streaked with rosy purple. Amongst other things worthy of notice was a plant of *Phalenopsis Stuartiana*; it had a fine spike of flower and appeared in good condition. This is a plant that many fail with. This arises, I think, from keeping the atmosphere too dry, as the *Phalenopsis* appear to love being near the water. Several other varieties of *Phalenopsis* were also in bloom.

AT STREATHAM LODGE.

At this, the residence of Mr. Coulthurst, the Orchids are grown with other stove plants, and there is generally a goodly number of kinds flowering. Amongst the first to meet my view were very nice forms of *Miltonia cuneata* and *M. Warszewiczii*. Plants of *Odontoglossum vexillarium* and *O. Roezli* in bloom were the first I had seen of these species this year. *Dendrobium Devonianum* had some sixty flowers upon a stem. *Dendrobium Brymerianum*, *Cymbidium Lowianum*, and *Celogyne cristata* were also flowering freely. This last is grown in the cool house, and here it flowers abundantly, but always after the other plants which are grown in the hothouse are past. *Odontoglossum cordatum*, as also its near ally *O. maculatum*, were also very fine. *Odontoglossum maculatum* had been in bloom since Christmas, and the flowers even now are quite fresh. *Odontoglossum triumphans* and *O. Rossi majus* in variety were blooming freely. Amongst *Dendrobiums*, *D. Dalhousianum* (a good form) was in bloom. *D. suavisimum* was also showing its fine golden-yellow flowers,

which have a rich purplish black eye to the lip. *D. Parishii*, another beautiful plant, having stems 1 foot or more long (not gouty-looking, as they mostly are), and thickly clothed with rich rosy purple flowers, was very effective. *Lycaste Skinneri*, a light-lipped form, and a fine plant of *Lycaste Harrisoni*, bearing about twenty flowers of good size, all the scapes having two flowers, were also in bloom. On some of them I also noted a third bud, but none of them had opened.

WILLIAM HUGH GOWER.

Thrixspermum Berkeleyi.—Flowers of this plant come to me from T. Oswald; it is not a showy plant. It flowers very freely, and is well adapted for growing in a small hanging basket; the racemes are pendulous and many-flowered. The flower before me measures upwards of an inch across, waxy in texture, and creamy white, having a violet-mauve tinge on the lip. It appears to have been found by Major-General Berkeley scattered over many of the Malay Islands. It requires to be grown in the East Indian house. —W.

Dendrobium sulcatum.—T. Ames sends some flowers of a *Dendrobie* for a name. It appears to be this species, but he says nothing of its habit of growth. It would be well to remind those sending plants for naming that they cannot describe the plant too carefully. If the growths of these plants are flat and more or less furrowed, it is *D. sulcatum*. The flowers are orange-yellow with a deeper coloured lip, but it is a less attractive plant than *D. densiflorum*. It was sent home from Northern India between fifty and sixty years ago, and it is considerably over thirty years ago since I saw this plant growing. —G.

Dendrobium Phalenopsis Schroederianum.—A. Metson sends me flowers of three forms that have appeared amongst some plants bought last year. All are very beautiful. No. 1 comes near the typical form of *D. Phalenopsis*, having the sepals and petals flushed throughout with rosy mauve, the petals being somewhat darker, the lip deep purple at the base, becoming paler towards the margin. The flower marked No. 2 is larger and rounder, the colour being much deeper and richer; whilst No. 3 has streaks of white running through the sepals and petals. I do not like this last variety so well as the other two forms. None of them, however, are new, for I saw all these varieties last autumn at St. Albans. A flower of the above plant also came from the Rev. E. Handley, which appears to be of a somewhat pale variety. The flower is of good size, measuring close upon 3 inches across. Perhaps it will improve in colour when better established. —W. H. G.

Dendrobium atro-vioaceum.—Flowers of this species come to hand from Mr. S. Kerslake, gardener to the Rev. E. Handley, The Royal Crescent, Bath. This was recently figured in the "Orchid Album," t. 444. The sepals and petals are ivory-white, the base of the petals being tinged with greenish yellow and freckled with dots of brownish purple; the sepals, which are much smaller, are of the same colour all the way up and dotted likewise, but at the back they are white, the dots plainer and darker. The lateral lobes are erect, green on the outside, with a marginal border of deep violet within; they are thickly streaked with lines of the same deep violet colour; the middle lobe is marked in the same way, but less thickly. It is a beautiful flower, evidently belonging to the *D. macrophyllum* of A. Richard. The plant was introduced by Messrs. Veitch and Sons from New Guinea. —G.

Habenaria militaris.—This very fine plant a few years ago was introduced to France by M. Godefroy-Lebeuf from Cocin China, and named *H. pusilla*. Shortly afterwards much finer examples were brought home in a living state by M. Regnier, and Reichenbach no longer considered the name of *H. pusilla* applicable, and therefore renamed it *militaris*. It is a splendid plant, and when

first brought from Paris to Stevens' rooms in Covent Garden it pleased everyone. Many of our English growers were afraid to take it in hand, but Sir Trevor Lawrence did not share that feeling, and when I recently visited Burford Lodge I saw upwards of a hundred fine strong plants pushing up. These bid fair to make quite a sensation when in flower later on. Mr. White, the Orchid grower at Burford Lodge, says it is one of the easiest plants to manage; he keeps the plants when at rest just fairly moist, and before they begin to move they are turned out, and the tuberous roots divided and potted in well-drained pots in good turfy light loam mixed with a little chopped Sphagnum Moss. They are grown in the warmest house in a nice moist atmosphere, and although near the glass, the plants are carefully shaded. In this manner they every season bloom profusely. —W. H. G.

ORCHIDS FROM SEED.

I HAVE in the course of my gardening experience crossed many Orchids, and have had no difficulty in obtaining capsules well filled apparently with seed; the difficulty is to obtain good seeds, but if these can be obtained they do not take very long to germinate. *Dendrobiums* will ripen their capsules in about six months, and the seeds will germinate in six months or less, and the plants will flower in three or four years from the time of the seeds germinating.

Seedling Orchids when they have arrived at the flowering stage are of great value, because of the long time it takes to obtain them. *Dendrobiums* are not the least satisfactory Orchids for the hybridist to deal with; they take a longer period to arrive at the flowering stage than some, but not nearly so long as others. *Calanthes* and the nearly allied genus *Phajus* arrive at the flowering stage very soon, while *Cattleyas* require a long time. The seeds of *Calanthes* will ripen in five months from the time of hybridising, and the young plants will appear within a month or six weeks from the time of sowing the seeds. *Phajus Cooksoni*, the most beautiful hybrid yet raised in this genus, was produced in Mr. Cookson's garden at Wylam-on-Tyne (where seedling Orchids are so well grown by his gardener, Mr. Murray) by crossing *P. Wallichii* with the pollen of *P. tuberculosus*. The flowers of *P. Wallichii* were fertilised on March 26, 1887. The seeds were ripe and sown December 16 of the same year. The first flower-spike was produced in February, 1890. In an excellent paper read by Mr. Harry J. Veitch before the Fellows of the Royal Horticultural Society in 1885, and subsequently published by the society in the *Journal* (vol. vii., No. 1, page 22), there is much useful and original information upon fertilising and raising seedling Orchids. He there states that the average length of time from the sowing of the seeds to the flowering of *Cattleyas* and *Laelias* is from ten to twelve years. The shortest period known was in the case of *Laelia triophthalma*, the seeds of which were sown in 1875, and the first plant flowered in 1883. *Laelia caloglossa* was raised from seeds sown in 1858, and the plants raised from this seed flowered for the first time in 1877. All the leading amateur and professional cultivators of Orchids now raise seedlings from crosses made in their own gardens. We may soon have some enterprising firm offering Orchid seeds in packets as in the case of Carnations and Cinerarias. There is no reason why this should not be done. Capsules full of seeds can easily be obtained, although the seeds are not always of good quality, but the quality can readily be tested by placing the seeds under a microscope. It is usual to sow the seeds as soon as ripe, and this method of dealing with them is doubtless the best.

There is some difference of opinion as to what constitutes the best seed bed for Orchids, but the most successful raisers sow them on the surface of the compound in which the parent plants are growing. The seeds in tens and hundreds of thousands are shaken out of the capsules as soon as they ripen and burst open, and they will vegetate sometimes on the spot one would least expect, and fail where they are apparently the more

likely to succeed. So far as our knowledge has yet extended, *Cypripediums*, *Dendrobiums*, *Calanthes*, *Laelias*, *Cattleyas* and *Phajus* are the easiest genera to deal with. The most difficult are the *Odontoglossums*. We have evidently not yet found the right seed bed for the seeds. There is no difficulty whatever in obtaining well-ripened capsules and apparently good seed sometimes, although much of it appears to be worthless. I have made many crosses and obtained good capsules each time and sometimes good seed, but have obtained no plants. Mr. Cookson, of Wylam, is, I believe, the only hybridist in England who has been successful in raising young plants from *Odontoglossum crispum* crosses. The account of Mr. Cookson's work was given by himself in *THE GARDEN* of February 10, 1883. The pollen parent was Chesterton's variety of *O. crispum*, but as he obtained capsules upon *O. gloriosum* and *O. Uro-Skinneri*, he was not sure which of them was the seed-bearer. Within the last four years seedlings have, I believe, been obtained from *O. Pescatorei* and *O. triumphans*, verifying the supposition that *O. excellens* was a natural hybrid between those two species. Crosses have also been obtained of the *O. vexillarium* (*Miltonia*) type by artificial fertilisation. Intending hybridists should ignore failures; they are sure to have many. The only way to obtain anything like a fair measure of success is to continue to make judicious crosses, ripen plenty of capsules, sow plenty of seeds in what may be supposed would be the most suitable positions. For instance, if the desire is to obtain seedling *Cattleyas*, I would grow the most ordinary varieties of an easily obtainable species, such as *C. Trianae*, for instance, in small pots, and use the surface of the peat and Sphagnum compost to sow the seeds upon, and if one lot of seeds failed, try another. The plants, being of but little value, might be sacrificed to the seeds or seedlings. As soon as the seedling plants have fairly developed small leaves and roots, they may be planted out in very small pots made on purpose.

J. DOUGLAS.

SHORT NOTES.—ORCHIDS.

Cattleya Forbesi comes from "W. G." for a name. It is nearly seventy years since this was received by the Horticultural Society from Brazil but its small flowers and want of colour have not commended it to the present race of Orchid growers. —W. H. G.

Cattleya O'Brieniana—I saw this plant in bloom last season, and although it bears a decided resemblance to *C. Loddigesii*, the soft satiny rose of its large flowers renders it quite distinct. It is a very beautiful variety, and shows there are some good new *Cattleyas* yet to be found in the Brazils. —W. H. G.

Brassavola glauca comes from J. Hall, who recommends it for its fragrance. It is true it is very sweet-scented at some time in the day, but the flowers sent have none of the fragrance claimed for them. There are many showier flowers equally sweet. Nevertheless, it is a distinct plant, and should be grown by all having room for it. —W.

Odontoglossum triumphans.—I have just received a beautiful variety of this species, which does not appear to have found so much favour in England as it deserves. Some years ago I saw in Brussels at M. Linden's nursery some extraordinary forms of this plant; the flower before me is not very large, but the colours are rich and well defined. —W.

Cœlogyne pandurata.—Lucien Gerall sends me a flower of this species from a plant brought home last year from Borneo, asking its name, and if it ever bears more than two flowers on the spike. When established, it will produce a many-flowered raceme a foot or more long. The green and black in the flower are very marked, and I consider it a very good form of the plant. It must be kept very moist and warm. —W. H. G.

Cattleya Lawrenceana.—This fine *Cattleya* comes in very good variety from the Rev. E. Handley, Bath, thus adding another one to those that are flowering this species in the early spring months. The flowers are of about the usual size, the petals slightly streaked at the tip, and the lip

a rich maroon-purple, deeper at the mouth of the throat, which is white. This represents a good average variety of the plant.—W. H. G.

NOTES OF THE WEEK.

Chionodoxa Lucillæ promises soon to become a weed in the garden. It seems to be seeding everywhere, and comes up most mysteriously in all out-of-the-way corners. Where bulbs are coming up amongst other plants lift them and plant in the turf, where they do well and form a most beautiful picture.

Dog's-tooth Violets.—The Dutch varieties of the above plants flowering just now in the rockery at Kew surpass anything we have ever seen in this way before. The tufts seem well established, and the flowers are unusually large, varied, and brightly coloured. The beautifully mottled leaves are also very attractive, and greatly help to enhance this group of charming spring flowers.

Fire on Stanmore Common.—A disastrous fire raged on Stanmore Common on Sunday afternoon. This is one of the most natural and rural of all London's suburban playgrounds, the dense growth of brushwood being in many places as impenetrable as that of Epping Forest. Spite of the efforts of the Pinner Fire Brigade and of a large number of volunteer helpers, some 25 acres of this growth were destroyed.

Narcissus Santa Maria.—The most beautiful to my mind of all the Daffodils raised or introduced within recent years is that named by Mr. Barr Santa Maria, the name of the locality near where he found it growing. It appears to be an extremely robust, free-growing species, and promises annually an abundance of flowers equalled in depth of colour by those of no other trumpet Daffodil. If it continues as it promises, it will yet be one of our finest and most popular spring bulbs.—K.

Primula rosea from the Himalayas is nearly at its best now, the dwarf tufts of brilliant rosy-carmine flowers being very striking. It is a moisture-loving species, and in its native habitats is always found with its toes in the water, so to speak. A bog or close to a little stream is certainly the best place for getting a good display from this grand species. In such a position it has shed its seed far and near and formed quite a colony, always strongest and earliest near the water. The variety *grandiflora* is a decided advance on the plant first introduced, the flowers being larger, of a deeper colour, and more effective.

Bulbs at Haarlem.—Hyacinths are now in fine flower at Haarlem, Holland, and will be at their best during the Easter holidays. The public sales of Hyacinths begin on April 19, and will be held every day till the beginning of May. The show beds of Hyacinths and Tulips at Messrs. Krelage's nursery will be opened on Easter Sunday. Admission daily from 10 to 12 a.m. and from 2 to 4 p.m. The show will probably be open till the middle of May, but it will be at its best during April. A pamphlet containing historical notes on the Dutch show bulbs and the names of the varieties exhibited has been issued.

A note from Egypt.—Admiral Blomfield, with whom we last year made a pleasant excursion to a locality in Egypt where there was abundance of the beautiful single form of the garden Ranunculus (*R. asiaticus*), writes to us under date Alexandria, March 12:—

You will be interested to learn that on the very day on which we made our successful expedition last year I took some lady friends to Mariut this one; but, alas! what a contrast! Where last year you saw waving green fields of Barley gilded on every side with the yellow Daisy (*Chrysanthemum coronarium*), and gay with the scarlet and yellow Buttercups and other flowers, we found almost a desert, with here and there 2 inches or 3 inches of scrubby Barley, which looked as if there would be no further development. At Mariut itself we found, after much hunting, two Buttercups (one red and one yellow) not the size of a florin; Irises and Gladioli in plenty, but only

half their usual size, and Grape Hyacinths, but scarcely another flower—all this the result of an almost rainless winter. "Mafesh sheetah" (there is no winter), said the poor Bedouins, and looked quite sad. At Ramleh it is the same thing wherever there is no artificial irrigation. I shall be interested to learn how your Buttercup seed and roots came up. Our two consignments of ladybirds from California have, I am sorry to say, both proved failures, all the insects having died on the way, but I am just now expecting another. The scale (*Crossosoma*, or *Icerya oga*) has been terrible this summer, committing serious havoc in our best gardens.

Lilium longiflorum Harrisii going blind.

—Herewith we send a bulb of *L. longiflorum Harrisii* which has gone blind. Most of our stock are very healthy and flowering well, but a few have gone like the accompanying bulb. Can you suggest a cause? The plant appears healthy from the base to the top, excepting the buds.—COLLINS BROS. & GABRIEL.

* * * Have any readers of THE GARDEN experienced the same difficulty with this *Lilium*?—ED.

The Daffodils in the wild garden at Kew are really splendid just now. They are well worth a journey to see. *Variiformis*, *pallidus præcox*, Countess of Annesley, and double *Telamonius* form large sheets of the brightest yellow and sulphur, and present a very imposing picture. This style of gardening, which we notice is being extended at Kew, is very popular with the visitors. After all, this high appreciation by the general public of natural gardening speaks volumes for the tastes of the masses. It is the least troublesome of all phases of gardening, and a source of great beauty and much real pleasure. Hepaticas, Hyacinths, Crocuses, and Tulips growing naturally out of the turf afford a charming display which we have never seen equalled either in a public or private garden.

Gentiana verna.—May I just say that I was referring to what "Delta" said in your impression of February 27, when I supposed that Mr. Leonard held strong opinions about the efficacy of chalk. The passage runs thus: "The love of *Gentiana verna* for limestone is strikingly shown by a fact mentioned to me the other evening by my friend Mr. Selfe-Leonard that he found on visiting the Dolomite region, where limestone and granite formations are so very oddly mixed together, that it is abundant on the limestone, but that when he came on the granite formation it was absent," and the inference that was made from it ran as follows: "As it is a lime-loving plant, we must take care that we have lime or chalk in the soil."—H. E.

Primula Clusiana.—A large tuft of this is making a fine display on the Kew rockery at present, the numerous rosy-purple flowers and bright green foliage being very effective. This is one of the best species for grouping on the rockery; it is one of the most robust growers and abundant flowerers, and of all the species suffers least from fog, &c. *P. alpina*, *calycina*, *Kitaibeliana*, *intermedia*, *biflora*, and *Heeri* are a few of the European kinds that may be safely planted out, and from which may be expected better results than if carefully guarded in a cold frame. They require, however, a free sandy soil, and should be planted on slopes or ledges of rocks so as to guard against moisture collecting about their necks. They all ripen seed freely and the stock should be kept up by repeated sowings.

Magnolia conspicua (Yulan).—This is without doubt one of the most beautiful spring-flowering trees we have, and a plant some 35 feet high and of proportionate width is now fast opening its flowers in the gardens at Gunnersbury House. Its Lily-like white flowers diffuse a fragrance all over the garden, and when we say that there are now over 500 blooms fully open and quite as many in the bud, readers of THE GARDEN will be able to form an idea of its intrinsic beauty. Fortunately, this year the frost has kept away, and thus the flowers have opened in all their purity. The flowers when cut last several days in perfection, and as only a portion are open at one time, the tree is a source of beauty for a fortnight or more. Strange to say, there is no demand for the flowers in the market.

A plant of this is now also in fine flower in the gardens at Syon House.

—This is one of the most attractive hardy shrubs flowering at the present time, and the fine, bright dry weather we have lately experienced has enabled the flowers to develop to perfection, no rain having fallen to mar their purity. This *Magnolia* thrives fairly well in an open shrubbery, but to have it in perfection it should be planted on a south wall, where the wood gets thoroughly ripened. A rather light, dry soil suits it best, and if the wall or building against which it is planted is a lofty one, so as to ensure room for continual extension, this *Magnolia* will continue in a satisfactory state for many years.—ILEX, Warwick.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

APRIL 12.

THIS meeting was unquestionably the best held this year, although the weather was none too favourable for bringing out tender exotics. The hall itself was uncomfortably cold, owing no doubt to the fall in the temperature outside, such unforeseen occurrences being under present conditions quite unavoidable. Orchids were in strong force, many excellent things both new, scarce, and old being shown, *Vandas*, *Dendrobiums*, and *Cypripediums* being present in profusion. Especially noteworthy were a fine plant of *Vanda Denisoniana*, several of the beautiful *Dendrobium Phaleopsis Schroederianum*, and the first plant in flower of the new *Cypripedium Chamberlainianum*. The *Amaryllis* made an excellent show; so did the *Narcissi*, amongst which were several hybrids both interesting and beautiful. Pot Roses and cut blooms made a beautiful display; the plants, through being arranged upon the floor, looked far more effective than when placed upon stages. Cape and New Holland plants in profuse flower well indicated their great usefulness when well cultivated. The competition in the classes for Daffodils was much better than on previous occasions.

Orchid Committee.

First-class certificates were given to—

CYPRIPEDIUM CHAMBERLAINIANUM, which was for the first time shown in flower. It proves to be quite a distinct species. The size of the one expanded blossom must not be taken as a criterion of its true dimensions, which in the dried specimens are about 4 inches in diameter. The plant shown being an imported one could not be expected to yet have assumed its full vigour. The pouch is quite distinct, of a rosy-purple colour, the petals being freely spotted. A full description having been so lately given, no further remarks are now necessary. From Messrs. Sander and Co.

CYPRIPEDIUM LAWREBEL (*Lawreanum* × *bellatulum*).—This fine and distinct hybrid has the foliage of *Lawreanum*, but the colour of the flower is much darker than in either. This throughout is of a shining vinous purple, the proportions of the flower very fine; the dorsal sepal large and striking, the petals broad, with darker veins. From Sir Trevor Lawrence.

Awards of merit were given to—

DENDROBIUM EURYCLEA (*Wardianum* × *lituliflorum*).—A fine hybrid, with flowers of the size of those of the finest type of its first-named parent, but darker in colouring, and more nearly approaching a bright form of *D. nobile*. The lip has a distinct and well-defined blotch. It is from the opposite cross to that of *D. micans*, another Veitchian hybrid also shown. From Mr. C. Ingram, Godalming, and Messrs. Veitch and Sons.

ODONTOGLOSSUM PESCATOREI VAR. LINDENIÆ.—A handsome variety of this well-known *Odontoglossum* with flowers of extra size, more nearly approaching *O. crispum* in this respect; the blossoms are sparsely spotted with rosy-purple, the plant of vigorous growth. From Messrs. Linden, Brussels.

CYPRIPEDIUM SWINBURNIANUM.—This appears to be quite distinct, having flowers of a dark

greenish yellow with darker veins and spots, the plant of dwarf growth and sturdy. From Messrs. Heath and Sons, Cheltenham.

LÆLIO-CATLEYA MARRIOTTIANA (C. Skinneri × L. flava).—This hybrid has much the habit of *Lælia flava*, with a faint trace of colour in the flowers, one spike producing as many as ten blossoms. The bulbs resemble those of C. Skinneri; the flowers as they gain age have also the trace of its colour. From Sir William Marriott, Blandford, Dorset.

Botanical certificates were given to—

BULBOPHYLLUM SILLEMIANUM (a bright yellow species) and *Masdevallia Wendlandi*, quite a diminutive, but curious species. From Sir Trevor Lawrence.

A cultural commendation was awarded to—

ODONTOGLOSSUM CERVANTESI DECORUM, a beautifully flowered example with four spikes and numerous flowers. From Mr. C. J. Lucas, Warnham Court, Horsham. From the same exhibitor also came *Odontoglossum luteo-purpureum*, with a long spike of flowers; also *Angræcum Sanderianum*, with long racemes of its curious white blossoms, and a small plant well flowered of *Saccolabium ampullaceum* (silver Banksian medal).

From Mr. H. J. Elwes, Colesborne Park, Gloucester, came a remarkably fine specimen of *Vanda Denisoniana* bearing nine large spikes of its pale creamy-white flowers (silver Banksian medal). From Messrs. B. S. Williams and Son, Holloway, came several well-grown specimens of *Vandas*, consisting of good forms of *V. suavis* and *V. tricolor*, one form of the latter called the Glen var. being a decidedly distinct kind. The splendid hybrid *Cypripedium Morganæ*, with extra large flowers, was also shown here; likewise several well-flowered examples of *Dendrobium Wardianum* of the best types. A few choice kinds of *Odontoglossum* were also staged, as *O. crispum Trianae*, *O. Coradinei superbum* and *O. sceptrum*, with *Oncidium superbiens*. *Ada aurantiaca*, *Cattleya Lawrenceana* and *C. Mendeli* (well flowered), *Odontoglossum Edwardi* bearing two good spikes, also a fine plant of *Cypripedium Schröderæ* with two well-developed flowers, deeper in colour than usual; *Mesospinidium vulcanicum grandiflorum* (a good form) and *Dendrobium Findlayanum* made up an excellent group (silver Banksian medal).

From Messrs. Sander and Co. came a smaller group of choice things, amongst which were several plants of the lovely *Dendrobium Phalænopsis Schröderianum* displaying great variety in the colours, the darker kinds rich in colour, the lighter ones extremely beautiful, several spikes bearing seven and eight flowers each. *Grammatophyllum Measuresianum* bore a long spike of its pale greenish yellow flowers freely spotted. *Selenipedium hybridum nitidissimum* (caudatum roseum × *conchiferum*) bore three flowers of extra size with tail-like appendages a foot or more in length; a fine hybrid. The old, but still beautiful *Oncidium ampliatus majus* with its brilliant yellow flowers was well shown; also *Angræcum sesquipedale* with large blossoms. Other good things consisted of *Stanhopea nivea*, *Dendrobium Farmeri virginale*, with several good *Odontoglossums* and *Masdevallias* (silver Banksian medal).

Sir Trevor Lawrence also showed *Cypripedium Elliottianum* in fine condition, the spikes bearing several each of the distinct and singular-looking flowers. *Cypripedium Lawrenceanum* bore extra fine flowers, and *C. bellatulum* also, but as usual close upon the foliage; a distinct looking hybrid *C. Peetersianum* (lævigatum × *barbatum*) bore two flowers with broad, drooping petals; another hybrid, *C. Clovenfords* (Veitchi × *lævigatum*) bore some resemblance to a good type of *C. barbatum*, but with broader petals; *C. Fraseri* (hirsutissimum × *barbatum*) has flowers of a deep bronzy purple, being a distinct-looking hybrid. *Odontoglossum crispum pardalinum*, an extra choice form, was in fine condition. In *Chrysostoma crassifolium* was to be seen a singularly handsome Orchid with minute flowers borne upon a dense spike, the colour white with pale lilac markings (silver Banksian medal).

Mr. Le Doux, East Molesey, showed *Odontoglossum Roezli*, a very fine variety, with other kinds, and *Cattleya citrina* and *C. citrina virens* with pale greenish yellow flowers (silver Banksian medal).

Messrs. Low and Co. had a group of small plants, amongst which were a fine variety of *Vanda suavis*, with *Cattleya intermedia amethystina*, *Angræcum sesquipedale*, *Lycaste plana Measuresiana* with fawn-coloured flowers, also other good things. From Mr. Wythes, Syon House, came a freely-flowered plant (the same as shown last year) of *Dendrobium thyrsoiflorum*, bearing seven long racemes of flowers. Messrs. Linden had *Odontoglossum triumphans chrysanthum*, a pale form, but very handsome; also *O. Cervantesi decorum*, a superior variety. From Baron Schröder came cut specimens of *Odontoglossums* of the choicest kinds; these consisted of *O. Leeanum*, *O. Ruckerianum*, *O. triumphans* and *O. crispum*; each of these spikes was extremely fine. Messrs. F. Ross and Co. showed *Dendrobium Falconeri nobilissimum*, the blossoms of extra size and deeper in colour than those of the type, the golden ray around the dark blotch on the lip being quite marked. Mr. Measures, Cambridge Lodge, Camberwell, showed *Cypripedium insignis siamense*, a newly-imported form, received from the Straits Settlements in 1891; it is quite distinct and pure in its markings, but the flowers small. This feature may be overcome with more vigour. A well-bloomed example (five spikes) of *Cattleya Lawrenceana* came from Mr. Hanbury Tracy, Amyand Park, Twickenham, the colours richer than usual, and Mr. Cooke, Kingston Hill, showed *Dendrobium Wardianum*, an extra fine variety with broad petals. From Messrs. Veitch and Sons came *Dendrobium atro-violaceum* (New Guinea), a species with a dark-coloured lip, the other parts with dark spots on a lighter ground. *Dendrobium micans* (previously alluded to) was also exhibited; also another beautiful hybrid, *D. Adrasta* (Pierardi × *superbiens*), the flowers having more colour than those of *D. Pierardi*.

Floral Committee.

First-class certificates were given to—

RHODODENDRON CAMPYLOCARPUM.—A species of very distinct character; the truss of flower of medium size, bearing nine fully expanded blossoms of bell shape, each one about 1½ inches across, the colour a pale lemon-yellow. From Mr. R. Veitch, Exeter.

TECOPHYLEA CYANOCROCTUS.—A Chilean spring-flowering bulb of dwarf growth (introduced in 1866 and figured in THE GARDEN, July 16, 1881), with flowers of a deep blue colour, also sweetly scented. From Messrs. J. Laing and Sons.

UTRICULARIA HUMBOLDTI.—A distinct form of the Bladder-wort, with flowers larger than those of *U. montana*, but of a pale lavender-blue colour, a beautiful variety; the spikes are long and slender, the foliage broad, and of considerable texture. From Baron Schröder.

U. LONGIFOLIA.—Quite distinct in habit from the foregoing, with smaller flowers of a pale mauve shade, the spike short and erect, the foliage long and narrow; a lovely variety. From Messrs. Sander and Co.

Awards of merit were given to—

AMARYLLIS CRIMSON KING.—A variety with self-coloured flowers of an intensely deep crimson shade (a rich colour) and of good shape. From Messrs. Veitch and Sons.

AMARYLLIS FIREBRAND.—A strong-growing variety with a full spike of white-edged flowers, reticulated with a brilliant scarlet colour and lighter veins. From Messrs. Paul and Son.

Mr. W. Rumsey, Joyning's Nursery, Waltham Cross, had a beautiful group of dwarf and semi-standard Roses in pots and two boxes of cut Tea-scented kinds. These made a good display. The best of the pot plants were *Souvenir d'un Ami*, *Lady Mary Fitzwilliam* (extra), *Niphetos*, *Violette Bouyer*, *Marquise de Castellane*, *Maréchal Niel*, *Ulrich Brunner* (fine flowers), *Hon. Edith Gifford*, *Mme. Hoste*, and *Catherine Soupert*. Of the cut blooms the following were especially noteworthy:

Maréchal Niel, *Niphetos* (a boxful of splendid flowers), *Marie Rady*, *Grace Darling* (extra), *Hippolyte Jamain*, *Senateur Vaisse*, *Souvenir d'un Ami*, *May Rivers*, and *Princess Beatrice*, a beautiful shade of pale apricot, quite an acquisition to the Tea-scented kinds (silver-gilt medal).

Messrs. H. Low and Co. had a group of Cape and New Holland plants in most profuse flower. The *Ericas* consisted of dwarf bushes of *Cavendishiana*, *ventricosa coccinea minor*, *ventricosa superba*, *perspicua nana*, *persoluta alba* and *candidissima*, with excellent examples of *Boronia heterophylla* and *B. megastigma*, *Polygala Dalmatiana*, *Pimelea spectabilis*, *Aotus gracillima*, and a beautiful form of the Bottle-brush (*Metrosideros floribunda*); also *Hederoma tulipifera* and *Epacris Eclipse*. These were all excellent types of decorative plants (silver Flora medal).

Messrs. B. S. Williams and Son sent a large group of well-grown plants of *Amaryllis* of an excellent strain, the vigorous growth being an important feature; the best were *Dazzle*, a bright crimson; *Mrs. Morgan*, a dark crimson with light edge; *Mr. C. Welford*, fiery crimson with distinct rays; *Lothair*, a lighter shade of colour; *Princess Victoria*, with maroon veins on a light ground, and *Crimson Banner*, a very robust kind with eleven flowers on two spikes; also *Clivias* of the choicest kinds, as *Ambrose Verschaffelt*, truss extra fine; *Surprise*, with brightly coloured and well-formed flowers, and others (silver Banksian medal). Sir Trevor Lawrence sent a magnificent collection of cut examples of seedling and named *Anthuriums*, many of these being very superior varieties; the finest were *A. Scherzerianum latifolium* (7 inches by 5 inches); *A. S. Palmeri*, an extra long spathe (9 inches by 3 inches); *A. S. Hendersoni* and *A. S. Wardi*, both very fine; *A. Rothschildianum* and several seedlings of considerable variability, but in the same way, some with a large amount of ivory-white, others more of the crimson shade, but all fine forms; *A. S. parisienne*, a pale terra-cotta pink shade, quite distinct. There were also several of the larger forms; of these, *A. mortfontainense* and an ivory-white variety with large spathes were the finest (silver Banksian medal).

Messrs. Cutbush and Son sent a group of *Daffodils* in pots, as *incomparabilis Figaro*, *Sir Watkin*, *Glow*, *maximus*, and *odoratus*, all suited for the purpose. With these were *Erica Cavendishiana* and fine-foliaged plants to harmonise with the *Daffodils*, as *Ophiopogon Jaburan variegatus*, *Dracæna Lindenii*, and others (bronze Banksian medal). Messrs. Laing and Son showed a pretty basket of *Primula denticulata*, surrounded by the double forms of the garden *Primrose* of various shades. Mr. Leach, Albury Park, Guildford, showed several pots of *Lily of the Valley* (home-grown roots); the growth and spikes were all that could be desired, the bells of large size. With these were a dozen or more pots of well-grown *Mignonette* of the best kinds; two of the finest were *Her Majesty* and *Princess of Wales*, the former with a dense spike, the latter being more slender; in both the growth was vigorous. Messrs. Carter and Co., High Holborn, had a basketful of a pure white *Cineraria*, which promises to be a useful variety. From Mr. Harry Turner came a basketful of extra fine flowers of *Niphetos Rose*. Messrs. W. Paul and Son showed several new *Roses* in flower; the best of these were *White Lady*, *Spenser*, a soft pink, very large and full, after *Baroness de Rothschild* in habit; and *Waban*, a Tea-scented of a distinct shade. Messrs. Paul and Son showed good examples of *Magnolia stellata* in good flower, with early spring flowers, as *Adonis vernalis*, *Primula rosea*, *P. denticulata*, *Caltha palustris fl.-pl.*, *Gentiana verna*, and *Geum aureum*. Messrs. Veitch and Sons had good examples of their new *Magnolias*—*M. stellata Halleana*, a pale blush, and *M. s. rosea* of a deeper shade, two fine hardy shrubs.

Narcissus Show.

The first prize for twelve varieties of cut *Daffodils* was awarded to Mr. H. Berkeley James, The Oaks, Carshalton; these were well set up and easily first, the best being *Grandee*, *Nelsoni major*, *Empress*, *Sir Watkin*, *Horsfieldi*, *Barri* conspicuous, and maxi-

mus, the blooms of superior quality; 2nd, Rev. J. E. Bourne, Dunston, Lincoln. For nine kinds there was no entry. For six sorts, Mr. H. J. Adams, Roseneath, Enfield, was first, showing Henry Irving, Empress, and tortuosus in good form; 2nd, Rev. G. P. Haydon.

For Messrs. Barr's prizes the first prize was awarded to Rev. J. E. Bourne, who showed Golden Spur, cernuus, albicans, Queen Bess, and other good kinds; 2nd, Mr. A. Kingsmill, Harrow Weald, Stanmore. The best and most comprehensive collection in this class was passed over for some reason; it comprised fifty-five varieties, all well set up in Moss; the best were incomparabilis Gwyther, Ajax, W. P. Milner, Leedsi Minnie Hume, Sir Watkin, Leedsi Catherine Spurrell, and Ajax variiformis; this omission to recognise the undoubted merits of this collection is an unfortunate circumstance.

Messrs. Barr and Son were awarded a silver Banksian medal for an extensive display of the best and most useful kinds of Daffodils, staged in their usual style, the flowers extra fine and fresh; the following were especially noteworthy, viz., Leedsi Madge Mathew, incomparabilis Beauty, tortuosus, Horsfieldi, Maurice Vilmoren, cernuus, Mrs. H. J. Elwes, Her Majesty, and the Campernelle.

Fruit Committee.

There were very few exhibits before this committee, Strawberries and Tomatoes being the chief things shown. The Duke of Northumberland, Syon House, Brentford (gardener, Mr. Wythes), sent two large boxes of Strawberries of great merit, the varieties being Vicomtesse Héricart de Thury (cultural commendation) and a seedling very much like Keens', but of much dwarfier habit and a great bearer. Plants bearing green fruit not thinned were also sent to show habit and free bearing. Some of the committee thought the variety much resembled Alice Maud, but it is stated to be distinct from that variety, being more prolific, and may be termed a dwarf Keens' Seedling. This variety will be shown later from the open ground to test its qualities thus grown. Seedling Cucumbers, crosses between Syon House and Telegraph, and Veitch's Improved and Telegraph, were also sent from Syon House. These were rather short, smooth, and with little neck and few spines. They were thought too small for general use, but are excellent for private gardens. Three good dishes of fair-sized fruits of Tomato Satisfaction were shown by Mr. R. Gilbert, High Park Gardens, Stamford.

The Rev. G. P. Haydon in his lecture said that Daffodils were now largely grown, but few persons went to the root of the matter and knew the trouble and pains taken to grow some of the kinds. The Narcissi were looked upon as only requiring ordinary means to cultivate them, whilst those who grew them knew of the difficulties before good results could be secured. He was not a botanist and did not intend to give a list of names confusing to his listeners, but would rather relate his experience as to culture. Narcissi should not remain too long in one place; he gave three years as the longest time. On the other hand, they should not be planted with other spring-flowering bulbs, as the Daffodil should have room and not be robbed by its neighbours. Those who had room should grow them on the flat, especially the stronger varieties, but some of the minor and nanus sections in cold wet districts required protection, and here the use of rock-work was invaluable. Some of the Narcissi liked heavy soil, others light sandy soil. He did not think it worth while to save the commoner forms after forcing, as good well-matured bulbs could be purchased cheaply; indeed, growers should purchase more liberally, as the Narcissi made our homes gay at a season of the year when there was a scarcity of flowers. Expensive bulbs needed more care as to soil and situation, and often when failures occurred it was laid to the gardeners when the soil and situation were at fault. A variety should never be condemned till it had been on trial a couple of years or more, and even then change

of soil and situation should be tried before giving it up altogether. When purchasing new kinds it is well to know from what source they come and how they have been grown, soil and aspect being considered and imitated as far as possible. He recommended growers to grow those kinds well that suited their soils. He was much against adding to varieties for sake of variety, and condemned having so many superfluous kinds with so little difference, as often change of soil caused variations in size and colour. He did not believe much in sports; he thought they were nearly all seedlings, and to get them required much patience and time. He then gave the best method of fertilising and raising new kinds, and stated that it was often necessary to fertilise as many as a dozen flowers to get one good form, and even then good results were not always obtained, as many seedlings came inferior. Varieties with good constitutions should be chosen for parents. Seed should be sown as soon as ripe in a frost-proof frame, protected from heavy rains, and the pans sunk into the soil. Seedlings required much patience, as it was five years before they flowered. When exhibited, Narcissi should have ample foliage and not be arranged too stiffly. Some types were too tender for market work. In referring to the enemies of Narcissi, one of the worst was rust, which he considered was caused by superfluous moisture. He used dry slaked lime as a remedy, and the others, such as fly, he destroyed whenever visible. In all cases packing from unknown sources or abroad should be destroyed, as often it contained larvae of the caterpillar. He also wished to enter a strong protest against bulb hunters. A law should be made to protect our wild species. Some took the bulbs for gain, others for amusement, but it was time to check this, or our wild species would soon be extinct.

Mr. Morris said Mr. Haydon had given them an excellent paper, and though his remarks as to collectors would be difficult to carry out, some restriction was necessary, and as often the species collected could be bought at our own doors for a few pence, it was wanton destruction to destroy them in their native habitat. Mr. Wilks said he only grew thirty-three varieties to Mr. Haydon's fifty, and he was most successful with the white trumpet Daffodil. His soil was sandy with a lot of stones in it, and he moved his bulbs every year. To this cause he attributed his success. He lifted all his bulbs the first week in July and planted again in the first week in September. He, like the lecturer, wished more people would cultivate the smaller flowers and not grow so many coarse varieties, as though Emperor and Sir Watkin were beautiful, they should not oust the choicer kinds. This season had been a very bad one for Narcissi, and he put it down to severe changes in the weather.

PUBLIC GARDENS.

Marion Park.—On the motion of the Parks and Open Spaces Committee, the Council authorised the committee to incur an expenditure of £750 on capital account for carrying out works and forming paths in Marion Park.

An open space for Birmingham.—A large piece of waste ground in the district of Newtown Row, Birmingham, and known as the Old Pleck, was on Saturday afternoon opened as a recreation ground by the mayor. The land was formerly owned by the Guild of the Holy Cross. Birmingham now possesses four recreation grounds and eight public parks, with an aggregate area of 340 acres.

A proposed new open space.—The Parks and Open Spaces Committee reported that they had had under consideration for some time past the question of acquiring a portion of the site of Millbank Prison for an open space. They had received a communication from the local authority, the Vestry of St. Margaret and St. John, Westminster, offering to contribute one quarter of the cost of purchasing 10 acres of the ground. They thought

it desirable, however, before proceeding further in the matter that the Council should decide the question of how much it would be prepared to contribute, if at all. With this view they recommended—

That the Council do address a communication to the Vestry of Westminster, to the effect that it is not prepared to take into consideration any scheme for the acquisition of ten acres of the site of Millbank Prison for the purpose of an open space which does not provide for half the purchase money being found by the local authorities or by private persons. The recommendation was agreed to.

The Law Courts Garden.—The piece of ground running alongside the Law Courts opposite St. Clement's Church has lately been thrown open for the benefit of the public. The juvenile portion of the community have not been slow to avail themselves of the privilege, and numbers of children may daily be seen disporting themselves on what was once a grass plot, but which is now almost denuded of all its greenness. The corresponding piece of ground facing the new Bankruptcy Court is now in process of being levelled, and will, it is understood, be turfed over and planted with trees. Could it be made available for the use of the juveniles inhabiting the surrounding squalid districts, it would be a great boon to those poor children.

Open spaces.—At the monthly meeting of the Metropolitan Public Gardens Association, held on Saturday, at 83, Lancaster Gate, W., Mr. F. D. Mocatta, vice-chairman, presiding, it was announced that under the will of the late Sir Charles Wingfield, K.C.S.I., £100 had been left to the association, being the first legacy it had obtained during its nine years' existence. It was reported regarding the Hilly Fields scheme, S.E., that the County Council had asked the joint committee to add 4 acres of glebe land to the 41 acres which it was proposed to acquire; that the Vicar of Lewisham had agreed to part with this area on very favourable terms; and that a sum of about £6000 was still required to make up the purchase money. A hope was expressed that the Lewisham District Board would reconsider its decision not to contribute anything. The secretary stated that Mr. R. Benyon had very kindly contributed £50 for a drinking fountain at De Beauvoir Square, N., the laying out of which ground had been undertaken by the association; and that the faculty having been granted, a start had been made at Spitalfields Churchyard, E. Seats were granted for the Horse-monger Lane Gaol recreation ground, S.E., and for the Barking Road, Canning Town, E., and it was decided to urge the County Council to take up the case of the Fulham Town Meads or Lammas Lands, S.W. A plan with estimate was approved for the laying out of Goldsmith Square, E., prepared at the request of the Shoreditch Vestry, which it was agreed to forward to that body, and it was considered desirable to take steps to secure St. Thomas Square, Hackney, E., and several other grounds, for public use.

Death of Mr. James Smith.—A card informs us of the death of Mr. Jas. Smith, of Darley Dale Nurseries, in his 83rd year, on March 29. He was one of the best representatives of our provincial nurserymen, a fine sturdy type of man, whose interesting nurseries near Matlock are well known to many readers.

Names of plants.—W. J. M.—*Habrothamnus elegans*.—G. B. W.—1, *Lycaste Skinneri*; 2, *L. Harrisoniae*; 3, *Vanda tricolor insignis*.—B. Thomas.—1, *Davallia pallida* (Mooreana); 2, *Actinostachis australis*.—H. C. W.—1, *Cymbidium Lowianum* (poor variety); 2, *C. sinense*; 3, *Cypripedium purpuratum*.—J. Jobson.—*Oncidium sarcodes* (very poor form).—Salop.—*Epimedium* sp.—*Dulcamara*.—1, *Narcissus odoratus campbellii*; 2, *Narcissus odoratus heminalis*; 3, *Narcissus odoratus rugulosus*.

BOOKS RECEIVED.

The American Florist Company's Directory of Florists, Nurserymen and Seedsmen in the United States and Canada.

Stein's "Orchideenbuch." Verlag von Paul Parley Berlin.

WOODS AND FORESTS.

UNDERWOOD.

It is only in exceptional cases that underwood is to be recommended in plantations grown for profitable timber. In some districts a considerable revenue may be derived from underwood, but when thoroughly looked into, it may be found that the gain is merely apparent, being to a great extent obtained at the expense of the timber crop. On the other hand, there are many neighbourhoods where there is comparatively no demand for underwood of any description; and where such is the case, growing it adds to the expense of management, and is detrimental to the standing trees. It is certain that ground cannot carry two crops at the same time without one of them suffering. Where there is a heavy crop of underwood, it must absorb much nourishment from the soil, and deprive the timber trees of a great portion of the food necessary for their healthy development. Further, the roots of underwood form a network in the soil, which should be left entirely for the spread of the roots of the trees. Another objection to the growing of underwood amongst hard-wooded trees is the amount of shade caused thereby, shutting out in a great measure sunlight and air, and thus defeating the objects of thinning plantations. In these observations I do not condemn the growing of underwood under all circumstances, but merely in conjunction with a crop of hardwood trees. It must be admitted that there are exceptional cases where it is advantageous to grow underwood in hardwood plantations, as in very exposed districts; but then only round the margins and in well-selected masses throughout the plantation. Underwood may be grown for cover in game preserves, or in clumps for ornamental purposes, and along the sides of drives or rides, but for the reasons above set forth, in most other cases it is open to serious objection. The ground should be thoroughly drained before planting, especially where there is any tendency to wetness. In most cases, open ditches are preferable in hardwood plantations. They should not be less than 2 feet deep nor more than 30 feet apart. The distances at which hardwood trees should be planted depend upon the soil and situation of the proposed plantation. In all cases it is necessary to calculate the size they are likely to attain to in such soils and situations. Trees, if planted at too great distances apart in exposed situations, are liable to severe checks from cold winds, &c., and do not attain the height they would do if planted more closely and sheltering one another. Thick planting is the safest method to adopt, provided thinning is attended to in proper time, before the trees injure one another.

X.

NATURAL REPRODUCTION OF CONIFEROUS TREES.

WITH the exception of the Larch and Scotch Fir, few coniferous trees can be said to reproduce themselves at all freely in any part of the British Isles. There are, however, exceptions, for I have noticed both the Weymouth and Cluster Pines (*Pinus Strobus* and *P. Pinaster*) coming up, perhaps not very freely, but still in fair quantity, in old woodlands where the parent trees have attained to fair proportions, and where, of course, seeds have been produced in some quantity. In looking over a mixed plantation of Scotch and Cluster Pines of nearly 100 years' growth, I was agreeably surprised to find numbers of young plants of the latter, ranging from 1 foot to fully 6 feet in height, and that unquestionably were

seedlings from the old trees, and which, having found a congenial footing, had grown away freely enough. The soil here was gravelly, with a spit of peaty matter or decayed vegetable refuse atop, and was producing, wherever the light and air admitted of such, an abundant crop of Heath, some Bilberry and native Juniper. That the quality of the soil had all to do with the growth of the old trees, and by no means scanty reproduction of their kind, will be readily discerned by everyone who has paid attention to the growth of our common forest trees. Sandy or rather gravelly soil is well known to be the most fitting medium for either of the Pines in question, and so no wonder need be expressed that good seed and a plentiful sprinkling of young plants of the same kind were to be found. In passing by some of the natural Scotch Fir plantations growing on the gravelly wastes by the railway side leading to the Woking Nurseries, Surrey, I often think that they look quite as healthy as any that I have ever seen formed even on the richest land. There the old trees, which, perhaps, were originally planted by the hand of man, produce rich crops of seed, which when transplanted by the winds to the adjoining wastes and commons, soon cover these with healthy and thriving trees. In this way, vast tracts of land have been brought under crop in this country, and even in Ireland I have often noticed that when a bit of boggy land was drained, there sprang up numberless seedlings of our native highland Pine.

How seldom, however, unless in very open woodlands, do we find seedling Scotch Pines spring up in their native woods and beneath and around their parent trees. This fact may at first appear puzzling enough, especially when we compare the case with that of the Oak, Birch, Beech or Sycamore, where the young seedlings spring up with the greatest freedom, even within a yard of the parent stem. In the case of the Scotch Pine matters are, however, widely different, as anyone who examines the soil beneath these trees, that is when they are growing in quantity, will soon find out. On top we have a layer of rather dry freshly-fallen pins, while beneath that comes a second layer of perhaps 3 inches deep of the same matter a little more decomposed, and in nineteen cases out of twenty permeated in all directions with a white fungus; indeed, to such an extent does this spread, that I have often torn up patches several feet wide of this fungus-infested leaf-soil. The seedlings at first may find a good footing in the upper stratum or layer of leaf-soil, but immediately the roots reach this fungus-tenanted medium they canker and rot off in a remarkably short space of time. This, to a very great extent, will account for the absence of young seedlings in Scotch Fir plantations, unless where large spaces of clean ground intervene between the old standards. Under perhaps peculiarly favourable circumstances I noted a few days ago in an open healthy woodland 12 miles from London quite an assortment of coniferous trees springing up freely enough amongst the parents. In this particular case the main crop of trees was composed of the Scotch, Weymouth and Cluster Pines, the individual specimens having, so as to allow of a sprinkling of the newer and rarer Conifers being planted, been thinned well out, many standing fully 50 yards apart. The open ground had quickly got covered with two species of Heath, the Bilberry and some big patches of a species of Winter-green (*Pyrola*). Amongst these have sprung up numerous healthy young trees of both the Cluster and Weymouth Pines, lots of Scotch Fir, a number of Silver Firs (*Abies pectinata*), common Yew and Juniper. The Weymouths surprised me most by their healthy fresh look and robust stems, particularly when they were growing in the more open parts of the woodland, all sizes, up to fully 6 feet or 8 feet, being noticeable. Seedlings of the Cluster Pine of fully 20 feet high were plentiful enough, while others of from 1 foot to 30 inches were likewise to be found. More curious still was it to find not one, but nearly a dozen young plants of the Lebanon Cedar growing just without the branch range of a fine old specimen. Some of these were lifted and planted in prepared ground several years ago, and

they look well and promise splendidly. The Weeping Spruce (*Abies Morinda* or *Smithiana*) reproduces itself but very sparingly, but the young plants promise well when they get well above their healthy covering.

Along the banks of a ditch that had been cut to drain the stagnant water from a tract of boggy land I have noticed nice young seedlings of the Lawson's Cypress (*Cupressus Lawsoni*), and that had evidently sprung from seed drifted by the wind for nearly a quarter of a mile—at that distance, however, the nearest specimen was growing. Neither *Cupressus Goveniana* nor *C. macrocarpa* seem to spread from self-sown seedlings, which may also be said of Prince Albert's Fir (*Abies Albertiana*) and the many species of Juniper, all of which were growing under exactly similar circumstances with the Pines above-mentioned, and which reproduced themselves so freely.

Nordmann's Fir (*Abies Nordmanniana*) and *A. nobilis* under extremely favourable conditions do not show any signs of extending their breadth by self-sown seedlings, though, curiously enough, I have more than once detected the germination of the seeds of the former whilst still in the cones and lying in damp positions beneath the trees. This looks as if they would spread freely under suitable conditions, and young seedlings may yet be produced in such a way. Of course, many of the coniferous trees of recent and not a few of long introduction have only, if at all, produced seeds very sparingly, and in some cases every seed is worthless so far as germination is concerned. Several Conifers bear pollen cones for years before a seed-bearing cone is produced, and in others the case is quite the reverse, so that perfect seeds cannot be expected. I have noticed that in Conifers from warm countries pollen cones are produced generally for several years before seed-bearing cones, and *vice versa* with those from cold countries—note the Indian Cedar (*Cedrus Deodara*) and Crimean Fir (*Abies Nordmanniana*). Another great drawback to the natural reproduction of not a few Conifers is the method generally adopted of collecting the cones, thus entirely doing away with the chances of young plants springing up naturally. Were the cones left to be matured by our winter frosts and their seeds to be disseminated by the wind, there can be little doubt that we would find many of the less common kinds striving to perpetuate their kind. It is well, however, to remember that the surroundings of a tree have much to do with its self-reproduction, an open healthy woodland seeming to afford the greatest chances of Nature's way of clothing our wastes and commons.

A. D. WEBSTER.

Alder, as a rule, is never allowed to attain a very large size before being cut down for profit, and may therefore be planted moderately close. It thrives best in a moist soil fairly sheltered, and may be planted 9 feet to 12 feet apart, filled in with Spruce nurses from 3 feet to 4 feet apart. When the ground cannot be thoroughly drained, the trees may be planted 5 feet to 6 feet apart, to avoid planting Firs as nurses.

"The Garden" Monthly Parts—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols. price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers".—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

No. 1C66. SATURDAY, April 23, 1892 Vol. XLI.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ORCHARD AND FRUIT GARDEN.

STRAWBERRIES BY POST AND RAIL.

LARGE numbers of Strawberries are grown under glass as well as in the open only to be spoilt in transit to their ultimate destination. Faulty packing is principally responsible for most of the failures to travel, and this I assert after having made every allowance for the softness of the fruit and the rough handling to which the boxes containing it are subjected. Some varieties undoubtedly travel much better than others, the fruit of Sir Joseph Paxton and Vicomtesse Héricart de Thury being among the firmest, while none are softer than Noble, yet I have had two complimentary notes already this season as to the excellent manner in which the last named arrived at its destination. One box was sent by parcels post, the other by rail, and seeing that they had to travel not less than 120 miles it was a fair test of skill in packing. As it happens, however, the distance to which the fruit has to be sent would not in my case, nor ought to in others, make much, if any, difference in the method of packing. If Strawberries will not travel well to a great distance or over a period say of about twenty-four hours, it is very doubtful indeed if they would turn out satisfactorily at the end of a dozen miles, and after only an hour or two in the box. It is next to useless to write or print "fruit" or "this side up with care" on the boxes. The packing must be done well, and then it is almost immaterial whether the boxes are handled carelessly or not. Where the inexperienced often err is in using boxes either too flimsy or too large for the fruit to be safely packed in. What is wanted are fairly strong shallow wooden or tin boxes that will not crush if a moderately heavy weight should be packed on the top of them. Cardboard boxes are not at all suitable for the purpose. They are too deep, too narrow, and too fragile, and the trifling saving in postal or railway charges effected by using them is often at the expense of the valuable contents. When, owing to the crushing of the fruit and consequent dissolving of the cardboard, only the lid or rather more of the original box and the label reach their destination (postmasters will corroborate my assertion that this often happens), the consignees at any rate must wish that less risky methods of packing had been resorted to. It falls to the lot of only a few packers to be in a position to order what light boxes they may require, but if it is not possible to have suitable boxes made, they can yet be bought very cheaply from the nearest confectioner or grocer, drawing the line at soap boxes. Nothing answers better than chocolate boxes, a common and useful size measuring 14 inches long, 9 inches wide and 2½ inches deep. Should these be too large they can easily be shortened, though if a bundle of small boxes were bought from a confectioner at one time, suitable small sizes are usually included. This kind of boxes may safely be sent by either post or rail, and, in addition to using them, I have also several strong tin boxes made specially or principally for packing Strawberries in. These are 12 inches square, and, allowing for the rim on the lid, 2½ inches deep. The largest fruit grown can be packed properly in these tin boxes, each of

which holds about 2 lbs. of Strawberries. Either these or wooden boxes to hold a single layer of fruit are preferable to any "nesting" arrangements, that is to say, cases that will hold several trays or drawers. Nor do I advise anyone to have boxes made, or to use any already in stock, with separate divisions for each fruit, but rather the contrary. Not only are divisions quite uncalled for, but it is impossible, as a rule, for the fruit to be packed in and got out of these without being damaged in some way. Strawberries can easily be prevented from bruising each other, especially if good use is made of the lids of the boxes, and it is the assistance derived from the latter that largely influences me in favour of shallow boxes, tying several of these together if need be rather than resorting to the use of trays or drawers.

Naturally, the condition of the fruit when packed has much to do with the way in which it will turn out again, and, it is almost needless to add, fruit that is dead ripe or quite soft is of little value in any case. Better the fruit be slightly under-ripe than over-ripe, not merely on account of its travelling better, but also for the important reason it is far more likely to be of good quality when eaten. It may not be possible or advisable to pack the fruit directly it is fit, and there are times when it has to be kept for several days in order that enough be available for one or more large dishes. This difficulty is best obviated not by transferring the plants to a cool house or room, this effectually checking the swelling of later fruit and not preventing the softening of the more forward, but by gathering the fruit directly it is coloured, laying it thinly in a box lined with either wadding, Moss, or wood shavings, and covering with tissue paper. If this box is placed in a cool, dry room or cellar the fruit will keep well nearly or quite a week. In any case it is advisable to either gather the fruit when it is cool and dry, or else to keep it until it has cooled somewhat prior to packing. In anticipation of packing, gather a sufficiency of large young Strawberry leaves, or better still, if obtainable, either leaves of forced Kidney Beans or young Lime leaves, the former to be flagged or softened somewhat by being placed in the sunshine or near to hot water pipes, but the others are usually quite soft enough. Select a box or boxes that will about hold all the fruit to be packed, and well line these, sides as well as bottoms, with either a sheet of cotton-wool, dry springy Moss, or the softest wood shaving or "wool," the latter being separated from the heap long enough to get rid of any woody smell that may be attached to it. The fruit must not come into contact with either of these substances, and in order to keep them perfectly clean and sweet, cover the packing material with tissue paper; wrap each fruit so that it shall rest on and be divided by it, in a single flagged or soft leaf or portion of same, and lay the whole in closely, flatly and neatly. They can be fitted together so as to present a pretty appearance. Invert more of the leaves or young Vine leaves over the fruit, cover with paper, and on the top place a layer of packing material. On the latter the lid should shut down tightly, I might say very tightly, this effectually preventing any movement of the fruit, no matter which way upwards the box may be turned, everything in fact depending upon this pressure. Never drive a dozen nails into a lid where one or at the most two small ones would suffice, getting them out again spoiling the lid and not unfrequently some of the contents of the box. String the boxes properly and they will not be tampered with. The worst ordeal Strawberries

by post can be subjected to is a long journey into the country on the back or in the bag of a postman.

The same methods should be resorted to whether the strawberries are to be packed for private use or the markets. In the latter case careful packing may make a very great difference in the prices obtained, damaged fruit being next to worthless in the markets or fruiterers' shops. I hold it to be unwise to mix large and small fruit together whether they are intended for sale or otherwise, one simply spoiling the appearance of the other, and if small ones are sent let them go as much as possible for use in the kitchen. Separate the extra fine from the medium sized fruit, and in the markets the former or the consignment will sell very much better accordingly.

W. IGGULDEN.

Gooseberries and caterpillars.—In the three last numbers of THE GARDEN I have read with interest the articles on Gooseberries and caterpillars, still hoping that someone would allude to the simple preventive by a bunch of Furze in the heart of each bush. Judging from previous correspondence in your paper, the idea may be ridiculed, but as I have found it perfectly satisfactory for the last five and twenty years at least, I do not mind that, and if any of the sceptics be inclined to give it a trial, they must give up a plot to it, putting a bunch of Furze about the size of a quart bowl in the heart of each bush when it is in full bloom and the perfume strong. It must be allowed to remain until the leaves are off the Gooseberries, as one theory is that the prickles prevent the butterflies laying the eggs in the bushes. I am inclined to think one season would not be sufficient to get rid of the pests, but it is so long since I commenced I do not recollect.—T. THOMPSON.

Protecting Strawberry flowers.—Strawberries, in common with all other hardy fruits, have been brought on rapidly by the very hot weather so long experienced, and unless something is done to protect them, there is every likelihood of the earliest blooms being caught by frosts. It is not always the extra early varieties or the earliest to flower generally that suffer the most. For instance, part of our earliest breadth of Noble escaped injury last spring, while those flowering only a few days later, this including a strong lot of Sir Joseph Paxton, were badly blackened by frosts. The loss of the earliest flowers is really a serious matter and ought to be prevented as much as possible. Those to open first are invariably the strongest, having in many instances extra long and stout foot-stalks, and it is these, and these only, that are followed by extra fine fruit, so that if the first flowers are damaged by frosts we lose what would have given us both the earliest and the best fruit. As a rule, there is little or nothing to protect the flowers, and being close to the ground a comparatively light frost cripples them, especially if they are at all damp. In my case the earliest breadths of plants are located on a warm raised border, where they can easily be roughly protected when need be. Boards, short stout stakes, and cross bars, not long since in use for protecting Endive and such like, are fixed around and over the Strawberries, and these in their turn support either old lights, wattled hurdles, mats, or any other protective material that can be spared. This timely precaution will very probably about double the value of the crop, especially if, as it happened last year, the fruit ripens at a time when it is worth 1s. 6d. per lb. I am convinced it would also pay well to lightly protect the more advanced of the plants in the open quarters. Branches of Fir or Evergreens would be a somewhat cumbersome method, but this, or, better still, boards nailed together V fashion and inverted over the rows whenever the nights are clear and cold might save many early flowers, and should commend itself especially to those amateurs who spend much time and take great interest in

their gardens. Fish netting fixed over the beds would be of slight service, but single rows or narrow breadths of plants could be well protected by having netting doubled and supported over them with a single rod or line tent fashion.—I.

APPLE DUMELLOW'S SEEDLING.

AMONG fruit, a number of names applied to the same variety is almost an invariable test of high quality. This Apple, which is also known as Dumeller's Crab, is no exception to the rule. From November to March, or even well into April, we have few or no better cooking Apples—size, quality, and colour being present. Of course the last is of little moment except for market purposes; but it really means money when we want to sell. It presents that rich shade of red and yellow that mostly distinguishes some of our finest dessert as well as kitchen Apples. In almost every private establishment a good many Wellingtons are grown. Few or no English Apples (it is a Leicestershire chance seedling) have been more popular or more profitable in our English markets. But, as "A. Y." shows on page 335, it has lately become fashionable to run down the Wellington. No one says it has not been one of our best Apples; but then it is said, like the Ribston, the Golden Pippin, and some others, to have had its day, to be worn out, and all the rest of it, though it is not more than seventy years old. Within the last few months I have been called upon to prescribe remedies for the weakness and semi-barrenness of Wellingtons in various counties and districts. Within the last few weeks I have also seen rows of Wellingtons beheaded in order to be worked with Scarlet Nonpareil, and in another case with Cox's Orange Pippin. But as to a very large extent the life of every sort begins afresh with every individual tree, the question of the age of any variety may almost be dismissed from the causes of failure. The Golden Pippin is so old, that no one knows the date of its introduction. The Ribston Pippin was known in 1770, and yet within the last two weeks I have seen trees in fair bearing condition probably a century old, and healthy young trees in tolerable plenty in different directions. For these and other reasons, and this more potent additional one, that good healthy Wellingtons abound in many directions and hold their own in quality and in price in several of our markets, I am slow to believe that this fine variety is worn out, and ought to be worked or superseded.

Of course no one could greatly object to the Scarlet Nonpareil or Cox's Orange Pippin utilising the root force of even such Apples as the Wellington. But growers had need beware of panic in such matters as the wearing out of species or varieties. In every case of the so-called failure of Wellingtons that I have thoroughly investigated, I have found other and more practical causes of deterioration or failure at work than the wearing out of species or varieties. In one notable case Wellingtons had failed and succeeded within less than 500 yards of each other, the soil and imperfect drainage being the causes of the failure. In others, water at the roots, overcrowding, overcropping, and semi-starvation were the palpable causes. It is also said by some that the Wellington pines and perishes unless wedded to its old favourite stock, the Crab. But this is a fallacy, proved by many cultivators who grow it on the Paradise or other dwarfing stock. Though there is no doubt that this fine Apple has done its most and best on the Crab as a dwarf or half-standard, thus treated and with a free run for its head, it continues to yield a capital crop and keep in

health for years. In one notable case I have lately prescribed this remedy: Remove every row and each alternate tree in the rows left, break up the grass surface among the trees, and top-dress or point in plenty of farmyard or other manure at the rate of 50 tons to the acre. In others I have seen Wellingtons above and Gooseberry bushes like hedges underneath engaged in a fierce struggle over the food larder beneath, which looked as if it had not been replenished for a quarter of a century, and yet who shall say how many thousands of bushels of Wellingtons had been profitably marketed from that orchard during all these years? Is the Wellington worn out? No; but the soil is; the earth larder beneath its roots is empty and bare.

D. T. F.

Thinning the buds of Peach trees.—A correspondent on page 334 invites opinions on thinning Peach flowers. If one has a tree inclined to be weakly, or trees in their first season from which it is not advisable to take more than a small percentage of fruit, let the flowers be thinned, reserving the strongest and best placed. With the exception of removing a very few that are jammed against wall, branch, or wires, I have never recognised the necessity or even advisability of thinning the fruit buds on established trees that are in the best of health and vigour. Get your set by all means, and then thin the fruit.—E. B.

The Mirabelle Plum.—Do any of our readers know the Prunes the French call "Mirabelle," if they are in cultivation in England, and what their origin is? We have had the following note from M. Verlot on the subject:—

Authorities on this subject have come to the conclusion that the Mirabelle Plum is derived, not from *Prunus insititia*, L. (*P. domestica*, L., β *Claudiana*, Pers.), which is the type of the Reine Claude Plums, but from *Prunus domestica*, L., α *armerioides*, Ser. (MSS.), as given in De Candolle's "Prodrromus," ii., p. 533. However, *P. domestica* (L.) and *P. insititia* (L.) are very probably only one and the same specific type constituting the parent stock from which have sprung all the varieties of cultivated Plum trees that are grown for their edible fruit. The name "Bullace" is applied indifferently to all the round-fruited varieties of *Prunus domestica* (L.), *P. fruticans* (Weihe.), *P. insititia* (L.), and especially of *P. cerasifera* (Ehrhr.).

Neglected fruit trees.—The fine old Fig trees frequently to be met with in Cornwall and other mild parts of the country on the high walls of outbuildings, such as stables, &c., scarcely bear out what Mr. Iggulden says (April 2, p. 305) of neglected Fig trees when he urges that finer fruit and quite as many would be gathered if the same trees were thinly trained to the walls, and advises that a system of top-dressing and root-pruning should be adopted. Such a system is in many cases totally impracticable, and the results obtained from these so-called "neglected" trees prove that there is no necessity for these things, provided the climate is right and the trees have plenty of space and especially height. I can safely say that I have gathered as fine Brown Turkey Figs from such trees as I have ever met with at any London or provincial show. The trees I refer to are of great age and must be at least 40 feet high; very little pruning is ever done to them, the most done in that way being the removal of an occasional heavy branch which threatens to drag away the holdfasts from the wall; foreright growths are encouraged and these assume a drooping habit, hanging down several feet in length, and the crops borne yearly are enormous. For most of these trees, elevated sites in paved (pebble) yards have been chosen where they can get but little assistance from stable drainings or from rain, and the way they flourish in such positions is marvellous and must be seen to be believed. No doubt the semi-wild state of the trees is conducive to a short and well-ripened annual growth, and this in our short and fickle summers tends to the best conditions for fruitfulness. The worst enemies the Figs have when grown under such conditions are wasps and

flies; the latter especially are troublesome and spoil large numbers of the fruit. The trees have a most picturesque and noble appearance which would be utterly spoiled by rigid training, and it may be hoped that fortunate possessors of any fine old trees may not be induced to change the system of management with an idea of getting finer fruit. If there are cases in which the old proverb of "letting well alone" may be wisely applied, surely this is one of them.—J. C. TALLACK.

Cutting down Raspberries.—Several new villa gardens in this neighbourhood have been furnished with fruit trees and bushes during the past winter, and Raspberries have not been neglected by those who made the selections. All appear to have been very well planted, but the precaution of cutting down the Raspberry canes has been neglected in every case that has come under my notice. Whether the owners are not aware of the risks they run, or whether they cannot persuade themselves to forego the slight prospect of a crop this season, I am unable to state. Probably they scarcely appreciate the position, and this is not very surprising, especially seeing how many professional gardeners there are who foolishly neglect to take the precaution of cutting down the newly-planted canes. If the latter could be depended upon to yield a good crop of fruit, there might be some excuse for letting them alone, but as it happens, Raspberries the first season after they are planted rarely produce other than a few scrubby fruit, while the effort to do this often paralyses them completely. When allowed to fruit they usually fail to push up fresh sucker growths, and, as a consequence, are of no further service. In some few cases they may be sufficiently strong and well rooted to form a weakly growth, but the latter fails to fruit in the following year, and the plantation is very slow in attaining a profitable state. There ought to be no hesitation about cutting down newly-planted canes to within 6 inches or less of the ground, and it is not yet too late to do it. Thus treated each will most probably push up a strong sucker, and the foundation of a serviceable plant be laid.—I.

APPLE NEWTOWN PIPPIN.

TO THE EDITOR OF THE GARDEN.

SIR,—In your March 19, 1892, issue, in speaking editorially of the Newtown Pippin Apple, you say substantially that Professor Sargent told you this Apple was "not to be had in America." I do not know where Professor Sargent lives, but his statement may be true as to New England, but it is not true as to "America," or to the United States. To-day I can buy a thousand barrels of this Apple on South Water Street in this city, and have no doubt I can buy it in any city in the west and south-west. It is one of the leading Apples in New York State, Ohio, Michigan, Indiana, Northern Illinois, Southern Iowa, Missouri, Kansas, Nebraska, and Kentucky, and has been for many years. The time was when New England furnished most of the Apples that were consumed in the United States, but that has long since ceased to be a fact, and Michigan or New York State to-day furnishes more Apples than all New England together. NATHAN JAMES.

Chicago, Ill., U.S.A.

Setting Grapes.—I have tried more than one year to obtain a good set of Muscats with such temperatures as Mr. Iggulden recommends, but always failed. By increasing the night temperature 10° or nearly so, according to the weather and a corresponding rise during the day, admitting air at the same time, I always get a good set. My Vines of this variety have been planted thirteen years and are still in a promising condition, showing no bad results from the application of such a high temperature during the flowering period. I think planting Vines at a fair distance apart, say not less than 3 feet, the spurs not too thick, and giving regular attention to the removal of the laterals when they need it, instead of allowing them to grow into a thicket first, go a long

way to procuring a perfect set. My experience is that the bunches which are well set in a high temperature swell the best berries. Years ago a gardener with whom I lived in Cheshire was noted for the large berries he invariably had on Black Hamburgh; these he attributed to the high temperature to which he subjected his Vines during the flowering period. From 72° to 75° was the temperature he preferred at that stage; he assured me it was the extra warmth which he maintained that produced the thick footstalks which large berries are noted for in any variety. Thin, weakly footstalks never give large berries, especially in the case of Muscat of Alexandria, Muscat Hamburgh and Madresfield Court. No doubt much depends upon the atmosphere of the vinery while the Vines are in bloom; neglect in air-giving or reducing it according to external changes of the weather has much to do with success or failure. A buoyant atmosphere is preferable to that which is stagnant. I use a rabbit's tail for fertilising the flowers. —E.

ORCHIDS.

SACCOLABIUMS.

THESE require more heat and attention than perhaps any class of orchidaceous plants, but then their beauties are not surpassed by any. The finest display of these plants I have ever seen was by Messrs. Veitch and Sons, of Chelsea, when exhibiting at the Regent's Park summer show some thirty-five years since. The plants were some 2 feet and 3 feet high, and bearing many of their fine cylindrical racemes of bloom. Mr. Kiel, when gardener to Mr. Butler at Woolwich, about this time used to exhibit them in grand condition; so also did Mr. Gedney when gardener to the Rev. Mr. Ellis. About this time I had a fine lot of these plants in the Kingston collection of Messrs. Jackson and Sons, but now it is quite an exception to see them; such plants as those just named cannot be found in any garden. The culture of cool Orchids has increased so much, that Saccolabiums, Vandas, and Aerides, which comprise some of the most ornamental plants in the whole order, have been swept away. Saccolabiums in their native homes would appear to grow in very hot and moist localities; nevertheless, the range of temperature is considerable. Under cultivation I prefer to have these plants grown in hanging teak wood baskets near the roof-glass in the summer months, but removed in the winter. These baskets should be well drained, using nodules of charcoal for this purpose. For the sake of lightness and for holding the plant in position, nothing has yet been found to excel living Sphagnum Moss; this should be made firm and be kept in a sweet and sound condition. These plants grow more or less nearly all the year round, and therefore should never be allowed to get quite dry, neither should the atmosphere become arid. The plants should stand or hang in a light and airy place, but in the summer-time they should be shaded from the full sun, as this turns the leaves yellow. The lowest temperature it is safe to trust Saccolabiums in is 60°, and I would never, unless compelled, suffer it to fall below 65°. The following are a few of the best of the section to which these remarks more especially apply:—

S. BLUMEI, a common plant in Burmah, is one of the freest growing kinds. There are numerous varieties. The leaves are 10 inches or a foot long, dark green in colour, with a few parallel lines of a deeper shade on the under side. This is a distinctive character in this plant. The spikes of bloom are each about a foot long, sometimes more. The flowers, which are very numerous, are creamy white, slightly shaded with rose and dotted

with rich purple; lip deep magenta. It blooms usually in August and September. There are many forms of this, which differ principally in their length of spike. One of the very finest of these is called *Russellianum*, having spikes of bloom 2 feet in length, the flowers large for a Saccolabium; the sepals and petals white, dotted with amethyst-purple, and the lip soft magenta.

S. GUTTATUM has deep green leaves without the darker lines which are so marked a feature in the previously named kind, and usually the spike is about a foot long. A plant with twelve or eighteen spikes all in bloom is very pretty. The flowers last about three weeks in full beauty. The sepals and petals are white, spotted with purple, and the lip rich purple. This is the variety called *Loddiges' guttatum*, and no doubt it is the first form known; there are, however, varieties with broader leaves. There is one called *Holfordianum*, which appears to have been introduced by Mr. Holford, of Weston-birt, whose death has been recently recorded. The last plant I saw of this was in the collection of Dr. Ainsworth, of Lower Broughton, under the care of Mr. Mitchell. The spike is 18 inches to 20 inches long, the flowers densely set on the spike, white, spotted with rosy-purple; lip rich bright crimson.

S. PREMORSUM is another form of distinct habit, and one that used to be well grown by Mr. Kiel. The leaves are shorter and broader than in the kinds previously named, the spike being longer than the leaves; the flowers large, white, sparingly dotted with lilac; lip lilac-mauve. This plant is now very scarce in cultivation.

S. RETUSUM is a broad-leaved, free-growing plant, which I used to import in quantity from India some twenty years ago. Under cultivation it appears to make stems more quickly than any other kind. The spikes are rather short, seldom exceeding a foot in length, and the flowers are somewhat longer in the pedicel, so that the spike appears somewhat thick. The flowers are white, spotted with pink; the lip purple. It blooms earlier than the others.

S. GIGANTEUM was named *Vanda densiflora* by Lindley, and many years ago a plant that had been so named by him came into my hands from Farnham Castle, the residence of the Bishop of Winchester. Of late years it has been imported in quantity, and proves to be a strong grower and a free bloomer. Its flowers are sweetly scented; it is a winter bloomer. There is also a pure white variety.

S. VIOLACEUM is another similar plant, flowering towards the end of winter or in the very early spring months. It is a stout-growing plant, the flowers spotted with mauve; the lip also deep mauve. This plant requires great heat and moisture. There is also a white variety of this plant called *Harrisonianum* which was imported by the Messrs. Low and Co.

The above-named plants I should like to see come into favour again, for they are magnificent when well grown and flowered.

WM. HUGH GOWER.

Dendrobium Wardianum malformed.—J. Goring sends me a flower of this species having a double lip, and apparently an extra pair of petals. I am much obliged to my correspondent for this flower, but I do not care for these deformities, and I think when his plant produces flowers of the normal type he will like them much better. It appears to be a good coloured variety. No doubt it will produce good flowers another season.—G.

Vanda lamellata Boxalli.—J. Amies sends a flower of this which he says opened about last Christmas. It is a small-growing plant and useful for winter-flowering. The spike bears from ten to twenty or more flowers, the dorsal sepal and the petals being of a creamy white or yellow. In the variety before me they are creamy yellow. The lower sepals are of the same colour in the upper half, but the lower half is reddish-brown shaded with a purplish tinge; the lip is rich rose colour,

streaked with purple. This is one of the small-growing species which is found in the Philippine Islands, I think in the Isle of Luzon; it was found by Boxall and sent home about thirteen years ago. The Messrs. Low received large quantities in good condition, but I do not know what became of them, for now very few are to be found in collections. It requires to be grown in the East India house and enjoys a moist atmosphere.—W. H. G.

Cypripedium caricinum.—This plant was first sent home in a living state by Pearce, having been found by him in Bolivia when collecting plants for the Messrs. Veitch, in whose nursery it first flowered nearly thirty years ago. It was named C. Pearcei, by which name it is best known in English gardens still. Since then another similar plant has been introduced. "P. B." says this plant is named C. Pearcei, and asks if it is correct. This he may rest assured it is, but it is more correctly known by the name given above. It is said to thrive best in a cool temperature.—W.

Cœlogyne elata.—G. Ashby sends me a spike of this species. It was discovered by Dr. Wallich in Nepal upwards of fifty years ago, and it has been found by other collectors at various spots in Northern India. The plant, however, has a rambling habit of growth like some other Cœlogyne, and requires care in its management. The spike is erect, a foot or more high (in the one now before me there are ten flowers on the raceme); the sepals and petals are of the purest white, the lip also of the same colour stained with orange-yellow, and the crests dotted with red. It succeeds very well in the cool house, placed where it can have the sun to shine upon it at some time of the day.—W.

ORCHIDS AT HOLLOWAY.

JUST now the Orchid houses of Messrs. B. S. Williams and Son are very gay, and the Vandas are specially fine, numerous fine examples of *V. suavis* (Veitch's variety) being noteworthy. The Glen variety of *V. tricolor* was very fine, as also was a very handsome form bearing the name of *V. tricolor formosa*. A variety of *V. tricolor* called *superba* is very free-flowering. *V. tricolor insignis* with its light yellow sepals and petals, which are spotted with crimson and the lip marked with lilac-mauve, is a very beautiful form. *V. tricolor Storeyi* is also a particularly handsome variety; so also is the Dalkeith variety, having the sepals and petals pale yellow variously marked with dark brown, and the lip with bright magenta. *V. tricolor Patersoni* is another remarkably handsome form. *V. tricolor planilabris* is also a very distinct and handsome variety, differing from the typical plant in having its lip large and flat, the rose-coloured ground being streaked with rich brownish purple and bordered with purplish lilac. Turning to the Dendrobiums, *Wardianum* was very fine; so also was *D. crassinode*. *D. crepidatum*, although not much grown now, is a beautiful Orchid, as also is my special favourite, *D. Findlayanum*. *D. Farmeri aureum* is another very pretty plant now represented by a finer form than the first that flowered in the country. *D. Jamesianum* and *D. infundibulum* also enjoy a fair share of popularity, and the flowers last a long time either cut or when left on the plants. *D. nobile Sanderianum* was in good form, also the Rhubarb-scented *D. superbum*, the lovely hybrid *D. Ainsworthi*, a very pretty variety of *D. Phalaenopsis Schröderianum*, and the yellow fringed lipped *D. Brymerianum*. *D. primulinum* was also making a fine display.

Turning now to the Cypripediums, *C. Morgania* and *C. Schröderæ* were flowering beautifully. Here also were large batches of the fine dark-coloured *C. selligerum rubrum*, *C. Williamsi*, *C. grande*, *C. albo-purpureum*, very distinct and beautiful, with its long, pendulous, twisted petals of a soft rosy pink, and the bright *C. barbatum Warnerianum*. Good varieties of *C. Swanianum* and many others were flowering freely. Amongst other things in the warm houses may be noticed *Phajus* in quantity, including fine forms of *P. Cooksoni*, *P. Wallichii* and *P. grandifolius*, the latter with quite a forest of tall spikes bearing many flowers, also

many fine examples of the old, but charming *Chysis bracteosa*, with its large waxy white flowers. *Cœlogynelactea* with its spikes of pure white blooms stained with yellow in the lip was also very striking, as also was a fine variety of *Maxillaria Sanderiana*. *Vanda teres alba* was also flowering, as was *Phalænopsis Manni*, one of the smaller flowered kinds, which I introduced some twenty or more years ago. *Ornithocephalus grandiflorus*, although a Brazilian plant, is found to like the warmth of the East Indian house best. In the *Cattleya* house the majority of the *C. Trianae* section were past, but the beautifully coloured *C. Lawrenceana* is a conspicuous feature in the house, and some *C. Mendeli* are already opening. Here are also in bloom many varieties of *Lycaste Skinneri* with beautifully marked flowers, *L. cruenta*, *Schomburgkia tibicinis*, *Cymbidium Lowianum* with many spikes, *Oncidium sarcodes* with long-branched spikes, and fine plants of *Oncidium superbiens*. Among the most unusual things to find in bloom just a few days before Easter was a fine lot of *Calanthe Stevensi* and *C. Williamsi*. *Odontoglossum citrosum* will soon be in bloom. In the cool house, among the *Odontoglossums* in flower were *O. triumphans* in variety, *O. luteo-purpureum*, *O. sceptrum*, a fine form called *O. Coradinei* superbum very richly coloured, *O. gloriosum*, *O. Pescatorei*, *O. Halli* with bold spikes and large handsome flowers, *O. Edwardi* with its deep violet blooms, *O. polyxanthum*, &c. Associated with these were a large number of plants of *Ada aurantiaca* and various *Masdevallias*. Here also I noted *Mesospinidium vulcanicum grandiflorum*, having blooms of a bright rosy-purple, the spikes carrying many large flowers of great beauty, and *Cochlidia Noetzeliana*, having pendent spikes of rich cinnamon-coloured flowers.

WM. HUGH GOWER.

SHORT NOTES.—ORCHIDS.

Odontoglossum triumphans chryso-torum.—This is a form of this plant with rich golden yellow flowers, banded with lighter yellow. The flower is very pretty and distinct.—W. H. G.

Masdevallia ignea Massangeana (J. Thompson).—This is a magnificent form, having large flowers of unusual substance, the outer sepals being deep cinnamon with deeper lines. This is figured in the "Orchid Album," t. 273.—W. H. G.

Cattleya Skinneri.—"T. B." sends me the first flower of this plant, and an excellent variety it is. The sepals and petals are broad, of a beautiful satiny rose, the lip slightly deeper with a deeper zone in front of the white throat. "T. B." tells me he has fourteen of these blooms open.—G.

Cattleya Mendeli.—J. McLeod sends me a flower of this variety of the labiate section of this genus. It is not a very fine coloured variety, the lip being poor in this respect, but the petals are very broad and of a rosy mauve shade. It is somewhat curious that this variety appears to be in bloom nearly two months before its usual time.—W. H. G.

Bletia hyacinthina.—In Paris at the great establishment called La Muette there is a nice specimen of this Orchid planted out of doors on a rockery at the entrance to one of the Orchid houses. For several years the plant has been lightly protected in winter with some dry leaves, and it thrives well.—J. SALLIER, *The Nurseries, Neuilly, Seine*.

Lycaste Skinneri.—H. E. Gribble sends me two flowers of this plant from Stockton-on-Tees. They were very carefully packed, and I do not think I have ever received flowers that came out of the box so well. One has a rich red lip and the other a pale one. These two forms are exceedingly beautiful, but I should not christen them until you have bloomed some more. You will get some finer varieties than these.—G.

Lælia Lindleyana. C. Binot sends me a flower of what must be this species, though it is a very unusual time to see it. This plant, I believe, is still very rare, but yet it occasionally crops up. I saw a fine plant of this species in the Botanic Garden at Rouen a year or two ago. The flowers now before me each measure between 4 inches and 5 inches across; they, however, are somewhat thin and starry. The sepals and petals are creamy-white tinged with bluish, the lip three-lobed, the side

lobes small, creamy-white, tinged with rose, the centre lobe white suffused rose, and veined with rose in the upper half.—W. H. G.

NOTES OF THE WEEK.

Draba Dedeana.—At the Drill Hall on Tuesday last among a large collection of alpine plants the above plant was very conspicuous. A mass of flowers of the purest white and only 3 inches high completely hid the foliage from view.

Primula Auricula San Martino.—This is a very dwarf kind with rich golden-yellow flowers, of which several freely-flowered examples were exhibited at the Drill Hall on Tuesday last. It is welcome by reason of its striking and decisive tone of colour.

Saxifraga Rhee.—A member of the "mossy" section of this genus, with bright salmon-pink blossoms. The flowers individually are larger than those of *S. muscoides atro-purpurea*, though not produced with the same freedom. The lively pink shade of its flowers will doubtless find many admirers. As it is of very easy culture, it should be largely grown.

Eucharis Bakeriana.—It may interest some of your readers to know that the above (mentioned on p. 339) has been raised from seed in this country. Seven years since I raised a batch of seedlings from *E. amazonica* crossed with *E. candida*. Unfortunately, whilst in a small state they were attacked by *Eucharis mite*, and I was only able to save one of them, which flowered last July. Noticing it was distinct, a flower was sent up to Kew, and the authorities there stated it was identical with *E. Bakeriana*.—G. H. B.

Attacia cristata.—I am sending you a bloom from my *Attacia cristata*. My plant presents a remarkable sight just now, having thirty-six spikes similar to the one now sent. I have a photograph of this same plant taken a few years ago when the specimen, on account of the number of spikes it threw up, attracted a deal of attention.—WILFRED MARSHALL, *Norton Manor, Taunton*.

* * An illustration of *A. cristata* and a description of the genus will be found in THE GARDEN of July 17, 1886.—ED.

Moss and lawn Grass for packing.—In a recent number of THE GARDEN "I" strongly recommended Moss from lawns for packing, and treated as noted by him it undoubtedly is good material for the purpose, being soft and clean and possessing all the merits he claims for it. Still, I venture to say that, should he devote the same amount of care and trouble in drying and thrashing the lawn-mowings, he would have a superior article for the purpose even than the Moss. Nothing I have tried can surpass them for elasticity, sweetness and silky softness, and they are in all ways eminently suitable for fruit-packing, &c., when properly prepared.—J. R.

Gentiana verna.—Some charmingly flowered masses of this lovely alpine were shown in the very interesting and varied collection of alpine plants from the Guildford Hardy Plant Nursery at the recent meeting of the Royal Horticultural Society. Nothing can possibly be more lovely than this, the exquisite blue flowers of which quickly respond to the warm sunshine and lay before us a picture of exceeding great beauty. What a pleasure it would be to all lovers of alpine plants if this kind would grow as freely as *G. acaulis*! The white form was also included in the above collection. As a variety it certainly merits the name it bears, and is interesting in consequence.

Spiræa Thunbergi.—A nice lot of flowering plants of the above was exhibited at the Drill Hall on Tuesday last, a fact which proves its adaptability to forcing in a greater or less degree; indeed, very few of these objects to this mode of culture. It promises to make a good companion plant to *Spiræa astilboides*, a plant which, though some years in commerce, is by no means so plentiful as might have been expected. In the plant under notice the flowers are white, but inclined to creamy white when growing in the open. Like many others of this and allied subjects, *S. Thunbergi* loves moisture, but it may also be stated that it can be success-

fully grown in good rich border soil quite removed from moisture, though it does not attain to its best form. Happily, it increases freely, and a good stock can soon be obtained. It has a distinct habit and reaches a height of from 2½ feet to 3 feet.

Sikkim Rhododendrons.—Since the death of the lamented Mr. Mangles, one very seldom reads reports of Sikkim Rhododendrons and their hybrids in the English garden periodicals, and yet what is there in the whole floral world more beautiful than these noble plants if they are properly treated and sufficient room is allowed them to develop their stately growth? Just now a plant of *R. Aclandiae* is in flower here with forty-four trusses each of five to eight enormous flowers, together with several young plants of Nuttalli and the rare true Fortunei, grande, Gibsoni, glaucum, Mr. Davies' very nice seedlings, and Forsterianum being past their best. One of my plants of the last-named hybrid had flowers 16 inches in diameter, and all my plants of it flower annually in great profusion, especially if they are planted out during the summer months—a practice I have adopted with great advantage with all the Sikkim Rhododendrons.—O. F., *Lehenhof*.

The weather in France.—From the various wine-growing districts distressing reports are coming in of the terrible damage inflicted on the Vines by the severe weather of Sunday and Monday. The Burgundy district has suffered an irreparable loss, the Grape crop in many parts being absolutely and entirely destroyed, while Savoy and the Dauphiné are no better off. In Touraine, where the Vines had already been damaged by the recent frosts, all hope of even an average crop has been abandoned, and growers are of opinion that fully 75 per cent. of the Grapes will be lost. The Vines in the Cognac district have also suffered severely. Up to the present the fruit trees have not been seriously injured.

Rhododendron racemosum is a lovely new species with small flower-heads, that must, sooner or later (provided it proves sufficiently hardy for the purpose), figure among our most charming rockery plants, and when plentiful enough, as margins to beds of American plants. The flowers as seen at the Drill Hall on Tuesday last, when the plant was exhibited by Messrs. Veitch, are of a lovely rose-pink, but when grown in the open a deeper hue may be forthcoming. The plants exhibited had been lifted from the open two days previously. The whole plant is only about 4 inches or 5 inches high, which no doubt would be increased somewhat when older plants are seen. It is a perfect gem, and when large plants are obtainable, it will be one of the most valuable of dwarf-flowering shrubs.

Tremandra ericæfolia.—This handsome New Holland plant is rarely seen flowering in good condition whilst still of small size. Lately I saw some beautiful examples in the most profuse flower literally borne down with bloom. The plants were well-furnished ones in 6-inch pots, being suitable in this size for any decorative purpose. The pleasing and distinct colour of the flowers (a pale pinkish lilac) is so uncommon amongst greenhouse plants in general, as to form quite a noteworthy feature when well cultivated plants are thus obtained. It is a plant that is not nearly enough grown, but probably now that such beautiful examples of it have been brought into notice it will receive more attention than it has hitherto done. The plants in question were recently shown by Messrs. Balchin and Sons at the spring exhibition of the Brighton and Sussex New Horticultural Society. Better plants than these were or in more profuse flower could not be desired, whilst, as before stated, the colour being so uncommon further enhances its value. It is to be hoped this enterprising firm will again exhibit it, and that at the metropolitan shows, and bring under the notice of plant lovers a truly good and distinct thing, as they have already done in the case of the beautiful blue *Leschenaultia biloba major*, to which this *Tremandra* is a worthy companion for the greenhouse.—J. H.

WALTHAM TERRACE, BLACKROCK, NEAR DUBLIN.

THE accompanying engraving from a photograph shows the beauty and fitness of simple hardy plants as grouped in front of a little suburban villa in Waltham Terrace, near Dublin. Waltham Terrace branches at right angles from Merrion Avenue, which is the broad and stately mile-long approach to Mount Merrion, the Irish domain of the Earl of Pembroke, full of fine trees, and elevated so as to command the most splendid views of

couple of old-fashioned greenhouses or vineries, only partly glass-roofed, and having architectural ends facing the road, so as to look like little gate lodges. As you look up the road the terrace makes a pretty picture, because each house has its own little trees and flowers about it, and about midway on the right is the entrance to Grace Field, overshadowed by some Weeping Wych Elms, that simulate the elegance of the Birch as seen 200 yards away, their Ivy-clad trunks only heightening the illusion.

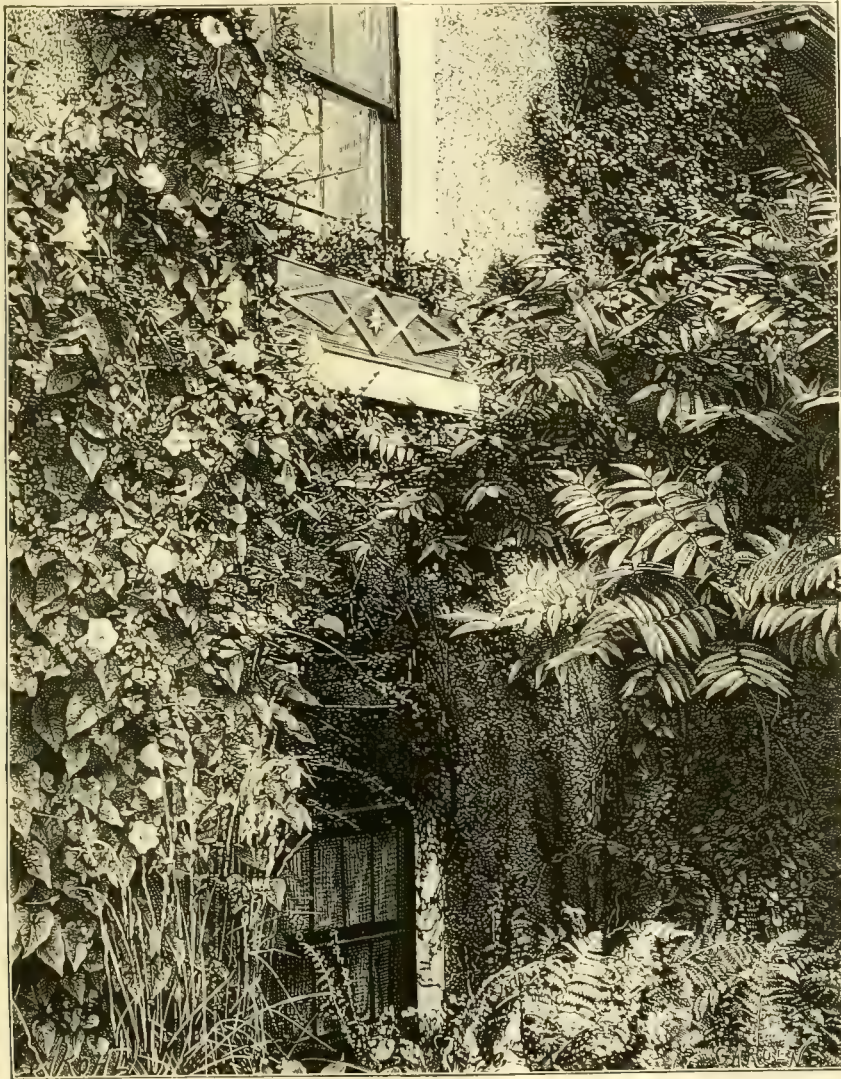
The whole place is quite a study, for at the other end of the terrace on the left is a Birch

Our illustration may really be taken as the type of house and window gardening as seen in Waltham Terrace. In this particular instance the main effects are due to a luxuriant growth of *Convolvulus sylvaticus*, or Great Hungarian Bindweed, Roses and Jasmine, *Rhus typhina*, with a vigorous growth of hardy Ferns, *Pæonies* and great-leaved *Saxifrages*, with wild Grasses and Ivy below. In one corner is an old red-stemmed *Fuchsia* taller than a man, with its torn threads of bark glistening in the sun. Beside it is a fine bush of *Spiræa hypericifolia*, and there is a fresh and healthy Sweet Bay near the door. The turf of the little front enclosure is mostly formed of Ivy, from which grow Ferns and bulbs of many kinds—Crocuses, Snowdrops, and Daffodils, the last now in bloom. In the window-box, as I saw it the other morning, were soft pale pink Hyacinths and taller yellow Tulips, and the Stag's-horn *Sumach* held aloft its soft brown shoots in sombre contrast to the flowers. In another of the little front gardens *Berberis Darwini* was sprinkling its early gold, and the old *Mezereon* bushes diffused their fragrance. In most of the gardens *Laurus nobilis* seems quite at home, as also in one or two cases is the large-leaved *Aralia* of Japan (*Fatsia japonica*), while the slender interlaced shoots on the walls here and there indicate just now the summer greenery and the autumnal crimson and purple of the Virginian Creeper and the Japanese *Ampelopsis*.

On leaving Merrion Avenue the lower part of the terrace is divided from the common road by wire palings, but the upper portion is fenced by low stone walls topped with Laurels and other evergreen or flowering shrubs, while the sides facing the road are in most cases entirely covered and concealed by green Ivy. Bare walls near the streets or roads are so common not only near Dublin, but also near most other towns in England, that it would be well if we more generally followed the example here shown at Waltham Terrace of covering up our outer walls as well as inner ones with fresh green Ivy, even if with nothing more. The common flowering shrub here, as elsewhere near Dublin, is the *Laurustinus*, but this sequestered little spot must also be delicious in Lilac and Weigela time, and especially so when the *Laburnum* sends down its showers of golden rain. In other ways this unique little terrace is now favoured, for at a short distance off is Blackrock Park, near Lis-an-Iskea, a sloping bank hanging over the sea, whence good views of Howth Head and Dublin Bay may be obtained. In the park one of the most satisfying features is an islet in the lagoon planted with cardinal Willows, which just now glow beautifully in the sun, and it is to be hoped that a plantation of golden Osiers may also be made there, so that their bright shoots may enliven the dark trunks of the Chestnuts, Elms, and other trees. A breadth or two of crimson Dogwood might also be introduced here and there with excellent effect.

F. W. B.

Daffodil's deficient in colour.—Anything unusual in the flowering of Daffodils seems worth recording with a view to ascertaining the cause by a comparison of seasons. The springs of 1890 and 1891 were both of them remarkable for the brightness of the orange tints in the crowns of several well-known varieties of the incomparabilis class, such as *incomparabilis* Leedsi, *Cynosure*, *Princess Mary*, and *Nelsoni aurantius*. This year these are flowering without a tint of orange, and except for their shape might as well be the old single *Peerless*; even C. J. Backhouse, which is generally the brightest of all, has the crown this year of a dull reddish colour, and if I did not remember many



Climbing plants round window at 23, Waltham Terrace, Blackrock, near Dublin.

the city of Dublin, the blue waters of the bay, the Hill of Howth, Ireland's Eye and Lambay (both islands beyond). There is a peep from the wood behind Mount Merrion House where you may get a glimpse of Dublin through an avenue of Scotch Firs. Again, in the opposite direction are the Dublin mountains, and further afield the Sugar-loaf Mountain of Co. Wicklow stands out grey and clear against the sky. Waltham Terrace itself dates from 1836, and was evidently planned as a suburban paradise. It consists of about thirty detached villa residences, most of which stand well elevated, for the ground rises as you enter from the Merrion Avenue. Two Elm trees pollarded stand at the entrance, flanked by a

and Chestnut grove leading out into the fields, and there is thence a footpath leading to the ancient village of Blackrock itself, a place with traditions many and varied. From the fields beyond this quaint little grove you get peeps at other villas, and on the sunny April morning on which I saw it, the young Larch tassels were taking on their earliest touch of apple-green, and a Golden Willow lit up the whole landscape and made the grey-blue sky all the more lovely; brown Chestnut buds were bursting and throwing down their varnished red bracts, the jet-black Ash buds were swelling fast, and the exquisite fragrance of Wallflowers and Daphne and the balsamic odour of the shining Poplar buds were borne on the breeze fresh from the adjacent sea.

spots where it shone so brightly last year, in all of which it is flowering colourless now, I should not believe my labels. I am not sure about the cause. This month hitherto has certainly not been deficient in sun whilst the buds were maturing. Mr. James Walker once told me that he thought deficiency of colour was due to unusually rapid development, and the very dry, hot days of early April seem rather to favour this theory. It would, however, be interesting to know whether the failure I notice here has been general in all parts of the United Kingdom. C. WOLLEY DOD, *Elg's Hall, Malpas.*

SEED-GROWING IN GERMANY.

HAVING spent about two years in one of the chief seed-growing centres of Germany, a few short notes on the chief subjects of culture will perhaps prove interesting. Although the ways and means of cultivation differ considerably from those of this country, and which, through climatic influences, could not in many instances be carried out, still, we all like to know at least something about the growing for seed purpose of the best of our annuals, especially when we take into consideration the large quantities of seed, &c., which are annually imported from this source, and necessarily so, as many of them would not come to anything like maturity in this climate, therefore must be left to the care and industry of our Continental brethren. It is only during the past twenty or thirty years that this trade has assumed the gigantic dimensions which at present exist. The increased demand for flowers in this country has given a corresponding impetus to seed-growing abroad, where they have the advantage of cheap labour and a climate specially adapted to this work. England, next to America, is the largest importer of German-grown flower-seeds; while large quantities find their way to all parts of the world. The secret of this successful cultivation lies in the bright dry autumn which enables seeds to stand longer and become thoroughly ripened.

To begin with, not only is the climate well adapted for the production and ripening of seeds, but the soil, which in this particular locality is a deep, rich, and moderately stiff loam, is all that can be desired for this purpose.

The city of Erfurt, which is considered the chief centre of seed-growing in Germany, is a town of about 60,000 inhabitants, containing a fine cathedral, also many ancient buildings, which render it a place of considerable historical interest.

It belongs to the district known as Thuringia, and is in the immediate neighbourhood of Eisenach, where stands the fine old castle of Wartburg, made famous as being for some time the residence of the great reformer Luther. It is prettily situated in a valley on the banks of a small mountain stream and almost surrounded by hills, which are covered with wood chiefly composed of Fir, Birch and Oak. It is truly a city of flowers, as most of the land adjoining is in the possession of seedsmen, and in summer when everything is in full bloom there is little else to be seen but a broad expanse of bright and varied colours; so much so, that the blaze of colour becomes in time monotonous to the eye, but to the stranger who sees it for the first time it is a sight not easily forgotten. The fields are mostly open to the road, a small ditch dividing them, and sometimes not even that. A hedge, for instance, is almost unknown, except on a very small scale; this gives a very open appearance to the country. The sides of the roads in many instances are planted with fruit trees, chiefly Plums, which form a remunerative crop to the farmers, and, what is more surprising, although

everything is so open and unprotected, during the whole of my stay I never heard of any flowers being stolen or damaged; the people become so accustomed to the sight, that flowers are not valued more than a field of Wheat or Barley would be with us.

The general situation of the city is also very lovely. A large forest stretches away on one side for miles; through this there are some lovely avenues and drives, which are greatly patronised during the summer months.

In regard to seed-growing, I will now touch upon some of the leading varieties, and endeavour, as well as I am able, to describe their cultivation.

STOCKS

form one of the leading features in a seed-growing establishment, and are one of the most expensive crops to grow, that is as far as labour is concerned. This will be seen when I tell you that they are nearly all grown in pots, only the very inferior sorts being left to take their chance in the open ground. One firm I was acquainted with grew something like 300,000 pots of them annually. They are kept on stages erected in the same way as an ordinary greenhouse stage, and have a wooden or tiled roof to keep off the heavy rain and too direct rays of the sun, the sides and backs being left open. One of the things most essential for good cultivation is the soil, which must be well matured and free from any vegetable matter; therefore three years' supply is always kept on hand, and turned over from time to time to make it sweet. The plants, which are raised in pits on a slight hotbed, are pricked into 6-inch pots when in the fourth leaf, and are generally planted seven to nine in a pot, so as to throw up single stems only. There are two reasons for this crowding, as we may term it. Firstly, seed is only obtainable from the single flowers; as soon as the doubles make their appearance the plants are cut off, thus giving more room to those remaining. Secondly, planting several in each pot tends to starve the plants somewhat, and when thus treated they produce a larger percentage of doubles; this has been proved, as seed saved from plants grown in the open ground do not produce anything like the same percentage. Fifty per cent. double flowers is considered a good average, although in some cases it ranges as high as 60 and even 65 per cent. They require a copious supply of water throughout the growing period, which extends from April to October, excepting for a week or two when they first show their bloom, when it must be sparingly given, as overwatering at this time would cause them to damp off and encourage the attacks of insect pests, which are very troublesome at this period. The labour required in constantly watering and tending such an immense number of pots is very great and keeps up the price of these beautiful annuals. Autumn Stocks and Wallflowers require much the same treatment, but in their case a much longer period is required for growing and ripening the seed. These are sown in July, potted up in the same way, and kept through the winter, a very difficult thing where proper accommodation does not exist, and the thermometer is often several degrees below zero. The larger growers who have the room keep them in cool houses, but in small establishments where such are not obtainable, they are kept in pits well covered up with litter, air being given on fine days. If the winter proves severe the plants suffer considerably, as the pits become snowed and frozen in for weeks together, and want of air causes a great many to damp off.

ASTERS

form another important feature of cultivation, perhaps even more so than Stocks, and are

grown by the acre, one firm alone devoting over 100 acres to them. They are raised in pits and afterwards planted out on the beds where it is intended to grow them for seed. The distance they are planted apart varies according to the variety, but seldom less than 1 foot each way. The planting is done by gangs of men, much in the same manner as we would put out Cabbages, and each plant is carefully watered to settle the soil around it, the water being conveyed to the fields by carts specially constructed for this purpose. After this, they require little attention except hoeing and keeping clean till they come into bloom, when they must be constantly gone through and all rogues and button-eyed ones removed, as the best strains will in some seasons show a small percentage of these. The best flowers are selected and marked, and the seed of these is kept for stock for next year's sowing. The seed ripens in September, but some of the later sorts often remain till early in October before fit to gather; indeed, I have gathered the Aster seed when the snow was on the ground.

PETUNIAS,

which are grown in large quantities, are raised in pits, then potted up and placed on stages in the open, after the same manner as Stocks. They require a great deal of attention, as each bloom has to be fertilised by hand to ensure setting for seed. The pollen from the double blooms is very difficult to obtain, the flowers being so dense that they have often to be removed from the plant, then placed in wet sand, and pulled open so as to allow the sun and air to ripen the pollen, which is carefully removed and placed on the finest single blooms. The seed saved from these is called double, but it is rarely possible to obtain more than 25 to 30 per cent.

CALCEOLARIAS

are sown in July and August, and when large enough are pricked off into pans, &c., and after two or three shifts they are finally planted in 6-inch pots about the end of January, and as soon as the weather permits—usually in May—are placed upon stages outside where they are to bloom and seed. They are very shy seeders, and it is only by careful hybridisation that a crop can be ensured. As this operation must be performed when the pollen is quite ripe, the plants must be looked through nearly every day to catch each bloom as it comes to maturity. A constant and abundant supply of water during the blooming period is very essential.

CARNATIONS

are also very important and must not be passed over. These are grown on stages as before described, and are propagated either by cuttings or layering. The latter method is most usually adopted, and is performed by placing a collar or hoop of wood about 1½ inches to 2 inches deep round the top of the pot and filling up with soil; into this the young shoots are layered, and when sufficiently rooted are taken off and potted up. The hoop and extra soil are then removed and the mother plant kept to ripen what seed there may be on it. It is very difficult to obtain seed under any circumstances, and then only in small quantities; the supply is always limited and there is not much chance of its ever being much cheaper than at the present time. In one establishment I visited, 10,000 to 15,000 pots were kept going for these alone. Cinerarias, Begonias and Gloxinias are also grown in large quantities and under much the same treatment as here; the two latter have to be carefully hybridised to ensure a crop of seeds. Primulas, Cyclamens and many others too numerous to

touch upon are to be found in great numbers. The commoner kinds of annuals are also grown largely. The seed of *Mignonette*, *Dianthus*, &c., is saved by the ton. Pansies also come in for a large share, and several hundredweights are often harvested by one firm alone. They require a great deal of attention during the seeding season, and must be caught at the right time; if not, the pods burst and the seed is scattered. Some seedsmen go in extensively for growing Everlastings. This forms quite a business by itself. They are dried off in warehouses specially built for the purpose, and afterwards bunched up and packed for export.

HOLLYHOCKS

are extensively grown, but there, as in this country, they are much subject to the disease and are an uncertain crop. Hardy perennials are grown in great variety, although not in such large quantities as annuals. Several collections I know of contained from 1000 to 2000 varieties, all kept for seed. One firm in particular made a point of having as many species as possible, if only a plant or two of each, that is, provided it was suitable to the climate and could anyhow be made to produce seed. Of *Sedums* I have observed between twenty and thirty distinct species. *Aquilegias* in almost endless variety, *Delphiniums*, *Lychnis*, *Papaver*, *Linum*, *Anchusa*, &c., are to be found in great numbers, also some grand specimens of *Heracleum giganteum* and *Verbascum olympicum*.

The pits in which most of the plants are raised deserve a word or two of notice. They are constructed of wood, generally not more than 9 inches to 18 inches high; the soil is cleared out to a depth of about 3 feet, and they are then filled up in the following manner. First a layer of rough stalks, &c., then a good layer of fresh manure well trodden down to within about 9 inches of the top; this is allowed to settle for a day or two, and upon this is placed a layer of fine soil in which the seedlings are raised. During the summer these pits are used for growing some of the more tender annuals, such as *Cockscombs*, *Portulacas*, &c., so that protection may be given if necessary during cold nights. The soil and manure are removed in the autumn and carefully put away; in this manner they are utilised and prepared for future potting operations. The pits are used in winter for storing *Wallflowers*, autumn-sown *Stocks*, &c., as before mentioned.

The drying houses are of great size and several storeys high, the floors of some measuring 200 feet by 50 feet, and fitted up with numerous shelves or drawers; these are about 1½ inches deep with rough canvas bottoms, so as to allow the air to circulate freely. They are made to fit in a framework much in the manner of a chest of drawers. These floors are also fitted up with heating apparatuses, so that in wet seasons the drying can be carried on more effectually and quickly. The plan of improving and selecting stocks of seed is as follows: As soon as the plants are fully in bloom, they are carefully gone over and the best and truest as regards colour, shape, &c., are singled out by placing a stake next them. When the seed is ripe they are carefully gathered by themselves and kept for stock seed the following year. This is very necessary in the case of some annuals, which show a great tendency to go back to the wild state, and at the same time it improves the stocks from year to year. There are some unscrupulous persons who do not take so much trouble and care little what seed they send out provided a market can be found. But the above method is carefully and conscientiously

carried out by all firms of good standing and repute.

Not many vegetables are cultivated in this particular district, but the few that are deserve notice, especially *Cauliflowers*, for which Erfurt is justly famed, and the locality seems naturally suited for their culture. The chief *Cauliflower* grounds are situated on a low-lying strip of land some miles in length, and intersected by warm springs, which never freeze even in that rigorous climate. This ground is cut up into patches about 100 yards long by 20 yards wide, and the springs so arranged as to surround it on all sides like ditches, which are about 9 feet wide. The patches themselves are raised from 2 feet to 3 feet above the level of the ditches, and form a high, well-drained bed for the plants, whilst a copious supply of water is always on hand. The method of watering is very simple, viz., a bowl about the size of an ordinary hand cup fitted to the end of a pole 10 feet to 15 feet long is filled from the ditches and the water thrown on and around the plants; this entails a lot of labour, especially during the hot, dry summer months. *Cauliflowers* flourish wonderfully under such treatment, and form a very remunerative crop to the market grower.

The ditches are utilised for growing *Watercress*, which flourishes here in great abundance, and Erfurt is one of the few places in Germany where it can be grown in any quantity; this is due to the warm springs which keep the water at an even temperature all the year round. Many seedsmen make arrangements with the market gardeners, so that they have the privilege of selecting the best of the *Cauliflowers* to stand for seed. It is altogether a very uncertain crop, especially in wet seasons, being much subject to mildew; the best stocks of *Cauliflower* realise as much as 160s. per lb.

Although the winter is very severe, and continues sometimes late into the spring, wind frosts are not so prevalent as in England, for once the frost breaks up it very seldom returns, and towards the end of April or beginning of May, when the warm rays of the sun begin to make themselves felt, the whole land is like a hotbed, and on the first hot day it is no unusual thing to see clouds of steam rising from the ground. At this period everything grows with great rapidity, and planting and sowing are vigorously carried on. Outdoor *Cucumbers* are sown about this time; they (should the weather continue favourable) quickly make their appearance and usually bear abundant crops. They are grown largely both for seed and for pickling, this latter being performed by placing the *Cucumbers* in a large earthenware pot, mixing with them certain portions of salt, vinegar, and dill, this herb giving them a peculiar flavour much appreciated. When full the pot is placed in a warm, dry place, and in a week or so is fit for use, and will keep in good condition for a considerable time. This pickle is known by the name of *Sauer Gherkin*, and is largely used by the working classes.

Roses are preserved through the winter by bending the trees down to the ground and placing a good depth of soil over them—in fact burying them up entirely, and it is surprising how quickly they break out into foliage and flower after being uncovered in the spring.

Labour is, on the whole, moderately cheap. The average wages of a good working-man are about 12s. per week, and he has to work from five in the morning till seven in the evening, and in winter one hour less, commencing at six instead of five. In summer the hands are employed in the seed grounds, and during the winter months in the warehouses cleaning and dressing seed, &c. Much of the lighter field

work, such as hoeing, cleaning, gathering seed, &c., is done by women and girls, who work in gangs under the charge of a foreman. They are very expert in the use of the hoe, &c., and will get over nearly as much ground as a man. They earn from 10d. to 1s. per day, and many have to walk several miles to and from work, as the majority live in the surrounding villages. Although the hours of labour are long, I do not think more work is performed than in this country with our 10½ hours a day.

Norwich.

G. F. DANIELS.

FLOWER GARDEN.

SPRING FLOWERS AT EDGE HALL.

It is with mixed feelings that one writes on this Good Friday about spring flowers. Those who run away from English winters, as I have done this year, are perhaps served right if everything does not go quite smoothly on their return, but after the accounts we had in the daily weather reports of temperature in England at zero two or three times in March, it was an agreeable surprise to find flowers better than could have been expected; in fact, quite up to the average of the first week in April. Lent *Roses* in great pendulous bunches of white, pink, or dark purple were quite uninjured by cold or east wind, and have been so every year since I planted them either close to a north wall or amongst the drooping branches of *Spruce Firs*; but formerly they used to be shrivelled up and destroyed by such weather as that of last March. Masses of *Sanguinaria* were quite dazzling in their pure whiteness when they spread their flowers out flat to the midday sun. *Anemone blanda*, which began early in February, never flinched during the cold of March, and lasted longer than I have ever known it to do. The lumps of this, which are like great truffles, should be broken up every third year; seed which ripens in abundance seldom flowers till the third season. It was not likely to be a good season for the scarlet *Anemone hortensis*, but it is bringing far more flowers than last year, and *Dog's-tooth Violets*, especially the white variety, have been all they ought to be. But these are all now over. On the morning of the 13th we got up to find several inches of snow, *Daffodils* which had been hurried into flower by hot suns were all crushed flat, and before they had time to recover, a minimum of 22° on the following night froze the flowers to the ground and spoilt all that were open. *Primula rosea* and *P. denticulata* have lost all their colour and will do no more good this season, and the general aspect of the garden is pitiable. But we have similar experience nearly every year, and we know that many flowers survive and are no worse, and that North American plants like *Trillium* even enjoy the cold.

I am making and furnishing a new early spring bed, avoiding former mistakes. *Chionodoxas* and others of the *Squill* tribe increase and seed too freely. *Crocuses* and *Muscari* do the same. The seedlings mix together and are untidy till they flower, and are then too thick to do well. It is true that the seed may be pulled off before ripe, but somehow this is always forgotten. *Dog's-tooth Violets* do not seed much, and there are many varieties of size and colour, and some of the tall American kinds are beautiful both in leaf and flower. Then there are two colours of *Sisyrinchium grandiflorum*, *Scilla bifolia alba*, and *carnea*; neither of them ripen seed, and are both good. *Anemone blanda* makes very few seedlings and is easily

controllel. These and a few other such things will make a very gay bed for March, and need no digging out for three or four years. As for the European alpine Primroses, I manage them best in pots, and a mass of pots grouped close together, covered up in ashes under a removable light, is a gay sight in February and March. Three excellent kinds are *P. marginata*, *P. viscosa alba* (or whatever the very floriferous white hybrid, which comes true from seed, is called), and *P. Balfouriana*, a beautiful cross from Edinburgh. These are mixed with many kinds of early Saxifrage, especially the varieties and hybrids of *S. Burseriana*, which are often spoilt out of doors, and of *S. oppositifolia*; two very dwarf Iberises called *I. petrea* and *I. rupestris*, which flower from January to May; potfuls of a bright crimson *Bellis sylvestris*, good for rocks, but refusing to grow in deep soil. These and a few more make a very attractive combination, being left open all day in fine weather. Then there is my Grass garden, an acre of outside lawn which is not mown till July. We have read a good deal about Grass gardens lately. The habit of planting early-flowering bulbs in Grass cannot be too highly recommended, but an experience of twenty years has taught me that it is a mistake to expect that Daffodils which are delicate in bare soil become robust if planted in Grass. I have planted Daffodils of all kinds in Grass for many years, and I find that the miffy kinds disappear and those of good constitution survive, just as in the border I never could get *Ard-Righ*, for instance, to continue to do well for three years either in Grass or out of it. *Pallidus præcox*, the wild English Daffodil, the large double, the Tenby, and some of the incomparables do equally well anywhere with me, but increase less quickly in the turf. My Grass is too thick for either Snowdrops or Aconites, but Dog's-tooth Violets succeed admirably if the pheasants will leave them alone, and so does the common Fritillary. I make constant additions to this lawn of flowers, some of which disappear, whilst others survive.

C. WOLLEY DOD.

Seedling Dahlias.—Seed of any type of Dahlia can be sown at once on bottom-heat. It can be sown in pots or pans, or shallow boxes filled with a light free compost or in drills—thinly sown of course—in a prepared bed in a frame on a fairly good bottom-heat. In April the seeds quickly germinate, and when the plants are large enough they should be pricked off into other pots or boxes, so as to grow into size preparatory to being hardened off and planted out in the open ground to flower. A bed of seedling Dahlias is always a source of great interest. It is prolific in surprises, and though a great many of the flowers may prove of inferior character, there will yet be some of good quality. To do the seedlings justice the bed should be of a suitable free soil, deeply dug, and unless poor, need not be well manured. The seedlings should be put out in lines 1 foot apart in the lines and the lines 2 feet apart. All that is required is room for the grower to get among the seedlings as they bloom and examine them. He cuts away at once any that are of an inferior character, and carefully marks any that promise well. As a matter of course, anything good only gives a promise of what it may become under good cultivation, and the grower knows what is likely to be of service to him. The late Mr. John Keynes, of Salisbury, once said that he did not set much value on the plumpest seeds, as he believed the thin ones and apparently less matured were the grains which gave the best varieties. But seedlings prove uncertain. Those who raise them propagate five or six plants from the root the following spring, so as to have a good test, and it often happens that varieties quite fail to come up to the expectations formed of them. It is

always safest to test seedlings two years before venturing to pronounce a final opinion upon them.
R. D.

THE CAUCASIAN SCABIOUS.

THE flower-head accompanying this note gives readers but a faint impression of the real beauty of the Caucasian Scabious. Enough, however, may be gleaned to show its usefulness in collections of hardy flowers, and as it is an almost incessant bloomer, its value in the mixed border or on the rockery will be at once apparent. In most gardens we invariably find it under the name of *S. caucasica* var. *amoena*, which I believe to be altogether erroneous. *S. amoena* is a true species, native, I believe, of Asia Minor, totally distinct, and, judging from dried specimens, in no way deserving of such notice as the subject of our note. In Regel's "Gartenflora," tabs. 1084 and 1212, we find figures of two varieties or forms of *S. caucasica* called *heterophylla* and *elegans*, and it is to the latter name that the plants grown in English gardens belong. Our plant will be found to differ from typical *S. caucasica* by being more robust and having considerably larger flower-heads. The leaves, too, are not so much divided and the plant altogether less straggling. Both the type and its varieties have great affinity to the better-known *S. graminifolia*, which is a really pretty plant, and one that could ill be dispensed with for rockwork or flower border. *S. caucasica* and its varieties will be found to differ from the



The Caucasian Scabious (*Scabiosa Caucasica*).

latter by their more erect stems, much larger flowers, broader and less silvery leaves, and in the length of the inner calyx, which in *S. graminifolia* is hardly longer than the outer. *S. caucasica elegans* has the largest flower-heads of any species known to me, and is said to have been first raised by the Loddiges from seed received from Mount Caucasus. It may indeed be placed in the front rank of showy and useful hardy perennials, and will be found invaluable for summer and autumn decoration. It will hardly be necessary to say that the Caucasian Scabious should be in every garden. The flowers are well adapted for cutting. They last a long time in water, the clumps are rarely without flowers from early summer until late autumn, their peculiar soft lilac-blue tint, and the ease with which the plant may be grown are all points in favour of its general utility. In a light sandy, not over-rich soil this plant is all I have described it; I was, however, not a little surprised to read in the pages of THE GARDEN of its almost total failure in localities with heavy damp soils, even in places specially prepared for it to grow in. There seems no way of getting over this difficulty unless by raising a variety with a constitution sufficiently hardy to withstand the damp cold of a heavy clayey soil. Its propagation either by cuttings, division or seeds is comparatively easy; the two first in spring, the latter in autumn and spring. I suggest spring not because divisions may not be equally successful in autumn, but because of the greater risk of

being caught as we were in a long spell of hard frost which completely destroyed them. As a plant for grouping in the wild parts of the garden, *S. caucasica*, on account of its graceful habit, will be found specially suitable; it is easily raised from seed, and may be had in flower, and forms strong tufts the second year. Most of the other perennial Scabious are retained only in botanical collections, but the annuals such as the well-known *S. atropurpurea* and its numerous varieties, *S. maritima*, *S. palæstina*, *S. stellata*, well deserve special attention; of the two latter, although having showy flowers, the seed heads in autumn are by far the most attractive, stellate in form, and very remarkable on account of their transparency. From a batch of seedlings many well-marked and distinct forms may be obtained. K.

THE CARNATION MAGGOT.

I LOOKED over the report of the proceedings of the Carnation conference held at Chiswick two years ago, but found no information respecting the maggot. This maggot has been giving very many Carnation growers immense trouble during the winter, and their stock of potted layers of good varieties has been terribly reduced in present usefulness because the flowering stems have disappeared. Is this maggot the larva of some small fly which, as is the case with the Onion fly in the spring, deposits its eggs in the base of the leaves where eventually they germinate into maggots? If so, at what season of the year are these eggs deposited? I have found that plants under glass seem to have suffered very much more than have plants out in the ground. Is the fly an autumn visitant, or when does it make its appearance? The plants are not, of course, wholly destroyed, as they still may be planted out to give layers; but, then, what has become of the maggot? Its effects are not seen until far too late, as ere the centre leaves decay and fall the insect has disappeared. Has it become a chrysalis in the soil from whence next year it will rise again, and in the winged form proceed to do all the mischief its progenitors did to the Carnations of that season? To know all about insects of this description is to know very much how to battle with them. I suffered very little from a pest of this sort when growing Carnations at Bedford, but that might have been a local exception. Frosts, excessive wet, aphides, and some other ills may be guarded against, but this trouble is difficult to overcome. If it were known just when the egg-depositing fly visited the plants, it might be possible so to coat the leaves with a solution of soft soap, Quassia chips, and lime as to render the plants obnoxious, and the fly would betake itself elsewhere. Of course, it would be useful if the maggot could be caught and destroyed before it does harm. By the aid of a magnifying glass it is possible that it might be discovered ere it has penetrated into the plant's stem. Once there, however, it is quite out of sight, and the first evidences of its presence is the dying leaves. To destroy the resting chrysalis, it would be needful to shake every particle of the soil from the pot plants before putting them out into the open ground, and then to bury them down very deeply so that none of the insects may come to life. It would be practically impossible to do so much with plants out in the open ground, but then it seems that they suffer little from this maggot. It is very discouraging to Carnation growers, and especially to amateurs, to find their stocks which they imagine to have been safely wintered suffering in this way.

A. D.

Tigridias.—Though somewhat late, these may still be planted if sound roots are procurable, and while the results can hardly be as good as in the case of those planted a month ago, they will at least afford a succession of their chaste and gorgeous flowers. If we except the lovely white kind, few plants can equal the brilliancy of such

kinds as *conchiflora*, *grandiflora*, and *speciosa*, all of which come under *T. pavonia*, an excellent free-flowering and showy species. A fairly rich loamy soil suits *Tigridias* well. Late-planted bulbs should not be placed more than 3 inches deep, unless a very dwarf bed is desired, which is scarcely likely. These plants deteriorate when kept too long dry, and their natural height is thereby lessened. Bulbs planted at once would hardly reach more than 18 inches high in a favourable season. This is quite an acceptable height, however, and as *Tigridias* are specially suited to massing, they would thus form a very showy bed or group in any part of the garden. A few of such things brighten the rockery in a surprising manner, at a time, too, when few alpine are in flower.—E. J.

HYACINTHS.

So far the season has produced nothing of importance in the way of new Hyacinths. Of those shown at the Regent's Park last month by Mr. Douglas and others, a few which are not new in the strict sense of the word are yet not very widely known, and may be mentioned with advantage. King of the Blues is our pattern single blue; Vurbaak and Koh-i-noor hold the same position among the reds, and *La Grandesse* among the whites, and it requires something good to get ahead of these. I think we want novelty and distinctness of colour, and there were decided steps in this direction to be noticed in some of the least-known varieties seen at the Regent's Park. The Sultan is a fine dark purple single blue that gives a deep hue of colour of an acceptable character. Moreno, single red, was conspicuous in Mr. Douglas' collection for its peculiar creamy pink tint, with fine-shaped bells and a good spike. To show how much cultivation affects the development of Hyacinths, I may mention that this variety was shown by another exhibitor, but quite distinct in character from the example Mr. Douglas had, and who had evidently presented it in its best character. Princess Amelia is worthy of mention as a delicate blush-coloured variety. Koh-i-noor is classed among the double reds, but the bells appear to be only semi-double at best, and some of them altogether single. I think its proper place is among the single varieties. There is a wide difference between the double bells of Koh-i-noor and those of Noble, Paquerette, and Lord Wellington. *La Grandesse* is undoubtedly the finest white Hyacinth in cultivation, and is likely to hold its own for many years to come. *Roi des Belges* is a very pleasing variety. Among the single whites, Anna has very large bells. The double form of Charles Dickens (blue) is a desirable variety, and so is *Souvenir de J. H. Veen*, a variety named to perpetuate the memory of a very worthy Dutch grower, who was well known in this country, and who had a remarkable knowledge of the Hyacinth. The old *Mimosa*, with its very dark purple-blue bells, was shown in good character at the Regent's Park.

R. D.

DIELYTRA SPECTABILIS.

I THINK this fine herbaceous plant must be much hardier than is generally supposed. I have two large clumps under a low wall with a west aspect that without the least protection came through the severe winter unharmed, and are now throwing up flower-stems in the most bounteous manner. That the frosts must have penetrated to the roots of the plants there can be no doubt, but probably the wall absorbed the moisture and caused the soil to be fairly dry. I have had plants in pots killed by the frost in a cold house, and probably that was owing to the frost having freer access to the roots. By watering these roots of *Dielytra* freely during the summer, they throw out lateral shoots which flower until quite late, and so furnish something to cut, and the elegant pendent racemes mingle well with other flowers. This *Dielytra* is very useful in many ways. It is one of our best forcing plants, and large clumps of it grown in pots or tubs are most useful for conservatories, while smaller specimens are valuable in the greenhouse for mixing with *Azaleas*, *Epacris*, *Narcissi* and many others. It is equally

valuable in the open border; it will grow almost anywhere and in any soil, and with a freedom that is most grateful. Then the roots can be divided, and if planted out in nursery beds, soon grow into large established clumps of a serviceable character. I think the best time to divide is when the foliage begins to turn a little yellow in early autumn. When I divide, I dig out a trench, put into it some refuse soil from the potting bench and cover the roots with it, treading the soil firmly about them, and if the weather is dry, a good soaking of water is given after three or four days. *Dielytra spectabilis* requires a great deal of moisture, and at washing-time it seems to like a pail or two of warm soap-suds, especially so when the sun is hot. It makes a good window plant and can be potted in September and October, a good-sized clump being placed in a pot that will admit of three-quarters of an inch of soil being placed between the roots and the sides of the pots. The pots can be stood away in any cool place free from frost, or they can be stood in the open and treated as bulbs are for forcing into bloom, by being covered with leaves and manure. When they begin to grow, all the light possible should fall upon them and air be given on all convenient occasions to keep the plants sturdy. There should be no lack of water, and if the plants could be stood in the open and have the benefit of a warm spring shower, they would be all the better for it. The roots so adapt themselves to division, that a stock can soon be worked up. A large number of roots of this perennial are annually imported from Holland.

R. D.

Planting Pæonies.—As the season is rapidly advancing, no time should now be lost in planting



The Gladwin (*Iris foetidissima*).

these noble herbaceous plants. Indeed an earlier date than the present may be preferable for various reasons, but it is not always possible to accomplish everything at the right time, and it is remarkable how much these plants resent removal at any time, as the following will show: A year or two since I had occasion to replant a somewhat crowded batch of the old double crimson. The plants were of good size, and had in the previous year produced fine flowers, three to six on a plant. Everything being ready, the plants were lifted and replanted in about an hour, occupying a position adjoining another and similar batch of the same variety. The work being so quickly done, I naturally thought that the plants would suffer but little, particularly as the soil was not shaken from them more than was possible. In the result, however, those replanted made but puny growth, bloomed fully a week later, and produced much smaller flowers than the companion batch that was left alone. The planting was done very early in the year. I mention this that intending planters should be prepared to wait for Pæonies to establish themselves, and when this is done the reward will come annually in their large handsome flowers. Few plants are of more simple requirements, and, given a deep and rich soil, they soon make headway. It is almost impossible to over-

manure them. Liquid manure may be given to established plants in unlimited quantity with excellent results, and in dry seasons such plants may be flooded once or twice a week, applying liquid manure alternately with clear water. They love moisture as well as deep and rich soil, and too frequently receive insufficient supplies of the former in hot summers when their flowering is complete, blooms inferior in quality being produced in the ensuing year. Always plant them in open ground away from tree roots or shrubberies that would quickly take the moisture from the soil. Pæonies occupy a high position among hardy perennials, and no pains should be spared to grow them to perfection.—J.

THE GLADWIN.

(*IRIS FOETIDISSIMA*.)

THIS is a native of England from Durham southwards, and is abundant in Hampshire, Suffolk, and other of the southern counties. Hooker says it is naturalised in Scotland and that it is rare in Ireland. As a native it probably really is, but as a half-wild or naturalised species it is abundant, especially near Dublin, where, however, it does not fruit so freely and so beautifully as in Southern England. It seems to favour the limestone formations in Ireland as in England, where it is also plentiful on the chalk of Kent and Surrey.

In aspect this plant is more sombre in leafage than any other species, its foliage being densely clustered, of a dark green colour and not glaucous, as is the case with most other rhizomatous kinds. Its flowers produced in May, several on a scape, are of a dingy purple or lilac colour with darker veins, these being succeeded by large trigonal fruits not unlike those of *Iris pseud-Acorus* in shape, but when the pods or capsules burst, as they do in the early winter season, the brown valves are lined inside with clusters of coral-red or orange berries or seeds. These handsome fruits are shown in the accompanying engraving of about a third the size of nature, and when grouped simply with a handful of the deep-hued evergreen leaves they form a distinct and handsome ornament.

Of late years large quantities of these fruits have been sent to Covent Garden and other flower markets, where they are sold readily as indoor ornaments. They are sometimes used as a substitute for Holly berries, which they somewhat resemble in colour and size. The plant is worth a place in the wild garden, or it may be naturalised on hedge banks and near water, or on the grassy outlying portions of the lawn, where its foliage acts as a foil to brighter things such as *Snowdrops* and *Daffodils*. There is a variegated kind sometimes met with in gardens, but it is not so handsome as the wild type.

F. W. B.

Delphiniums.—There is no better time in the whole year for dividing and replanting this noble race of perennials than when the young growths are from 4 inches to 6 inches high. The plants are then active below ground as well as above, and in consequence the roots quickly take to the soil again. It is a different thing altogether when these plants are divided and replanted in November, or at any time during the dead of winter, when they have to lie week after week in the soil before any signs of renewed activity appear. It does not kill them, I admit; the plants, of course, are too hardy for that, but the system cannot compare with early spring division, and where the plants quickly grow away again and

even produce good spikes of bloom in the month of June ensuing. The soil should be carefully shaken from the roots and the plants divided with a sharp knife, leaving about three good crowns to each division. In replanting, bury the young plants a couple of inches deeper than they were previously to allow for the soil settling about them, and also for the inclination on the part of the plant to lift itself to the surface. A thoroughly deep and rich soil suits these plants admirably. Firm planting is very essential. Where the plants are intended to remain for three years, they should not be set nearer than 2 feet apart. Should a dry time succeed the planting season, soak thoroughly with water once or twice. Established plants in pots may be planted out at any time during spring, though the earlier the better, but the ball of earth and roots must be well loosened to admit of a quick start being made. Ground plants, however, obtained at the right time are vastly superior to pot plants, for these latter are necessarily reduced to very small scraps with very few roots to get them into the pots, and a season or two must elapse before a good specimen is obtained.—J.

BIENNIALS.

AMONG biennials there are some decidedly favourite garden flowers, and others which, though equally pretty, are less popular, leading one to suppose that this is attributable to the fact that they are biennials, and, therefore, a little extra trouble is involved in their culture. We must raise some each year if we wish to have them in flower annually, and herein lies the danger of neglect, because even whilst we are watching the budding and blooming of some of them we must be making arrangements for their successors. But after all the majority are easily and cheaply grown. We merely want some nursery beds and borders whereon to sow the seed, and if we are wise we shall sow it thinly, so that the plants may stand where they come up till it is necessary or convenient to transfer them to their flowering positions.

It is easy, therefore, to make particular or special displays of biennials, and comparatively cheaply too. We have our beds and borders of perennials which in a sense are permanent features, but among the changes that we make or desire from time to time and for which we use tender or annual plants, a season of biennials would certainly be appreciated. If we happened to have a large piece of ground that would be cleared in autumn and had also raised a stock of things to meet the case, the creation of such a feature as that here suggested would be a simple matter. Some biennials are too precious for dependence upon chance opportunities of this kind, and these we should seek to provide a place for, so that they may appear each year blending with things of a more permanent character, but not more ornamental, stately, or effective in blossom. Some are most adapted for associating with the shrubs where these have ample room to develop themselves. Here the

FOXGLOVES should be boldly massed, and what can compare with them in early summer when they shoot up their lofty spikes? The finer strains have individual blossoms nearly as large and as pretty as those of the Gloxinias, whilst on poor, dry, sandy banks where little or nothing will grow, Foxgloves flourish admirably.

LAMARCK'S EVENING PRIMROSE (*Oenothera Lamarckiana*) is one of the very finest biennials, and never seems out of place whether among the choice flowers of the border, or associated with shrubs, or even naturalised. It lasts in bloom for many weeks, and its great soft, yellow flowers have always a pleasing effect. Among the many Mulleins, native and otherwise,

VERBASCUM PHLOMOIDES is by far the most conspicuous and a biennial of high merit, easily raised from seed, fit for bold massing like the Foxgloves, and flourishing under a variety of conditions. In the rich soil of the border a single plant will attain to great dimensions, and produce hundreds of blossoms through summer and autumn,

whilst elsewhere a group will be the best method of arrangement, especially among trees and shrubs. The Olympian Mullein (*V. olympicum*) is not so generally useful, nor as a matter of fact a true biennial, because as a rule in the most favoured aspects it does not flower till the third season of its existence. But in the meanwhile it attracts our attention by reason of its immense tufts of woolly leaves, and these come and go till the flower-spike appears. This often grows 9 feet high and bears myriads of small yellow flowers. A sunny site in good soil at the foot of a wall or fence is the best spot for this kind. *V. phoeniceum* is a mere dwarf in comparison with the two giant species just mentioned, and it has the additional merit of being perennial in some soils. It can be treated as a biennial, however, and it is a valuable species, embracing many hues of colour, but, curiously enough, yellow, the predominant hue of the family, is absent in this species. In the border of biennials it should be planted largely. Its spikes do not much exceed a yard in height. For a shaded spot or one that only gets the morning sun it is a grand plant; in fact, such a spot should be chosen, as the bright mid-day sun causes the flowers to droop as if they were withering, although they freshen again in the evening, but of course do not last so long as they otherwise would.

CELSIA CRETICA is a near ally of the Mulleins, but is not a hardy biennial, and for the outdoor garden is perhaps best treated as an annual, being raised very early in heat and grown on into strong plants ready for planting out as soon as possible. When grown in pots it is treated as a biennial, and then sowing is deferred till later and the plants are planted out for the summer, but potted up in the autumn. Without forcing, and in an ordinary greenhouse temperature, it comes into flower in April, and I have always found it even more ornamental in pots than in the open ground. Those who have once tried it will certainly continue to grow it in this way yearly ever after, especially if a conservatory has to be kept bright. It is impossible to overpraise it or exaggerate its beauty and merits.

MICHAUXIA CAMPANULOIDES seems to be growing in popularity, and deservedly so. An appreciative note from time to time and one or two illustrations in these pages have done something in this direction. It is easily raised from seed and with good culture invariably flowers as a biennial, but needs a sunny border and a warm, well-drained soil. It is of noble appearance and strikingly effective when 8 feet high, branched, spreading, and covered with its great flowers, which are often compared to those of a Campanula, but more resemble those of a Passion Flower.

In the suggested borders of biennials the things enumerated above might be boldly massed at the back, and in the front part would come groups of dwarfer things. Among such, the good old, but much-neglected

HONESTY (*Lunaria biennis*) must be given a place. It is very pretty in some cottage gardens during late spring and early summer, and how charming would be a few groups in the borders of large gardens. It would take care of itself in many places if once introduced, sowing itself freely. The old purple kind and its pure white variety are equally valuable, but one might go into scores of gardens and never see either. Among dwarfer biennials none surpass the

CANTERBURY BELLS, and we shall never regret planting these boldly. Mixed colours have a fine effect, but this is improved upon if we have groups of one colour alone, such as a fine single or double white, pink or blue. Campanulas are not so popular as they deserve to be. They are thoroughly hardy and easily raised in quantity from seed. They bloom a second time if all the seed-pods are picked off after the flowers fade. The exceeding variety of form and colour permits of good selection, and justifies extensive planting in a bold way. If they are planted near the shrubberies that harbour game, they will have to be protected in some way, as pheasants are very partial to them.

SWEET WILLIAMS can generally be had in per-

fection if treated as biennials, for though sometimes they may and do live beyond the second season, the risk is great and they often die off wholesale. Unless we have young stock, we may suddenly find in spring the prospect of no flowers for the coming season. There are very fine strains of these now in commerce, but one thing they mostly lack, and that is a proportion of self-coloured kinds. If these were forthcoming, and there is no apparent reason to the contrary, Sweet Williams would have more admirers. There is a sameness about the Auricula-eyed strains, a type of flower that is rather too much in accord with the severe forms and types of the early florists. A group of a rich velvet crimson, pure white or delicate pink self-coloured kind would be preferable in many cases to the most superb mixture extant.

PENTSTEMONS are now rarely treated as biennials. We cannot call them truly hardy, and therefore we preserve special kinds from year to year by means of cuttings struck in autumn, and when seedlings are raised there is little to gain by sowing the year previous to flowering if the plants must have winter protection. They will flower quite as soon if raised from seed sown in the first two months of the year and the plants grown on and hardened off ready for planting out as soon as the weather permits. A similar course of treatment is usually given to Antirrhinums, but they do not strike quite so easily as Pentstemons, and they are somewhat more hardy; therefore, in certain cases it is a distinct gain to treat them as hardy biennials. Those best stand the winter that are raised in late summer and well pinched to induce a bushy habit of growth, and they throw the finest spikes of bloom. A severe winter, however, is often hard upon them, and perhaps in most gardens an annual course of treatment is the safer of the two. This will not prevent us associating them with other biennials. The fragrant and ever-welcome

WALLFLOWERS must be raised the previous year to flowering, and as regards these we are in a sense at the mercy of the winter. It may destroy many or only a few. We miss them greatly when we have provided good plants, made bold groups, and the cold cuts them down. Some are harder than others, and on that account Belvoir Yellow is very valuable, being one of the hardiest.

BROMPTON STOCKS are about the most uncertain of biennials, and are being superseded by other types treated as annuals, and yet these last can hardly compare with the giant Bromptons, veritable bushes covered with fine spikes of bloom. Whether winters are dry and cold or mild and wet, one has invariably to record great loss among the Brompton Stocks, and this in spite of several counteracting expedients, such as twice transplanting or protection.

These represent the chief families, and amply prove that there is abundant material for the suggested border of biennials. If not made a yearly feature, it might be an occasional arrangement for the sake of variety and change, two things that many gardens sorely need. A strong point in its favour is that it can be planted in autumn, winter, or spring, and is gay even while summer gardens are bare.

A. H.

Gladiolus The Bride.—Where this useful plant is grown in the open ground permanently, it generally provides a capital supply of its white flowers when such with long spikes or stems are none too plentiful. It should be grown more extensively than is now the case for the supply of such flowers in August and September, when they are of much value. Dry corns may still be planted with this object in view. A good way also of retarding the flowering, and thereby extending the season where these are grown constantly in the open ground, is to lift a portion of the stock and replant any time during April. The plan, of course, is very much opposed to orthodox, but, notwithstanding this, it answers admirably in practice, and is particularly adapted for such gardens as require

a long-continued season of flower rather than quantities at fixed times during the year. As soon as the first bloom has expanded, the spikes should be cut and placed in water in a cool dark place. Other flowers quickly open in succession till all are expanded. To obtain all the flowers, fresh water is necessary, as also an occasional shortening of the stem. The purity of the flowers is also ensured by their expanding under cover.—E. J.

DAFFODIL DISEASE.

HAVING been interested in the importation of Daffodils to this country and grown a good many here for some years past, I have followed with attention what has recently been written upon the subject in this and other English horticultural papers, and have read in the January number of THE GARDEN Mr. Engleheart's article on the subject in which he attributes the disease to a large extent to the bulbs dragging on the roots owing to alternate tension and relaxation from severe frost. Here we get no frost, or so little as to be practically none, yet we have what appears to me to be the same disease. Last winter in my garden the glass never went below 38° Fahr., yet some clumps of bulbs were affected, some exterminated, so I am afraid we must look for some other cause.

When I commenced growing Daffodils some fifteen years ago I had only two or three varieties, and these, grown in a very light sandy soil of slight depth, not more than 2 feet of soil above the rock and without manure, never showed signs of disease. Where I have been for the last eleven years I have a similar soil, but there is a stratum of gravel on the rock, which is about 3 feet below the surface; the ground where the Daffodils are grown was prepared for Roses nine months before the bulbs were planted, trenched to the rock, heavily manured with stable manure to within a foot of the surface, and when the bulbs were put in in small clumps between the Roses, they were about 6 inches above any manure and, say, 3 inches under the surface. The bulbs had been imported two years before from England and Germany, and grown in the interval in a different place. Most of this planting did well—Emperor, cernuus pulcher, Barri conspicuus, John Horsfield, &c., but one of the incomparabilis and pallidus præcox died out—I cannot say I observed closely enough to say from what cause. Eighteen months ago I imported some more bulbs from Ireland, and these were planted in the same manner, and at that time I replanted some old friends that had never shown disease. Of the imported bulbs, a clump of Ard-Righ nearly died out, but a clump of the same variety of colonial bulbs (i.e., that had been grown here the previous season) planted not much more than a yard away were perfectly vigorous, and turned out healthy bulbs when dug. Rugilobus died out, while Colleen Bawn a few yards away was perfectly healthy. Of two clumps of a variety of which I do not know the name, but which was one of the first I had and which had never shown disease before, one clump was as healthy as possible, while the other fared very badly, and yet the bulbs of this variety were all taken from the one old clump that I then lifted.

I may add that my garden is an old one, probably sixty years old, though for twenty years before it became mine it had been entirely neglected; and that my bulbs are left in the ground from year to year, never lifted until they become too crowded, probably they would average three years between the lifting, and that I take care to prevent any manure coming within 6 inches at any rate of the bulbs.

It may be useful to add that Daffodils bloom here from July to October; that the summer of 1890-91 was a fair average season, moderate in heat and in rain until the end of January, and after that time rather immoderate in the latter respect, and that the rain continued to fall frequently till about August, say 39 inches; that the Daffodils begin to fibre here in March, and to show grass in May; that the grass continued in some varieties up to December, and that last spring and early summer were fair ones with a good, though not excessive, rainfall, with a dry spell of about a month, ending early in January. The disease appears here first in the grass, which loses colour, turns yellow, and goes off early, any blooms that are coming doing the same, or the leaves first die back from the tops. When the bulbs are dug later on, sometimes the whole base and centre seem rotted away, though a few scales are occasionally left; at others the whole bulb has gone. I have gone into these particulars hoping that as the climate and seasons here are so different, they may be useful to those who are investigating the trouble in the Old World.

H. H. B. BRADLEY.

Sydney, N.S.W.

BOOKS.

OBSERVATIONS ON INJURIOUS INSECTS.*

THE annual report on injurious insects compiled by Miss Ormerod has been published considerably earlier this year than it usually is. It is about the same size as heretofore. In this, the fifteenth annual report, as in those of the past two years, twenty-three insects and mites have been reported on. This coincidence in the numbers of the insects is no doubt purely accidental. Though the matter is not alluded to in this report, it is very satisfactory to know that the differences between Miss Ormerod and the Royal Agricultural Society have been quite made up, and that the former will continue at her post as their hon. consulting entomologist. So these reports may be expected yearly, as they have been now for a considerable number of years. Of the twenty-three insects reported on, only four are mentioned which have not been noticed in the observations of other years. It can only be expected that the number of insects not before reported on should become less every year, as more than 100 have already been noticed in these reports. The four insects which make their *début* this year are of considerable interest to the gardener. Speaking of the insect pests during the last year, Miss Ormerod says in her preface: "The past year has been remarkable for the presence (more or less) of most of our common farm and garden insect pests, and also for bad attacks of several kinds of which the habits and means of prevention had been little recorded previously. To give the long list of infestations, regarding which inquiries were received, would be, for the most part, a mere enumeration of our best known insect pests, as wireworms, daddy-longlegs, Carrot grubs, &c.; but so far as I could judge by the reports sent to myself, there was a remarkable difference in the amount of presence of some of our very commonest attacks. Some were present to an unusual amount; some unusually absent." In alluding to the report on the diamond back moth, whose caterpillars were so destructive to the Turnip crop on the east coast, the authoress says: "Just a few lines may appear to be called for to explain the great length of the report on attack of diamond backs. So far as I can judge from reports sent me, or from research in previous records, this outburst (taken as a whole) was unexampled in this country, and I have endeavoured to the very best of my power to preserve its history accurately." And again later on, "The great singularity of the attack consisted in the very sudden outburst of the infestation of an insect (which has

* "Report of Observations on Injurious Insects." By Miss Ormerod. Fifteenth report. London: Simpkin, Marshall and Co.

long been known to be fairly common and abundant amongst Turnips and Cabbages) taking place, not, as might have been expected, over inland and coast land indifferently where these crops are generally grown and their favourite weed plants found, but for the most part, and also most distinctively and markedly, on a strip of coast land running the greater part of the length of the seaboard of England and Scotland. Difference of opinion appears to exist as to whether the infestation was home-bred or wind-borne from other countries. So far as is shown by the evidence given, it appears to me to have been wind-borne." The four insects which have not been noticed before in these reports are the Apple sawfly (*Tenthredo testudinea*), the garden pebble moth (*Pionea forficalis*), the Currant shoot moth (*Incurvaria capitella*), and the Plum sawfly (*Tenthredo morio*). The Apple sawfly is by no means a new pest, but last year it appears to have been noticed in two localities where it was the cause of a considerable amount of damage. It is probably the case, as Miss Ormerod suggests, that this insect is much commoner than it is usually supposed to be, and that Apples attacked by it are generally thought to have been injured by the caterpillars of the Codlin moth. The Apple sawfly appears to lay its eggs in the blossoms, and the grubs work their way into the young fruit, which they so injure, that they fall when scarcely 1 inch in diameter; if the Apples get beyond this size, they are usually safe. When the Apples fall to the ground the caterpillars leave them, and, burying themselves in the ground, become chrysalides, from which the sawflies emerge the following May. The grubs when full grown are about three-eighths of an inch long, and are said to have a most unpleasant odour. Gathering up and destroying the fallen Apples and removing the soil under the trees for a depth of 3 inches appears to be the most practical way of destroying this insect. The Cabbage garden pebble moth, or rather its caterpillars, is another insect which has been known for years as being very injurious to Cabbages, garden Turnips, and Horse Radish, but no one seems to have paid much attention to it until last year, when it was the occasion of considerable injury near Huddersfield. The caterpillars may be found during June and July, and again in September and October, for there seem to be two broods. They riddle the leaves of any plant that they attack through and through, leaving little but their thick ribs. The third pest mentioned for the first time in these reports is the Currant shoot moth, which is a common insect among Currant bushes. The caterpillars live inside the young shoots, feeding on the pith, which, of course, kills the shoots. The life history of this insect is not thoroughly known at present. When it is, other means may be found of destroying this insect, but the only practical means as yet devised is to pick off and burn the infested shoots.

THE PLUM SAWFLY.—The grubs of this insect caused a considerable amount of injury to the Plum crop in some places. The female sawfly lays her eggs in the calyx of the Plum blossom, and the young grub "eats its way into the young embryo fruit, where it continues within what would have been the kernel. When it has consumed all that suits its purpose for food in one Plum, it goes on to another." This, of course, causes the Plums to fall prematurely. When the Plum in which the grub is falls, the latter crawls out, and, burying itself in the ground, forms a cocoon, in which later on it becomes a chrysalis. Shaking the trees and at once collecting all the Plums which fall and destroying them is useful, and removing the soil in the winter under a tree badly attacked for a depth of 3 inches or merely turning it over and breaking it up as fine as possible so that the birds may get at the cocoons, will be found successful in lessening the number of sawflies the next season. Of the insects which have been before alluded to in these reports, one is glad to notice that the injury caused by the Hessian fly was very slight; so slight indeed, that even the authoress, who at first was one of the "alarmists," says: "During the past season very few observations

were sent of presence of Hessian fly, and none of it doing serious damage, and, save to show how little we are suffering in our insular climate from this attack, which has the power of ranking amongst the worst Corn scourges in less favoured countries, it would hardly be worth while to mention it again." So I hope we may consider the scare, like that of the Colorado beetle, as an episode in ancient history. Last year several persons sent observations of mites in hay. The presence of these mites, appearing as they do in countless numbers, is very curious; they are not known to injure the hay in any way, nor do animals which are fed on it suffer any inconvenience, except that it makes horses cough when they are eating it, the mites evidently causing a tickling sensation in the horses' throats. Men while employed in handling infested hay often feel a considerable amount of irritation about the face, arms, and neck. Though these mites do not injure the fodder to any appreciable extent, they cannot be of any benefit to it, so that it would be very desirable to find some means of destroying them. At present, nothing of much use has been tried. It is suggested "that running a band of tar or some waste material round the stacks from which the mites drop in great quantities would prevent the mites straying about in legions to continue infestation." These mites may sometimes be found in extraordinary numbers. One correspondent says: "I have seen them an inch or more deep on the ground round a hayrick." Another writing from the Western Highlands says: "One remarkable thing is, that they can extend themselves over an even surface or wooden floor for a considerable distance, somewhat in the way the honey bees do against the hive before swarming, only that they differ inasmuch as they do not appear to have the power of suspending themselves as bees do, but when they extend (i.e., the mites), they do so in a continuous mass, sometimes several feet outwards." This description is not very clear. The writer can hardly mean to suggest that the mites projected out in a continuous mass for several feet from the stack.

The grubs of the Wheat bulb-fly (*Hylemyia coarctata*) were more prevalent than usual last year. This insect attacks the Wheat plants in the spring. Wheat which has been injured by these grubs is often thought to have been killed by the frost, so that agriculturists should give more attention to this insect than they have hitherto done. The flour moth (*Ephestia Kuhnella*) appears to be spreading and to have become thoroughly established in this country. All mill proprietors should be on the look-out for this insect and take energetic measures at once to destroy it, for if it once gets a footing in a mill or any other place where flour is stored, it is most difficult to exterminate it. The grubs of the Beet carrion beetle (*Silpha opaca*) are again mentioned as injurious to Mangolds, but they do not appear to have done much harm. They are naturally carnivorous, and probably only take to a vegetarian diet when the supply of their natural food fails. The Mangold leaf-fly or Beet-fly (*Anthomyia betæ*) was more than usually abundant last year; in fact, it does not seem to have been so prevalent since 1880. No means have yet been found for destroying this insect, the grubs being safely ensconced between the skins of the leaves. The great thing appears to be, to so cultivate the Mangolds as to give them every chance of a healthy and strong growth.

In the report on orchard caterpillars there is nothing particularly new, but much interesting information is given about the use of Paris Green. This insecticide has now been used in this country for about two years, and those who have been experimenting with it—notably the experiment committees of the Evesham fruit growers and the Toddington fruit grounds—have been able to find out the exact strength at which solutions of this substance should be used. No doubt when properly applied, Paris Green is a most valuable assistant to the fruit grower, but great care has to be employed to ensure the insecticide reaching the leaves at the proper strength, for even with the solution of exactly the proper strength if too much is applied, the effect is just as disastrous as if it had been applied too strong. The leaves should be just be-

dewed with the fluid, and on no account be allowed to drip, or the tips of the leaves where the mixture runs off and the leaves on which it falls will be certainly injured, and yet if it be not applied thoroughly, all the leaves will not get their proper share. Paris Green is a heavy substance, and has a very decided tendency to settle at the bottom of the vessel in which it is placed. Consequently, unless it be kept very well mixed, the liquid at the bottom will soon become too strong. The powder is very poisonous, and anyone using it should be very careful not to allow any to get into a crack or sore on his hands, nor to inhale any; so that Paris Green is by no means an insecticide which can be left to anyone to manipulate, and it should only be used by persons who are careful and methodical. I do not think that it is a substance which should be recommended for general use. Paris Green, to use its chemical name, is an acetarsenite of copper; it does not dissolve in water. When mixed with a solution of soft soap and water,



Ornithogalum nutans.

the copper is to a slight extent separated from the arsenic and forms a slight amount of a brown deposit, but this does not occur to such an extent as to alter the character of the solution. Soft soap must add considerably to the efficiency of the wash, as it would then prove effectual against aphides. Without it the aphides are unharmed, for as they feed by sucking the juices from the leaves by means of a long proboscis inserted into them, the poison on the outside of the leaves does not have any effect on them; whereas a solution of soap kills them by choking up their breathing pores. The Raspberry beetle (*Byturus tomentosus*), whose grubs feed in the fruit, has been the cause of considerable loss to the fruit growers in some parts. From their position it is obvious that nothing can be done to destroy the grubs without injuring the fruit, but there are various preventive measures given in this report. Another Raspberry pest, the red moth caterpillar, is the caterpillar of a small moth (*Lampronia rubiella*), and is very injurious to the buds and young shoots of Raspberries

by boring into them. This insect was very abundant last year in some districts. One fruit grower estimated that the value of his crop was reduced from £40 to £8 per acre. No less than sixty-two pages, or rather more than a third of this report, is devoted to the diamond back moth (*Plutella cruciferarum*), whose caterpillars were so destructive to the Turnip crop on the east coast of England and Scotland and in some other places last summer. From the evidence of persons living near the coast, it seems pretty certain that the moths must have come from the Continent. There had been easterly winds for some days before the moths appeared almost simultaneously in extraordinary numbers at many different places, among them the Longstone Lighthouse on the Farne Islands, five miles off the north coast of Northumberland. The moths were in such numbers that the lighthouse men were obliged to keep sweeping the moths off the lantern all night in order to allow the light to be visible at sea. Various dry dressings applied to the leaves were very useful, and knocking the caterpillars off the leaves by means of boughs, &c., attached to horse hoes was also successful. What seems to have saved the crops from utter destruction was the heavy rain which fell when the attack was at its height, and in the end the crops turned out much better than was anticipated. The reports from various correspondents are given in full; they would have been much more useful had their contents been simply tabulated instead of being given *in extenso*. But the whole of this annual report, like its predecessors, sadly wants editing, several of the words frequently used, such as leafage for foliage, "and bulbing was almost at a standstill," for the growth of the Turnips was almost, &c., are very unusual and unpleasant to the ear, and the phraseology in many places is far from euphonious. These, however, are small matters, as this pamphlet is obviously not a literary work, and the matter it contains is of so much practical value. The index, as far as I have tested it, is correct, but on p. 10 reference is made to "Fisher Hobbs' mixture (see index)," but on carefully looking through that very useful part of a book, it cannot be found. G. S. S.

GARDEN FLORA.

PLATE 854.

STARS OF BETHLEHEM.

(WITH A COLOURED PLATE OF ORNITHOGALUM PYRAMIDALE.*)

ALTHOUGH a large genus, numbering over eighty species, few at least of the hardy kinds can be considered striking garden plants. Amongst the forty species hailing from the Cape, on the other hand, we have some really showy bulbs, most of which are in cultivation, and are very popular as being invaluable for greenhouse decoration. With the exception of *O. latifolium* among the hardy kinds, none of the species are at all comparable with the subject of the coloured illustration. It is a really striking plant, and when left undisturbed for several years and allowed to form clumps, it is one of our most attractive summer-flowering bulbs. All the tall-growing species as well as a few of the dwarf ones are eminently suited for wild gardening, and as they do well in Grass and are best left undisturbed, our woodland walks and copses might be made attractive for a great part of the year at a very little cost. What is greatly in favour of the *Ornithogalum*s is that one does not have to wait a number of years for them to flower. Many of those mentioned below might also be utilised in dwarf shrubby borders, where the kindly shelter would greatly assist in strengthening the bulbs and allow trials

* Drawn for THE GARDEN by Mrs. Earle. Lithographed and printed by Guillaume Severeys.



ORNITHOGALUM PYRAMIDALE

of half-hardy kinds to be made. Any good garden soil suits them well. A rich sandy soil will be found most suitable, and as they are readily raised from seed, a few years only are needed to get up a stock. The seeds of *O. nutans* may be scattered about the woods or shrubberies, anywhere indeed, and in a few years they will be had in flower.

O. ARABICUM.—This (see illustration) is one of the most charming of the genus, and although not strictly a hardy bulb, it does well out of doors in sheltered situations, and in the south especially rarely gets destroyed. It produces its large, green, ornamental leaves early in October, and flowers towards the middle of March or beginning of April. The flowers are borne in congested spikes, and are each from 1 inch to 2 inches in diameter, pure

and recurved, flowers very numerous in corymbose head, milk-white with purplish stems and yellowish anthers. It flowers in May and June. It may be planted on bare banks and such spots in full sun.

O. EXSCAPUM.—The dwarfest perhaps of all the species in cultivation at the present time. It never exceeds a couple of inches in height, producing umbels of large white flowers just above the neck of the bulb. The leaves are a little longer, very narrow and reflexed. A native of Southern Europe, flowering in March and April. It succeeds well on dry, stony ground, and should always be planted in full sun.

O. GLAUCOPHYLLUM.—A comparatively rare species introduced from Asia Minor by Mr. Elwes a few years ago, and flowering with us in May and

from Parkinson. It is perfectly hardy, and makes a charming plant for grouping in clumps of dwarf shrubs, &c.

O. MONTANUM.—A dwarf species of no particular merit. It grows 2 inches to 4 inches high, bearing numerous greenish white flowers. A native of Italy, flowering in May.

O. NARBONENSE.—A tall-growing species from Southern Europe, and nearly allied to *O. pyrenaicum*; indeed it has been considered a variety of that species. It differs, however, in its dwarfer habit, its longer flower-stalks, no yellow in the flower colouring, in the styles being shorter than the stamens, and in the bracts being a fifth part instead of half the length of the flower-stalks. It is a showier and more desirable plant than *O. pyrenaicum*, and should be in every collection of hardy flowers. Leaves channelled, each $1\frac{1}{2}$ feet to 2 feet long, and half an inch broad, withering at the points when the plant is in flower. Flower-stem 1 foot to 2 feet high, bearing about fifty blooms in a dense raceme. The flowers are white with a green stripe along the mid-rib, about an inch in diameter, and with the alternative segments toothed. Introduced in 1810, flowering spring and early summer. The form *O. stachyoides* is very near, if not identical with other forms of the type.

O. NUTANS.—A very popular species, and one of the most easily managed of all the *Ornithogalums*. In borders amongst other named bulbs, however, it becomes a great nuisance, on account of the freedom with which its innumerable bulbils are formed. In a semi-wild or uncultivated spot it is a capital subject for groundwork; it requires no attention whatever, and flowers freely all through April and May. The flowers are borne in racemes, drooping, green on the outside, whitish green inside, peculiarly attractive. *O. Boucheanum* is a mere form of the above with larger flowers. Southern Europe.

O. PYRAMIDALE, which will be found figured in the accompanying coloured plate, is a very old native of our gardens, having been introduced from Spain early in 1752. All botanists are doubtful as to giving it a specific distinction, Nyman in "Flora Europæ" describing it as a garden or cultivated form of *O. narbonense*. It differs widely from any *O. narbonense* I have ever seen, and as it is said to grow naturally on the hills of Spain and Portugal, there seems no reason why the Linnean name should not be kept up. In robust plants the flower-stems grow 3 feet to 4 feet in height, bearing pyramidal clusters of pure white flowers, marked with green stripes on the back. The long narrow leaves often wither before the flowers are fully open. It is a charming species for borders and for massing amongst shrubs, where if left undisturbed it forms large bold masses.

O. PYRENAICUM is found in many localities in Britain, but is not a showy species. The flowers are yellow and green, borne on long racemes, the leaves fleshy, bright green. Flowers in June and July.

O. SORORIUM.—A charming dwarf species allied to *O. exscapum*, discovered in the Sicilian Taurus, and introduced by Max Leichtlin in 1875. The flowers are borne in sessile crowded bunches, pure white, with a broad stripe of green down the back. Flowers in May.

O. UMBELLATUM.—This is one of the best-known and most beautiful of the dwarf species of *Ornithogalums*, useful alike in bed or border, a first-rate bulb for naturalising in Grass, it being a sure flowerer, distinct and very attractive. It may be taken as the type of the dwarf or umbellate section. Its flowers, which are pure white, are borne in loose umbels on stems rarely exceeding 6 inches in height, leaves channelled, bright green, with a whitish stripe along the centre. Native of Europe, flowering in May and June.

O. UNIFOLIUM.—A pretty dwarf species, suitable for rockeries. It grows in the greatest abundance on the barren hills and wilds of Portugal. As its name implies, it is only one-leaved, but it makes up for lack of leaves in abundance of flowers. These are borne in loose racemes, pure white throughout,



Arabian Star of Bethlehem (*Ornithogalum arabicum*).

white, and very attractive. A native of Algiers, and well worth trying in collections of hardy *Ornithogalums*.

O. ARMENIACUM.—A well-marked hardy species discovered in Armenia by Kotschy, and introduced a few years ago by Max Leichtlin, of Baden-Baden. It belongs to the umbellatum group, is a free flowerer, and very attractive. The flowers are borne from six to ten in a dense corymb, pure white, with the exception of a broad green keel. The leaves are grey-green with incurved margins, and each about 6 inches long. It flowers in May in England.

O. AUREUM is perhaps not hardy out of doors anywhere in England, but is worth trying on account of its bright orange or golden flowers. It may, however, be managed with frame treatment.

O. COMOSUM.—This is a pretty little plant and extremely useful for odd corners and shallow ledges on the rockery. It rarely exceeds 4 inches to 6 inches in height. The leaves are narrow, thick

and June. It is a close ally of *O. umbellatum*, which it resembles in habit. From all the other species it may readily be distinguished by its flat, narrow glaucous leaves, without any trace of a central marking; flowers ten to twenty in a corymb, pure white on the inside, the outside being entirely green.

O. FIMBRIATUM.—A dwarf species with very hairy leaves and smallish white flowers, useful for planting in grass, &c.

O. LATIFOLIUM.—A very handsome species, of the *O. pyramidale* section, and a useful addition to our hardy spring or early summer bulbs. The root leaves are numerous, broad, sword-shaped, and usually spreading on the ground. The flower-stems grow 1 foot to 3 feet in height, bearing a long spicate head of large white flowers. I have counted over a hundred on a robust plant. It flowers in May and June and is a native of Tauria, from whence it was introduced in 1629, as appears

and though not very large they will be found attractive in groups among the rocks. It flowers in May. D. K.

THE WEEK'S WORK.

FRUIT HOUSES.

LATE GRAPES.—These are now, or ought to be, growing very strongly, and that too without the expenditure of much fire-heat. Disbudding ought to have been early attended to, but this should not be done very severely at first in case of accidents with those reserved. If the Vines are in good health and well ripened, bunches will have been very freely produced, there being two or three of these on all the principal growths of Alicante, Gros Colman, Alnwick Seedling, Lady Downe's, Mrs. Pinco's Muscat, and such like. These ought to be early reduced in number, leaving only the best formed on each shoot. Large bunches are usually preferred for exhibition, but for real utility those ranging between 1 lb. and 2 lbs. in weight are the best. Not only is it possible to grow a much greater number of these on a rod, but the smaller bunches invariably keep the best. Even if the largest bunches are selected, these ought yet to be trimmed into shape somewhat, loose, ugly shoulders being early removed, and some of the rest shortened later on. As soon as it can be done, pinch out the points of all the laterals two leaves beyond the reserved bunch, but on no account attempt tying down much before flowering time. If the rods are rather close up to the glass, suspend them loosely or sufficiently loosely to admit of the laterals being kept clear of the glass without resorting to tying down other than very lightly indeed. Those very strong breaks are scarcely capable of bearing their own weight for some time longer, and drawing them to the wires might mean the loss of many of the best. In some few cases it may be advisable to lightly support them, and heavy reckless syringings as well as slamming of doors must be guarded against. Maintain a fairly brisk heat and moist atmosphere, the temperature during the night ranging from 60° to 65°, a little fire-heat being turned on, while during the day it may rise another 10° with air, the house being closed early enough to run the heat up to 90° for a short time, this being accompanied by overhead syringings and plenty of atmospheric moisture.

EARLIEST MELONS.—Two or three fruits are quite enough to leave on each pot plant, while if only one starts to swell freely, this should not be removed or the plant may prove a complete failure. Early sling up the fruit, with a view to taking the weight off the baulm, but not so as to unduly confine the Melons. A good-sized noose of strong, coarse raffia and three strings of the same attached to it is the simplest and best method of suspending Melons, good care being taken to loosen the band if it prevents swelling. Plants in pots should have plenty of liquid manure and there should be no drying-off attempted, the best-flavoured fruit being cut from plants in full leafage. Successional Melons should have all side shoots early and cleanly removed till the trellis is reached, after which train the point either up or down the roof as need be, and stop when near the end of the trellis; side shoots if very thick should be thinned out, and those reserved laid in right and left. The greater part will show fruit and should be stopped at one leaf beyond these. The aim should be to fertilise as many flowers as possible on the same day, or otherwise the crop may be very light, the proper time to do this being towards mid-day, when the flowers are dry. Till a good set is effected, avoid overhead syringing and maintain a rather drier atmosphere, but do not starve the plants at the roots, or what at first appears a good set may prove a failure. Keep the soil constantly dry about the stems as a preventive of canker, but the rest of the ridge should never become very dry, or the best of the roots may perish. The plants being well raised at the collar, top-dress and also add more soil to the sides, making this firm and level,

this being necessary for the purpose of keeping the roots active near the surface. Give liquid manure freely directly the fresh soil is fully occupied by the roots. Bottom-heat is still most desirable, and the top-heat should range from 65° to 70° by night, increasing to 70° and 75° in the daytime. Ventilate carefully, avoid shading, and close early enough on sunny days to raise the heat to 90° for a time. On dull, sunless days, these following closely upon clear weather, turn on more fire-heat, syringe less freely or not at all, and maintain a drier atmosphere generally, or otherwise canker may prove troublesome.

CUCUMBERS.—These revel in a strong heat and plenty of moisture, and the hot weather of the early part of April appears to have suited them well. They require to be shaded during the hottest part of the day, roller blinds being preferable to any form of permanent shading, especially where the express system of culture is resorted to. Cucumbers grow with the greatest rapidity, cropping heavily when the house is never opened; but there must be no lack of moisture either at the roots or in the atmosphere, or a breakdown soon takes place. Therefore make good use of the blinds, syringe overhead frequently, and damp down often. The older plan, that is to say, ventilating and maintaining temperatures much as advised for early Melons, answers best, however, for private places, or in all cases where only a steady supply of Cucumbers is required, and is the least likely to end in failure. In order to keep the plants growing strongly and healthily, avoid over-cropping, stop sufficiently often to prevent crowding of the leaves, and keep the roots active by means of frequent light top-dressings. A rough fibrous loam suits Cucumbers best, no solid manure in particular being added; but if fibrous loam is not available, then mix up a light compost consisting of two parts of light loam and one of either leaf soil or peat, adding charred soil and ashes freely. Also avoid the use of other than quite clear liquid manures, special or chemical manures being preferable, as these do not clog the surface of the beds injuriously. When once the roots become inactive or the foliage is over-run with red spider, the plants are no longer worthy of house-room. Therefore anticipate failure by having other strong young plants coming on in succession, some also being grown in pits and frames.

PRACTICAL.

ORCHIDS.

THE Orchid houses should now be very gay, Cattleyas and Dendrobiums taking the lead. It is a good plan to have a house set apart for the flowering Orchids, for if we try to cater for the wants of Cattleyas, Laelias, and Dendrobiums making their growth, we expose the plants to too much sunshine, and the flowers last but a very short time in good condition. *Laelia anceps*, for instance, and the white forms especially, will not produce their flowers freely unless well exposed to sunlight. When but one house is available in which the plants must be both grown and flowered, we must do the best we can by placing the flowering plants where they are least exposed to the afternoon sun, and let the blinds remain down a little longer than we would if no plants were in bloom. Although the Cattleyas, Laelias, Dendrobiums, &c., form the leading feature in the Cattleya house, it is well that cultivators should look out for other plants of a striking character, even if they may be not so showy. Such, for instance, are the *Cynoches*, a singular genus of Orchids, natives of Tropical America, and not difficult to cultivate. *C. chlorochilon*, for instance, should be in every collection; its peculiarly formed labellum, resembling the neck of a swan, has obtained for it the name of the Swan Orchid; indeed this applies to the entire genus. The flowers are of large size, sepals and petals greenish yellow with a whitish labellum, having a yellow blotch in the centre. The culture of *Cynoches* is very simple. The plants may be grown in pots or in baskets; if in pots, they require good drainage, and when growing they need the moist atmosphere of the warmest house with

plenty of water. In the autumn when the plants lose their leaves they must have a period of rest, and during that time little or no water is needed. They are summer-flowering. Another distinct class of plants not much known or cultivated is the Brassias; none of them have richly coloured flowers, but they are very curious. *B. verrucosa* major is perhaps as well known as any of them. I can well remember the large specimens of this that used to be exhibited some years ago. I have showed it myself both growing and cut, and it always arrests attention. The long sepals and petals are yellowish green, blotched and spotted with purplish black; the lip is white, and the peculiar odour is not at all unpleasant. *B. lanceana* is a peculiar and striking species. *B. maculata* is a curious species which has long been known in gardens, and *B. Wrayæ*, which is merely a form of the last named, may also be grown easily in the Cattleya house. It is a good plan to raise the plants well above the rims of the flower-pots in which they are grown, but in other respects they may be treated much as Cattleyas. I have lost good plants by the pseudo-bulbs decaying, and this is evidently caused by water lodging at their base. *Cyrtorchilus maculatum* is an Orchid of a similar character, and the flowers are green and purple coloured. It is also a neat-habited plant, and should find a place in every collection of Orchids, and does well grown with the Cattleyas and treated similarly to them. A few plants of any of these distinct-looking Orchids form a feature in collections and make a pleasing change from the more richly coloured species. Orchid fanciers seem to run after the popular species of Orchids, such as Cattleyas and Laelias; indeed, I have seen Orchid houses in private gardens filled with Cattleyas, Laelias, and Dendrobiums, to the evident neglect of other beautiful things. Of course, I am not writing a word against these beautiful genera of Orchids. They are so much grown because of their great beauty. What I suggest is that they should not monopolise all the space set apart for intermediate house Orchids, but should have other distinct and striking genera intermingled with them. The same remarks may apply to the cool house Orchids. *Odontoglossums*, principally *O. crispum* and *O. Pescatorei*, monopolise nearly all the space. They are doubtless the most generally useful Orchids, and many do not care much for flowers, whether Orchids or otherwise, unless they are found to be useful for cutting. I showed a well known Orchid grower plants of *Odontoglossum Phalenopsis* some time ago, and remarked that it was very pretty, but not so much valued as it used to be, and he observed that it was not of much use for "cutting." When the proprietor of Orchids or other plants happens to be an invalid, and cannot get into the houses to admire them as they grow and flower, it is pardonable that the Orchids best adapted to produce cut flowers should be grown. The flowers of some of the most handsome species are "of no use for cutting," but last long in good condition if allowed to remain on the plants. Of such may be mentioned *Odontoglossum (Miltonia) vexillarium*, the flowers of which fade speedily when cut, but last long if allowed to remain upon the plants.

The ordinary routine work is beginning to get more exacting as the season advances. We passed through a period of fine weather early in April; plenty of sunshine, but a continuous cold wind from the east, and for the season a dry atmosphere, which tried the plants very much. It is necessary to admit air at such times, and it does not always become heated before it comes into contact with the plants. One must be cautious when cold east winds are blowing and sunshine at the same time, especially at this season, when many Orchids are just starting into growth or have progressed considerably; a check at starting or even in mid-growth is not speedily made up again. It is better to let the temperature rise and admit just a little air at the apex of the roof and by the ventilators in the side walls. The latter are placed so that the air rushing in comes into immediate contact with the hot-water pipes and gradually mixes with the air of the house. I like a very

narrow opening of considerable length in preference to square openings of a limited extent, as they are arranged in some glasshouses. More care is now necessary in regard to watering; plants very soon suffer if they are allowed to become very dry before being watered.

J. DOUGLAS.

THE KITCHEN GARDEN.

FRENCH BEANS.—Where there is a regular system of forcing French Beans, there is but little difficulty in maintaining the supply. During a season like the present, when early vegetables will be naturally late unless aided by glass, a crop of French Beans will prove very useful. If there should be at liberty a frame which has been used for the forcing of Potatoes, all that will be needed will be to level down the soil, moisten it if at all dry and sow the seed in rows about 15 inches apart. By keeping the frame rather close, damping and shutting up early with sun-heat, the seedlings will quickly germinate. An occasional thorough watering and damping over of the foliage in the afternoon will cause a quick and fruitful growth. Any frame which may cover a bed of rich soil may also be utilised. To maintain the supply, plants may be raised for planting out on warm borders. Four-inch pots should be used, placing three seeds in each. The mistake must not be made of raising these in heat or coddling them in any way. The pots should be placed in a cold frame, in which, if kept rather close, the seeds will not be long in germinating. If the weather should not be very favourable by the time the plants are ready, they must be planted so that protection may be afforded, either by waterproofed canvas covering, handlights, or, what is better, portable lights.

WINTER GREENS OR BORECOLE.—It is often advised to sow such crops as these for affording supplies of green vegetables throughout the winter and spring months on ground that is naturally poor, but this is not the wisest course to pursue, for, on the one hand, the seeds are longer in germinating, and the young seedlings as they appear through the soil grow so slowly that they are at the mercy of the fly, which is always ready to attack them. This early injury from fly is also the source of the plants going blind. If possible the seed-bed should be arranged in the open away from the influence of either walls or trees. In preference to sowing the seeds in beds broadcast, the better course is to sow in drills 15 inches apart. This space allows of a free circulation of air amongst the seedlings, and also enables the surface to be stirred with a hoe. Previous to sowing apply a dressing of burnt refuse and soot, and after drawing the drills and sowing the seed thinly, fill up the drills with finer and sandy soil. The benefit of this will be seen. When the soil is at all lumpy, the fly lies in ambush under the small clods ready to attack the young seedlings before they appear on the surface. To guard against small birds, which often prove so destructive to the young seedlings by pulling them up wholesale, a net should be spread over the whole bed, keeping it off the surface by forked sticks. Nor must precautions be neglected to further protect the seedlings from the fly directly they appear on the surface. Dusting with soot and wood ashes in the early morning whilst the foliage is wet with dew is the best preventive. The following kinds are the best: Green-curl Kale, Cottager's Kale, Read's Improved Hearting, and Asparagus Kale. A sowing of Brussels Sprouts will prove useful for a late crop.

SAVOYS AND CABBAGE.—The former are often sown too soon, coming into use much earlier than there is any need for, but by sowing at the present time they will turn in at the right season. These are sown along with the winter greens. Tom Thumb is a most useful variety. Early Elm and Dwarf Green-curl are well worth sowing both for an early and late supply. Amongst Cabbages, I find Winnigstadt and Etampes capital for autumn and early winter cutting. Chou de Burghley I still grow, and find it most useful if sown from now up till the first week in May. In flavour it is delicious, being really a very delicate Cabbage,

minus the broccoli in the centre. The mistake hitherto has been in sowing this too early; consequently the plants grew large and coarse and unable to withstand a severe or a wet winter.

SEAKALE.—Seakale which has been blanched in the open air should have all pots and litter or whatever has been used for blanching cleared away, so that the crowns may have ample time to make a free growth. All crowns which have not been forced must have all terminal crowns cut away, for as these only rise to flower-stems, obviously valuable time would be lost if allowed to grow ahead and bloom. The tops need not be thrown away, but all shoots which have been allowed to grow 3 inches or 4 inches in length may be cut and used as a green vegetable. If there has been any delay in planting for the future crop, where the annual system is carried out let the sets be planted at once, for our springs are so late and summers so short, that every means should be adopted to allow the roots to have as long a season of growth as possible. Seeds of Seakale may yet be sown; not that I advise this system for providing roots for forcing, but unless roots can be purchased for stock where they are deficient, seed may be sown for supplying roots or thongs for stock purposes the following season. Sow in rows 18 inches or even 2 feet apart in drills drawn to the depth of 2 inches. In less than this, if a dry time should follow, the seeds may fail to germinate.

A. YOUNG.

PLANT HOUSES.

SEED-SOWING.—Now will be found a very good time for sowing seeds of approved strains of the Chinese Primula. Where the stock required is but limited, the better way will be to have the mixed packets of seed to save both room and labour. When larger quantities have to be raised, then each colour could advisably be kept separate. A very good plan for raising the seed is to cover the surface of the soil with Sphagnum Moss in a light manner; should it perchance become dry before the seed germinates, the Moss can be easily moistened without in any way washing the soil. Thus covered, a close watch has to be kept, of course, to remove the Moss as germination takes place, so as to prevent the seedlings becoming weakly; it pays well to do this if better results can be ensured. Covering with brown paper and tying it tightly, as one does in the case of preserved fruits, also answers well, but it must be removed after a few days to watch the process of growth. Where crickets abound, this latter plan is a safeguard, but in any case to guard against any depredations it is much the better plan to stand each pan or pot over a receptacle containing water; this will save a lot of annoyance in the loss of young plants. Leaf-mould of good quality with some light loam and a free use of silver sand will make a good mixture for raising the seed; peat should be avoided, as there is often a tendency in its use to encourage a green growth that deters the germination of the seed. At this season of the year a moderate heat is advisable, but it should not be at all a dry atmosphere, as, for instance, when standing near hot-water pipes.

If the seed of Primula obconica from the first sowing has not provided a sufficient quantity of plants another sowing should be made; there is time enough yet to get good-sized stock. Seed sown last year in the middle of May supplied us with a useful lot of plants that have flowered extremely well; these plants we propose to pot on for another season to see how they will succeed the second year. Unless an early batch of Cinerarias is required, it is not advisable to sow the seed just yet, plants raised very early often run too much to a leafy growth. Celosia pyramidalis sown about now and grown briskly for a time will provide a stock of very serviceable plants for autumn decoration. This will be found better than sowing extra early, the plants probably not having justice done them for want of room when the bedding-out stock has to receive more attention in this respect. Another good old autumn-flowering annual is the Globe Amaranth, which is not grown half enough

for August and September use; the purple variety is the best to grow in a general way.

GROWING ON SEEDLING PLANTS.—Those plants raised earlier in the year should all have attention by pricking them off into pans or potting singly into small pots in good time. It is a great mistake to overlook this necessary work; if deferred only a week or two it often results in the seedlings being considerably weakened, a failing that causes delay in the development of a good sturdy growth. Another failing is that of attempting to grow more plants from seed than can be found room for as growth progresses; half the quantity of any kind, when well grown, is far preferable to a larger number of weakly plants. Early-sown Gloxinias should now be fit for small pots after having been pricked off into pans some little time back. These need not be kept in a high temperature, but they should be as near to the glass as possible, with a light shading during bright sunshine. Later-sown seedlings should now be fit for pricking off; these will provide a stock of useful plants in the autumn to succeed the foregoing. Cyclamens sown in the past autumn should not have too much heat; neither, on the other hand, should they be trusted yet in a cold frame; this would give them a check. Keep them well attended to for moisture both at the root and atmospherically, and as soon as they need a shift from the small pots, do not delay the work of potting into a larger size. A light loam with good leaf-mould and road scrapings will suit them very well. No manure in any form is really needed in the soil; guard, however, against wireworm and the common kind as far as possible. Tuberous-rooted Begonias that are intended for pot culture from seed sown this spring need not be transferred to small pots just yet if accommodation can still be provided by pricking them off a second time into pans or boxes. For my own part, I have always found it best to grow them thus until they are of a fair size with somewhat more constitution in them. A gentle warmth with a light shading and plenty of moisture will encourage a free growth. According to the requirements, the stock of such annuals as Petunias, Mimulus, Stocks, Lobelia gracilis and other kinds should be looked after for pot culture in good time. Where these are grown for bedding out, it will be a comparatively easy matter to select sufficient of each and give rather more attention than bedding plants in common usually receive. It pays to grow annuals in considerable quantity if a large show house has to be kept gay during the summer months; it is then an easy matter to throw them away later on to provide room for plants of a more permanent character that must in any case be housed as the autumn comes on.

JAMES HUDSON.

STOVE AND GREENHOUSE.

THE SPANISH JASMINE.

The Spanish Jasmine, which is cultivated to supply the manufacturers of perfumes in Lower Provence, the region of Nice, Algeria, Turkey, and the East Indies, is a native of Nepal, and was introduced into Europe in the year 1629. It attains a height of about 5 feet or more and has smooth, somewhat angular, spreading branches. The flowers are produced in threes at the ends of the branches, and have the tube three or four times as long as the calyx. The corolla exhibits fine oval segments, which are somewhat twisted in shape previous to their full expansion. The flowers of this Jasmine are borne in succession from spring to November or December, according to the climate. They are white, tinged with pink or purple on the outside. The odour which is emitted from them is very sweet, pleasing, and refined, but also very fugacious.

The common Jasmine (*Jasminum vulgare*) is also cultivated as a perfume plant, but at

Grasse and Nice the preference is very commonly given to the Spanish Jasmine (*Jasminum grandiflorum*), which also goes by the names of the Arabian Jasmine and the Italian Jasmine.

The Spanish Jasmine cannot be grown permanently in the open air anywhere north of the region of the Orange-tree, as it perishes when the winter temperature falls to 4° or 5° of frost, and its delicate shoots and flowers suffer if exposed to early autumn or late spring frosts, on which account it is grown at Grasse and at Cannes on sloping positions with a southern aspect and well sheltered from northerly winds. It does best in a light, mellow, deep, substantial, moist or irrigable soil, but fares badly if planted in ground that becomes sun-parched in summer, and perishes altogether when grown in soil that is saturated with moisture in winter. It is propagated by grafting it on the common Jasmine, or plants of the Spanish Jasmine are layered and also furnish cuttings. The cuttings are taken in September. They are usually about 10 inches in length and are planted in good, rich soil, two eyes or buds only being left above the surface of the ground. When they are well rooted they are planted out in the following year. In grafting, the method employed is either shield-grafting or cleft-grafting. Shield-grafting with a pushing bud is done in May or June, but with a dormant bud the time of the August sap is the best. The grafts are made 2 inches or so above the surface of the soil. Cleft-grafting is done in spring, the common Jasmine stocks used being at least one year old. These stocks are cut down close to the ground, and on each is grafted a shoot of the Spanish Jasmine, a woollen thread being lapped round the graft to secure it. After this, both stock and scion are earthed up, so as to leave only two buds of the latter above the surface.

Layering is also done in September. It is a question whether grafting or layering is the preferable operation, but, in practice, layering appears to have the greater claim to recommendation, as it has been noted that the flowers of this Jasmine, when grown on its own roots, retain their freshness for a longer period than flowers produced by the same species when grafted on the common Jasmine. It has also been remarked that plants of the Spanish Jasmine which have been raised from cuttings possess a much finer habit of growth and are more hardy than plants which have been grafted. At Grasse, seedling stocks of the common Jasmine of Mentone and Genoa are sold at the rate of 12s. to 16s. per thousand.

When the cuttings or layers are well rooted, they are planted out in the following manner: The position having been selected, parallel trenches from 1 foot to 16 inches wide and the same in depth are opened out in it. These trenches run at right angles to the slope of the ground, and are cut at a distance of 2½ feet to 3 feet from one another. They are then filled up with a compost of good soil and manure, in which are planted well-rooted cuttings or layers of the Spanish Jasmine or stocks of the common Jasmine on which the former kind has been grafted. These are planted right in the middle of each trench at a distance from one another of 20 inches to 30 inches, or sometimes over 1 yard. The Jasmine plants consequently grow up in parallel lines, which have an average distance of 1 yard between them, and would number from 4800 to 6000 plants per acre. In many cases, in some warm countries, the number of plants does not exceed 2000 per acre. After planting, the trenches are watered if necessary to facilitate the rooting of the plants. The expense of cutting these trenches ranges from £8 to nearly £10 per acre. Set-

ting the plants occupies a man for twelve to fifteen days, and the work is done in October or November. In the month of November, every year, in Lower Provence and the region of Nice, they earth up all the plants with soil to the depth of 1 foot or less, the object being to protect the grafts from injury by frost. The soil is taken from the alleys between the lines of plants, and when the operation is finished the plants appear to stand in the centre of small ridges. Every year, as soon as the winter is over, that is, in February or March, the growth of the previous year is cut back to within a few inches of the graft, and the soil with which the stocks were earthed up in the previous November is then removed from about them. Immediately after the cutting back of the branches, manure is supplied to the plants or they are watered with a solution of night-soil, the unpleasant odour from which, however, does not in the least injuriously affect the fragrance of the flowers, but the growth of the plants is actively promoted by these applications. Ordinarily, the night-soil is deposited in a reservoir into which a supply of water continually trickles. The work in spring concludes with stirring up the soil with the spade and hoe. In this operation care is taken to break up the ridges in a great measure and to arrange the soil between the rows of Jasmynes in such a manner as to facilitate the irrigation of the ground, so that when the work is finished, the lines of plants appear to stand in the middle of furrows and are separated from one another by low ridges. In the course of the year the soil is gone over twice, thrice, or four times with the hoe, whereby it is always kept in a mellow and clean condition.

When the soil has been well stirred and rendered sufficiently friable, in the commencement of the second or third year, according to the strength of the plants, by the side of each row of Jasmynes is set up a light trellis, formed by fixing horizontally against posts or stakes a yard or more in height two or three lines of stems of reeds at a distance of 8 inches to 10 inches from one another, and to this trellis the growing shoots are attached as they develop themselves. When the plants are earthed up in autumn these trellises are removed. From the beginning of May to the end of September the plants require to be watered every week or fortnight, if that can possibly be done. An acre of ground takes about 2200 gallons of water for its proper quantity at each watering. In France, the flowers of the Jasmine are gathered during the months of July, August, and September; but in Algeria and Egypt, the gathering continues for five months, namely, from June to the end of October. The flowers must be gathered every day at two periods, in the morning before 11 o'clock, and in the afternoon between 5 o'clock and 7 o'clock. The flowers of the Jasmine usually open at about 6 o'clock in the evening, and therefore the gathering commences every morning as soon as the dew has gone off them, but the finest flowers of the Mediterranean region only appear during forty-five to fifty days in the months of July and August. Flowers that open in September are often refused by the manufacturers of perfumes. The flowers of Jasmynes which are grown in irrigated soils are more plentifully produced than those of plants which are not cultivated with the help of irrigation, but they are not so fragrant. The Spanish Jasmine arrives at the stage of its full bearing in the fourth year after it is planted, and may continue so for ten or twelve years if grown in soil that is well drained and not liable to become over-damp in autumn and winter. In wet

weather the flowers are gathered as usual, but are thrown away. This is done because any flowers that become wet with rain turn brown and speedily lose all their fragrance, and, although valueless, they are removed in order to promote the development of fresh flowers. Flowers also which happen to have been forgotten or overlooked the day before are of no value. An active woman will gather from 2½ lbs. to 4½ lbs. of these flowers daily, for which she is paid at the rate of about 2d. per lb. The flowers have to be delivered as soon as possible to the perfume-makers. Each plant of the Spanish Jasmine when in full bearing yields on an average about 7 oz. to 9 oz. of flowers every year. A plantation of 2½ acres containing 12,000 plants will yield from 2 tons to 3 tons of flowers. In Algeria, 1000 plants will often yield from 396 lbs. to 440 lbs. of flowers, while the highest produce that has been obtained at Grasse and in Algeria is recorded as 1100 lbs. of flowers from 1000 plants. The flowers of the Jasmine are very fragrant, but it is very difficult to extract their aroma by distillation. Generally speaking, 2 cwt. of fresh flowers yields something less than half an ounce of the essence, and the flowers which are grown on 2½ acres of ground will yield from 6 lbs. to nearly 8 lbs. of the essence. As M. Millon has remarked, the perfume which is obtained by distillation always has a strong and somewhat burnt odour about it, and is not to be compared to the scent of the fresh flowers, while that which is produced by the ether process more faithfully represents the sweetness of the natural scent.

The very small quantity of perfume which it is possible to obtain by distillation from the flowers of the Jasmine has long since obliged the perfume-makers to have recourse to another means of fixing the perfume, namely, with Ben-nut oil, or by the method termed "enfleurage," which is in full operation every day while the gathering of the flowers lasts. This process is carried out in the following manner: A number of frames are made, each holding several broad, shallow drinking-glasses, into which has been poured a quantity of very pure and refined melted lard. As soon as the lard becomes solid, freshly-gathered flowers are strewn over the frame, so that the glasses are quite covered by them. Another frame similarly furnished with glasses is then placed over the first one, and the same process of covering the lard-containing glasses with flowers is gone through. Several frames are thus placed one over another and are left so for twelve to twenty-four hours, after which the flowers are carefully extracted from them one by one with a small pair of pliers or tweezers and are replaced by fresh ones. This is repeated eight, ten, or fifteen times, according to the degree of strength of aroma with which it is desired that the lard should be imbued. When the desired degree has been reached, the lard is removed from the glasses with a spatula and deposited in jars, which are well corked up or stoppered, or else it is treated with pure alcohol if it is desired to produce the article which is known in commerce by the name of oil of Jasmine.

The price of the freshly-gathered flowers ranges from 1s. 3d. to 1s. 8d. per kilogramme of 2½ lbs. The pure essence of Jasmine comes from Tunis or Adrianople and is very rare. In Egypt and in France it sells at the rate of from £20 to £22 for 30 grammes (equal to a little over 1 oz. avoirdupois), or of £640 to £680 per kilogramme of 2½ lbs., that is to say, about five times the price which is paid for pure gold. The oil of Jasmine is sold in Paris for £1 per kilogramme. The perfumed solid lard

s used for making Jasmine pomade, and the essential oil is employed for perfuming pomades and making scented waters and extracts.

The common Jasmine and the Spanish Jasmine are not the only species which are grown for the manufacture of perfumes. In the East Indies, *Jasminum auriculatum*, *J. hirsutum*, *J. revolutum*, and *J. Sambac* are also cultivated for this purpose. The last-named species is very common in gardens at Lucknow, and it is also grown in the gardens of the south of Europe. In the East Indies the perfume or essence which is extracted from the flowers of these plants is coloured with dragon's blood. — *Revue Horticole*.

Rhododendron formosum.—Several very distinct forms of this Himalayan *Rhododendron* are known under cultivation. Their differences, however, pertain mostly to the shape and texture of the foliage, which varies from the narrow-pointed

Amongst them of course the *Richardias* (*Callas*) are the most noteworthy, and as a rule the only ones grown. The *Arisæmas*, however, are plants which both as regards foliage and flower are very handsome. They represent, too, a type of flower very different from that of the *Richardia*, or indeed any other plant ordinarily seen in gardens. *A. præcox* is a species which, although described as hardy, is happier when treated as a greenhouse plant. It is herbaceous, dying away in autumn and springing up again in March; its leaves and flowers appear simultaneously, the latter being now very striking. The leaf consists of three oblong leaflets tapering to a long fine point. The flower (or what ought more correctly to be termed the spathe) is erect and borne on a short peduncle. It consists at the base of a cylindrical tube surrounding the spadix (on which the true flowers are produced), the upper portion being curved over in front, leaving a small opening beneath the bend. The tubular part is streaked with green and white, whilst the upper part and the margins to the mouth of the tube are of a deep purple. It is a native of Japan.

linear leaves; they are a little over half an inch in diameter, consisting of five rounded petals with a ring of stamens in the centre; in colour they are pure white. A group of plants varying from 6 inches to 1 foot in height is now making a charming picture in the greenhouse at Kew, every branch being thickly set with flowers.

THE SILVERY CALADIUM.

(*CALADIUM ARGYRITES*.)

In spite of the many additions to this family of plants, both by more recent importations as well as by hybrid varieties of Continental origin, there is no kind that is more generally useful than this *Caladium*, which was introduced from Para in 1853. The larger varieties make fine decorative objects in the stove, and I would not for one moment disparage their ornamental value or utility, but as a whole they do not embody those points of usefulness that are found in this miniature variety. The efforts of the hybridist would no doubt ere this have been put forth to impart its good qualities to succeeding generations of *Caladiums* were it not such a shy-flowering kind. I have never seen it in flower, whilst a well-known grower and close observer once told me that he had never heard of its flowering at all. This was a few years ago, but I believe the same is true at the present day—at least, I have never heard of any record being made to controvert it.

This beautiful little *Caladium* is useful in so many ways, that it is almost indispensable where any stove plants at all are grown. It would without doubt be seen in larger numbers still were it not that many growers lose their bulbs whilst they are at rest in the winter time. The best way to prevent this is to shake out the bulbs after they have gone to rest in the autumn and then cover them with silver sand in a box or shallow pan, keeping them all the time at the warmest end of the stove, and neither absolutely dry nor of course too wet. When too dry there is a danger of dry rot setting in, whilst if placed in a position only comparatively cool, the bulbs will perish altogether, becoming quite a soft pulpy mass. It is one of the most continuous of all *Caladiums* in its growth, for if kept in a warm stove, its leaves will remain fresh until the end of November and be found at that late period extremely useful for cutting. When signs of growth are apparent, it is a very good plan to place the bulbs in another shallow box or pan, but with good soil sifted fine. In this they may be allowed to remain for a little time until the young shoots are some 2 inches or 3 inches in height, when if division of the old bulbs for an increased stock be found necessary, it should at once be seen to. This will be found a safer plan than proceeding to divide the small bulbs whilst still comparatively dormant. Each small bulblet may then be potted singly or again bedded out as before until well advanced. If it is not needful to increase the stock to the extreme limits, the larger portions should be left entire, only removing the outer parts. These larger bulbs will thus make more busily little plants and appear, after the manner of the accompanying illustration, a miniature specimen. Another error frequently committed is in growing this *Caladium* in too much soil; this is quite a mistake, for plants large enough for all practical purposes can be grown in 4-inch pots; in rare exceptions would those of larger size ever be really needed; whilst the majority would more often than not be found of the most service in 3-inch pots, and even in 2½-inch pots. The soil for this *Caladium* should be lighter than that usually chosen for the larger kinds. Well-



The silvery-leaved *Caladium* (*C. argyrites*).

leaves in one form to obovate and obtuse in another. The flowers are nearly alike in all the variations; they measure 3 inches in diameter and about as much in depth, being funnel-shaped. With the exception of a patch of faint yellow on the upper portion of the corolla, they are entirely pure white, although in a bud state and on first opening they have a distinct tinge of pink. The characters which chiefly distinguish this species from its nearest allies are the very small size and inconspicuous lobing of the calyx. A large plant of the narrow-leaved variety—which is evidently the better adapted for greenhouse work—is now flowering in the temperate house at Kew. It is not hardy, but would almost certainly thrive in an unheated structure. Its treatment in regard to soil and moisture is the same as for Chinese Azaleas. It is easily increased by means of cuttings. It flowered for the first time simultaneously at Kew and Syon in 1849.

Arisæma præcox.—There are only a few members of the Aroid family that can be well grown in the greenhouse and which can at the same time be described as worthy of cultivation.

It may either be grown in pots or planted out in the greenhouse border.

Leptospermum scoparium.—Several species of *Leptospermum* are known in gardens, but all of them, especially in their flowers, are very much alike. They differ, however, to a considerable extent in the colour and shape of their leaves and also in habit, but for practical purposes the names *scoparium*, *baccatum*, *flavescens*, and *bullatum* may be taken as representing the same thing. *L. scoparium* is in its native condition a rigid, very much-branched shrub sometimes 10 feet to 12 feet high, although in mountain districts it becomes low and almost prostrate. It is scattered widely over Australia, and occurs also in Tasmania and New Zealand; it was introduced from the latter island in 1772. As a greenhouse plant it is not so much grown as it deserves to be. Requiring no more than protection from frost, it is particularly well adapted for houses the heating arrangements of which are insufficient to maintain the average greenhouse temperature in severe weather. The flowers are borne on the ends of short branches, or in the axils of the short narrow

decomposed leaf-mould worked through a half-inch sieve may form half of the soil, the rest being silver sand and light loam: peat may take the place of the leaf soil if this latter be of inferior quality. When once potted no further shift will be needed the same season. Thus treated the plants will take rather more water, but in this they delight when the pots are full of roots, with occasional applications of weak manure water to prevent the foliage from turning yellow prematurely.

As a decorative subject, this is one of the best of all miniature growing stove plants; being so useful, it ought to be more largely grown for such purposes, little room being required to accommodate a considerable number. It forms a beautiful edging to a group of plants in the stove itself, as it does to many competitive groups arranged for effect in exhibitions. For the house it is extremely useful both as plants and in a cut state. As growing it is very effective upon the dinner-table, and for this purpose should be placed in small ornamental pots, those representing miniature baskets being very appropriate. Plants somewhat larger make useful ornaments for vases. The plants ought not, however, to remain out of the stove for more than two days at a time. In a cut condition, the tiny leaves harmonise well with nearly all flowers, and for this purpose should be taken with as much stem as possible. It is a good plan to dress the reverse side of the leaves with florists' gum; this prevents them from curling, a failing they otherwise are subject to in some measure. When a spare shelf can be given up to their culture this would be found a good place for a decorative stock, as the plants would not in such a position become so much drawn. The back shelf of a three-quarter-span Pine pit would suit them admirably; no shading in such a place would be found necessary. Thus grown, with more exposure the plants will stand all the better when being used in a room for a day or two. Bottom-heat is only necessary when starting into growth in the spring. H. G. H.

LEPTOSPERMUM BULLATUM.

THE order Myrtaceæ is strongly represented among the trees and shrubs of Australia, the blossoms of many of them being very beautiful. Though not so showy as some of their allies, the *Leptospermums* are a very pretty class of dwarf, free-flowering shrubs, and at this time of the year they are much appreciated for the embellishment of the greenhouse or conservatory. One that will bloom with great freedom even when quite small is *L. bullatum*, which Messrs. Low have exhibited in good condition several times within the last few years. It forms a close, compact bush which is just now quite covered with small white blossoms, and not only do the individual blooms remain a good while at their best, but the unopened buds keep up a succession for some time. The genus *Leptospermum* consists of about twenty-five species, through all of which runs a strong family likeness, but of them *L. bullatum* may be taken as one of the best. In Vol. XIX. of THE GARDEN a coloured plate of *Leptospermum lanigerum* was given, and from that a good general idea of the entire genus may be obtained. An item of value to many is the fact that they are all nearly hardy, and consequently simple protection from frost is all that is necessary to keep them in health. In some districts of England the *Leptospermums* may be regarded as quite hardy, while even around London they will often survive many winters if trained to a wall and protected by a mat during very severe frost. It is, however, as greenhouse shrubs that the different members of the genus are (unless in a few especially favoured spots) seen at their best, for if the foliage is injured in the winter it detracts considerably from the beauty of the plant during

the flowering season. Seeds often ripen, and besides that they are frequently sent here from Australia, and in this way young plants may be raised in quantity. When desired to flower in as small a state as possible, by far the better way is to propagate from cuttings, which strike root freely with a little care and attention.

H. P.

DAFFODILS FOR POT CULTURE.

I THINK it must be admitted that very little use is made of the genus *Narcissus* as compared with other groups of spring flowers, as, for example, Hyacinths, Tulips and such like, bulbs which undoubtedly make a rich and effective display in the conservatory or greenhouse. To my mind, both these bulbs lack in a great measure the general elegance and beauty which characterise many Daffodils. As cut flowers, from a commercial point of view, these Daffodils hold a good position, or at least many of them, but as pot plants they have yet to become popular. It would, I think, materially assist to this end if the leading growers of these flowers were to make special efforts in this direction, and so let the public see that Daffodils are specially adapted for pot culture. True it is we have them in endless numbers as cut flowers in the spring months, and a few occasionally in pots here and there, but nothing approaching a representative display. By reason of the present mode of arranging cut flowers of these things for exhibition, much, if not all, of their natural grace and beauty is lost. There is such a number of forms and colours, that one wonders why they are not in more general use even if only for the sake of variety. And then, again, the majority are so readily grown in English gardens, that by exercising due care when flowering is completed, and planting them out in good ground, one may soon be possessed of a nice stock for future use. Some kinds, indeed many, are suited to forcing earlier in the year, but I am not at the present moment referring to this so much as to endeavour to secure a more general use for these Daffodils as pot plants, blooming it may be a few weeks in advance of those in the open ground, and thereby prolonging the flowering season. Nor is this all, for it is impossible to over-estimate the superiority of those flowers which are grown under glass to that of those expanding or partially so in the open ground. Dwellers near large towns know well enough that every shower of rain brings with it its quota of smut and soot, and this once upon the flowers robs them of much of their purity and defies all attempts to cleanse them afterwards. But grown under glass, even in a cold house, all their purity may be preserved, and the flowers may be inspected at will and seen to the best possible advantage. In this way many amateurs with cold houses could not possibly have them better occupied in the early months of the year. By flowering them, too, very near to their natural season, there would be no great strain upon the bulbs, which may be left to bloom another year in the same pots, or shifted into larger ones as the case demands.

Few kinds can display themselves to greater advantage when given this cool treatment under glass than that noble bicolor Empress. In the open ground it is, of course, a grand flower too, but the protection I have named brings out all its purity and gives it a refinement that can never be seen in the open ground. The flowers, too, are very lasting, even when fully expanded, particularly so if overhead watering be carefully avoided. The variety *Horsfieldi* is also beautiful, not so bold generally, but somewhat earlier, while a later variety may be found in *Grandee*. Three bulbs of either of these would be sufficient for an 8-inch pot, shifting into a larger size as necessary. The variety *princeps* is useful when grown in this way, and though its segments are somewhat thin and flimsy, it possesses a grace of its own, and indeed is preferred by some for this very reason. It is by no means a formal flower. There is one group to which I wish particularly to direct atten-

tion, and which for some reason or other is by no means popular for cutting. This is the Leedsi group, probably the most chaste of all, and singularly beautiful when grown in pots for home decoration. When fully expanded, the flowers, unfortunately, do not travel well, and this may to some extent account for their not selling in the market. This fact need not exclude them from being grown as pot plants for home decoration. Very beautiful are the starry blossoms of the type and sufficiently pure that I have repeatedly used flowers of this in memorial wreaths or the like. This kind should be planted more thickly together, say six bulbs for a 7-inch pot. The variety *Stella* is a light graceful flower, and there are endless others among the single incomparabilis section equally well suited, and all more or less beautiful. Among the golden trumpet kinds, *Golden Spur* and *maximus* are excellent. *Sir Watkin* and *Emperor* are both first-rate kinds and very telling, possessing excellent constitutions and multiplying freely, points that must not be overlooked. But apart from all these there are the kinds usually forced in quantity, such as *ornatus*, *obvallaris*, and others, and, of course, equally well adapted to the purpose here indicated. I am not much in favour of the double kinds for pot work, for they must be staked, and in the case of the remainder I find it best to plant them as deeply as possible in the pots, as this gives better support for the leaves and stems than when the bulbs are only just buried. The variety *ornatus* is very liable to fall about if only just covered with soil, but if buried 3 inches deep in 8-inch pots, they stand much more firmly and a very slight support is sufficient. It is the best of this section, and being cheap may be grown in large quantities. Quite a small bulb of this variety produces a good flower, and a dozen flowering roots may readily be accommodated in an 8-inch pot. E. J.

ROCKWORK IN PLANT HOUSES.

ANY improvement that can be effected in the interior arrangement of plant houses of whatever description is at all times a most welcome change. When, therefore, an attempt is made in this direction, and that with singular success, rendering the general appearance all the more pleasing to the eye, it should be recorded as a hint to others who are not too conservative to depart from the rule-of-thumb practice in providing straight lines of benches and stages. Not only is this a decided improvement in the primary arrangements, but provision is made for growing many charming plants that are not so often brought into prominent notice when in pots, but which if planted out produce a much better effect. Such an instance as this is now to be seen at the Royal Exotic Nursery, King's Road, Chelsea. Messrs. Veitch and Sons have recently built some new plant houses, one of which I now propose to draw attention to because of its unique character in the method of arrangement. I had personally watched the progress of the work on several occasions when visiting the nursery, wondering at times what the ultimate effect would be. When last seen it was well furnished with a diversity of plants, such as would thrive well in an ordinary stove temperature, the entire appearance and the method of grouping being so different to that usually seen in nurseries. The effect as a whole could hardly be surpassed even at this early stage of growth, and forms a charming feature which must gain many admirers during the present season. It is the *beau ideal* of what a plant house should be which is kept as a permanent ornament to a garden, whilst at the same time its utility cannot be called into question, as can be verified by a personal inspection. This house is span-roofed, with sufficient height to grow tall Palms and other graceful plants upon the centre bed, whilst sufficient room is obtained around the sides for quantities of medium-sized plants of a decorative character. The shape of the central bed is rectangular, but of quite an informal character, the sides of which present a wavy outline, that around the outer

portion being similar, but not a copy of the other in any sense. Being built up in an irregular manner, there is abundant room for planting out many and varied plants around the sides upon ledges and in pockets, the top in either case being flat, but so arranged informally with plants of diverse heights as to take off any semblance of uniformity. The material employed in the construction is "tufa stone," which is infinitely preferable to any imitation rockwork that can be produced, only sufficient cement being, of course, used in the erection to make a secure piece of workmanship. It is well known by practical growers that the saline properties of cement are detrimental to plant life when employed in quantity; by the use of natural stone this is reduced to a minimum. No heating arrangements obstruct the view, these being so arranged as not to interfere with the general good effect in its entirety.

When last inspecting it, the furnishing with appropriate plants had been completed. Many of these are in pots, arrangements for plunging a portion of which had been provided. Those that are planted out want a little time to establish themselves, then the effect upon the sides will be further enhanced. The following plants form the chief features at the present time, viz., at the further end a grand specimen of *Anthurium Veitchii*, with leaves from 4 feet to 5 feet in length. This handsome Aroid forms a most striking object, and is at all times a fine ornament to a plant stove. This *Anthurium* has a background of several graceful plants of *Cocos plumosus*, which tower above it. Other of the larger plants consist of such Palms as *Kentias* and *Areca lutescens*, with such dwarfier plants as *Acalypha Macfeeana*, well-coloured examples of *Pandanus Veitchii*, small plants of *Alcasias*, *Dracena Goldiana*, and others of the best kinds, with the new forms of *Bertolonias*, as *B. Mme. Auguste van Geert*, *B. Comte de Kerchove*, and *B. argyroneura*. These handsome dwarf-growing plants, with their beautifully veined leaves and rich colours, are distinct ornaments to any stove. The flowering plants consist of *Himantophyllums* (*Clivias*), as *Mme. van Houtte* and improved forms raised in the nursery, *Anthurium Scherzerianum*, *A. Rothschildianum*, with its singular creamy-white spathes, blotched and spotted with coral-red. Some of the Java hybrids of the *Rhododendron* are also introduced, likewise *Tillandsia Lindenii* and profusely flowered plants of *Gardenias*, with here and there some plants of the new hybrids of *Streptocarpus* already in flower. The small-growing plants of each kind are grouped together and not dotted here and there; this is all the more pleasing, affording more interest in each case. This is not the only example of ornamental rockwork in these nurseries, the other more recent additions being that at the end of the large *Cattleya* house and the tank (with aquatics therein) in a *Dendrobium* house. These examples have before been alluded to. In both instances the permanent plants are now well established, and an inspection is both interesting and instructive, affording as they do two most distinct specimens of how the appearance of plant houses may be further enhanced by the judicious use of rockwork. The first named of these two is kept supplied with various Orchids in flower, both amongst the rockwork and suspended from the roofs, a profusion of these giving quite a fairy-like appearance.

J. H.

***Rhododendron multiflorum*.**—Of all the numerous hybrid *Rhododendrons* which owe their parentage in part to *R. ciliatum* there is not one whose value in the greenhouse surpasses this. A specimen over 3 feet in diameter planted out in one of the beds in the large temperate house at Kew is now in its greatest beauty, the trusses of bloom being unusually large for this class of *Rhododendrons*. Owing to its rapid growth this hybrid is of somewhat loose, but elegant habit, and to keep it in shape the longer shoots should be cut back several inches each season after flowering. It is at the same time a dwarf plant, and will probably attain no greater height than *R. ciliatum*,

which is rarely more than 2 feet high. The leaves are about 3 inches long, pointed and covered with fine short hairs. The flowers are borne in rounded trusses each from 4 inches to 6 inches in diameter, and pure white. The free-flowering qualities which are well known to be characteristic of this section of *Rhododendron* are in no instance more apparent than in this representative. Cuttings strike freely if placed in very fine sandy peat and kept close in a moderately warm case. Their growth is somewhat impeded in a young state on account of their forming a flower-bud on every branch, even when only an inch or two high; these should, therefore, be removed as soon as formed until the plant reaches a suitable size to develop them.

KITCHEN GARDEN.

BORECOLES AND THEIR VALUE.

BORECOLES on the whole have passed through the winter with less injury than they received during the winter previous. It is true many of the older or outer leaves were badly scorched or browned by frosty winds, and a considerable number of hearts were spoilt, but the stems survived and greens or side shoots have been fairly plentiful this spring. As far as private growers are concerned, the green-curled Borecole or Scotch Kale is the most generally popular, and deservedly so. Perfectly hardy they are not, but it is not often the crop is lost, and the tops are usually available during the worst part of the winter, the side shoots following in due course. Read's Hearting is both the best in point of quality and the least hardy, while all the rest are very succulent and tender when properly cooked. This season every green leaf has been gathered in cottagers' gardens, so scarce has been, and still is, the green food within the reach of the poorer classes. Cottager's Kale crops heavily and is fairly hardy, but the quality is not so good as that of the curled Kale. Asparagus or Buda Kale is among the hardiest of the winter greens, and not unfrequently proves of great value. It is naturally dwarf, hardy and late, being only just growing or producing shoots at the present time. Being kept closely gathered, whether required for use or not, early flowering is prevented, and abundance of very succulent and agreeably flavoured greens are had throughout May, and sometimes well into June. Private growers, too, often overlook the good qualities of this kind of Kale. In a conversation I recently had with a market grower of good experience, he asserted that, taking one season with another, no variety of winter greens paid so well as the common Thousand-headed Kale. This is largely grown by farmers for sheep-feed, and after a mild winter is not wanted for any other purpose. When, however, other greens are very scarce, the Thousand-headed sells readily in the markets, the average price this season being about 5s. a "lug," a west country term for a square rod. It is cut very hard, so that consumers who pay 2d. and sometimes as much as 3d. per pound for it have a rather large proportion of stalks and old leaves to cook or not as they please. It is not a suitable variety for garden culture, but for the open fields and allotments it is one of the best that can be grown.

Borecoles generally ought to be finally got out rather early and on good ground, so that they may have time and sufficient under them to build up strong stems. The seed may be sown any time during April and in the open, comparative late sowing, or the end of the month, being desirable where space cannot be early provided for the plants. They ought

always to be finally planted before they have become drawn and weakly in the seed beds. Waiting for early Potatoes or Peas to be cleared off before getting out the Borecoles is a somewhat risky proceeding, as in this case they may not have time to attain a serviceable size. If ground cannot be given entirely up to this crop, then dispose the rows of early Potatoes or later varieties having short haulm 3 feet or rather more apart, and after they are finally moulded up, plant the Borecoles midway between them. If a clear breadth of good ground is early given up to them, the rows of stronger growers should be 30 inches apart, 2 feet dividing the plants in the row. The variegated Scotch Kales are very pretty, and though not much in demand for garnishing, are quite a feature in the kitchen garden, and can be used similarly to the ordinary forms. Their cultivation may also be similar, though if planted on somewhat poor ground the colours and variegation are more pronounced than is the case if highly cultivated. Both the Asparagus and Thousand-headed Kales may be sown where the plants are to grow, and this is the simplest way of growing them. They ought to have the benefit of a rather rich root-run and a good open position, the seed being sown from now up to the end of May thinly in drills not more than 2 feet apart. If raised somewhat earlier the plants should be freely thinned out, or left, say, 18 inches apart, but if late sowing is resorted to, then they may well be left 12 inches apart. All that is further necessary is to make good any blanks by transplanting, and a serviceable lot of greens should result.

I. M. H.

NOTES ON BEET.

I WAS pleased to see the recent notes recommending the use of the Turnip-rooted varieties. Not only are the Turnip-rooted varieties suitable for poor land, but they are also useful for an early crop where Beet is required all the year round. Of late years more Beetroot has been used and the Turnip-rooted kinds more valued, as when grown small or medium-sized they are invaluable for the salad bowl. These roots, as pointed out by "A. Y. A." (p. 331), are often inferior, caused by too early sowing. By making two sowings, using the Turnip-rooted, the later lots do not become coarse; indeed, on light rich soils I would make three sowings, the early or Turnip rooted kind in April and May, and the long-rooted kinds as late as June, as I find these late-sown roots keep better and are more useful than a large coarse Beet sown too early. I proved the value of late sowing through taking charge of a garden years ago early in June. The root crops had been neglected, but I lost no time, and by a free use of the hose in dry weather I had no lack of roots for the winter store, which, though somewhat smaller than usual, were excellent in quality and kept much better than coarser roots. The Crimson Ball referred to in the notes is an excellent Beet for many purposes; indeed, for small gardens I would advise its use in preference to all others, as it can be grown so readily and stored with less trouble than the large long root. At one time, before the Turnip-rooted kinds were grown, Dell's Crimson was the best Beet for those who could not afford much space. I still use it for the latest lot, always sowing two or three rows, and storing in a disused ice house. This keeps good till the Turnip-rooted comes in, and does not lose its colour or flavour if stored in a cool place. The storage of roots is of the greatest importance in a garden where quantity is required, and the cooler the better, no matter how rough and ready the method, as all that is necessary is to keep out the frost. Some may say frost to a certain extent does no injury, but it causes the roots to shrivel when a thaw sets in. I do not care for the Turnip-rooted Beet for late use. I have previously recom-

mended the Cheltenham Green-top Beet, having grown it for ten years, and found it one of the best for general cropping. It, however, has one drawback—if sown on rich ground it grows coarse. This may be avoided by sowing in poor soil and later than usual. I sow it the first week in June, and find it does well and is quite large enough for all purposes. This variety is grown in great quantities in the west of England. The foliage is of a distinct green colour and the flesh bright red, with a very short tap-root. When grown as advised it is a medium-sized Beet. It is also one of the best-flavoured Beets that I have tried, and when once used generally becomes a favourite. I am not very fond of the very dark Beet, as some when cooked are of inferior flavour to the red or paler kinds, and though a dark colour is thought much of, flavour should be equally considered. I have noticed that very dark kinds in some instances partake more or less of an earthy taste. I do not think some of the older Beet, such as Nutting's Dwarf Red, can be equalled for flavour when grown on suitable soil. This often does well in soil in which the Cheltenham grows too coarse. There is now a very pretty Beet sent out by Messrs. Vilmorin, of Paris, closely resembling a dark-leaved *Dracæna*. This is very ornamental, requires good soil, and even then is much smaller than Dell's Crimson.

G. WYTHES.

EARLY RUNNER BEANS.

THERE is much difference in this vegetable. Some people prefer the white kinds (that is, those varieties that have white blossoms) to those with scarlet flowers. For early use I prefer them, and I may be wrong, but I fancy their pods are more succulent than those of the scarlet form and other kinds in cultivation. I have grown the Giant White, and it is one of the best. Last season this variety yielded enormously, bearing very large, thick, fleshy pods of great length and of excellent quality. I had previously grown the large white, but this variety is far superior and of equal quality. I think this variety must be a selection from The Czar, as it resembles that variety in shape, but is, I consider, of better flavour. There is also another runner with white seed named Mammoth White and very much like Giant White. For exhibition the above varieties are excellent. To obtain early runner Beans is worth a little trouble, and they can be readily raised indoors by sowing in the middle or third week of April in pots or boxes in frames, and when up giving thorough exposure to get properly hardened for planting. When this plan is adopted, the runners give a lot of Beans some time in advance of those sown in the open ground. I do not mean that the scarlet-flowered varieties do not succeed as well as the white-flowered, but having tried them both together, I find the white-flowered varieties a few days in advance of the scarlet type. I know there are often failures with these Beans when sown in heat and planted out. This is owing to a variety of circumstances; many succumb to cold winds, having been improperly hardened, as Beans are extremely tender, and if sown in heat require careful management before exposing to all weathers; indeed, I think there is little gain by sowing in heat either these or the dwarf French varieties, and I prefer cold frames. If sown in $4\frac{1}{2}$ -inch pots in April in a cold frame, giving no water till the seed has germinated, and growing as close to the glass as possible, sturdy plants result by the second week in May, when they can be planted out in a light soil. If the ground is very heavy or of a clayey nature, it is best to prepare a suitable piece by freely using light soil for the drills. It is best for these early Beans to prepare a trench similar to that for Celery, placing the light compost on the surface in the trench for planting the Beans. When a trench is used, the Beans are sheltered from cold winds and readily protected at night by laying a few sticks across the trench to support mats or shading material, and in dry weather are more readily supplied with moisture. These Beans may be grown without any stakes. Of course they do not yield like those staked, but for early use the

pinching necessary to keep them dwarf throws them into bearing earlier, and this is important when they are required for early use. When grown dwarf, pinching the tops should take place when they have reached 18 inches to 2 feet high, and they should be planted much closer together—3 feet to 5 feet is ample. Very often in light soils with a deficiency of moisture the flowers drop prematurely, owing to drought, but with dwarf kinds this rarely occurs, and it is easily prevented by placing litter between the rows. Some may object to growing runners in this way and advise sowing the dwarf French Beans, which are most serviceable for the earlier supplies, but for summer use soon become tough and stringy and do not continue to yield like the runner, which will give supplies till cut down by frost. I advised the culture of the Butter Bean last season. This forms a pleasing novelty, is of superior quality when cooked whole, and is not tough if gathered young.

G. WYTHES.

Yellow-fleshed Turnips.—At page 332, the question is asked by "A. D." why the southern growers do not like yellow-fleshed Turnips. It is useless to grow yellow Turnips when there is objection made to the colour. If those who object to yellow-fleshed varieties had seen the splendid dishes staged at the great international show at Edinburgh last year, they would have seen the superiority of the above over the white section, as the quality was far better and the shape all that could be desired. I think one reason why these kinds are not more cultivated in the south is that the market gardener is anxious to grow those vegetables that can be got off the land as soon as possible, and white Turnips come to maturity sooner than the yellow ones. Such is my experience, and with the objection to colour by the consumer, it would mean a loss to the large grower. In Scotland the yellow-fleshed Turnip is grown on account of its hardiness. I sow them for late crops and for producing green tops, but I would strongly advise their culture for winter storage, as the flesh is harder, they keep sound much longer, and are more suitable in every way. For early use I do not recommend them. For late work the Golden Ball or Orange Jelly, much grown in the north, is unequalled.—S. H.

Birds and Peas.—In a garden at Kingston somewhat surrounded by trees I noticed a few days since that Peas could only be saved from birds by being covered with wire guards. In the gardens at Castle Hill, Englefield Green, a quantity of American Wonder Peas planted out from pots on a south border, and where trees are far more abundant than at Kingston, the birds seemed to do no harm whatever to, for the Peas were quite unprotected. Probably the greater contiguity of houses helped to render sparrows more bold and depredating at Kingston than at the latter place. Has anyone ever tried to check the action of birds by syringing or sprinkling Peas so soon as they show through the ground with a mixture of soft soap, quassia and lime, or of sulphate of copper and lime, so as to make it at once adhesive to the plants and distasteful to the birds? Occasional dressings of soot should also be helpful in the same way if dusted on when the plants are damp.—A. D.

Laying Broccoli.—The value of laying Broccoli was never more apparent than during the past two winters. I fear those who neglected doing so will have very few heads to cut, the severe weather having killed so many. In years gone by this vegetable always received attention late in the year, no matter what the weather, but of late years the practice has been somewhat neglected. This was no doubt owing to the plants giving much smaller heads, but even small heads are preferable to none at all. In Scotland very few gardeners omit to lay their Broccoli, thus saving their crop, and I venture to say more will be done south after the experience of the last two winters. There was no excuse this winter, because we had timely notice early in December, but there was a great objection

to interfering with the Broccoli at that date, as, owing to the wet, sunless autumn, the growth was very active. I have found it advisable to do this work at the end of November or early in December if a crop of any kind is to be saved. When laying the plants, I advise covering the stem well up to the leaves and making the soil firm.—G. W.

Early Asparagus.—On looking over some of the raised beds to-day (April 12) I found several shoots well out of the ground, this being unusually early. Those on the level are apparently much more backward or scarcely on the move, and, it may be, these will be safest this season. Asparagus shoots are most tender, a moderately severe frost spoiling all just coming through the ground, and not a few of those both above and below the surface. Not unfrequently very much more damage is done by late frosts than those in charge of the beds are aware of, and the loss of many early shoots means both a later and lighter crop. The French system of well mounding over the clumps with fine light soil or decayed vegetable matter, largely with a view to obtain a good length of blanched stem, is worthy of being imitated in this country, even if long blanched stems are not appreciated, as moulding over may be the means of saving many of the best shoots from frosts. The least that can be done is to heavily cover the more forward beds, at any rate with strawy litter, and this, in addition to protecting the early shoots from frost, will also make them more succulent—early Asparagus, owing to exposure to cold winds and consequent slow growth, being harder than desirable when cooked.—M. H.

MUSHROOMS IN SUMMER.

DURING the heat of summer Mushrooms are not needed as broilers, but for flavouring they are often in request. A close, muggy atmosphere, such as will be present in places where this esculent may be cultivated with success throughout the winter months, is not suitable for the production of summer crops, unless the building is so constructed as to enable it to be kept as cool as circumstances will permit. The best building I ever saw for the production of Mushrooms in summer was a thatch-roofed structure behind a north wall, and which had free ventilation. Not that an arid atmosphere was encouraged, for mats were hung in front of the windows and doorway. These and the thatched roof were drenched with water through a hose; consequently cool and genial surroundings were promoted. A very good position would be an open shed facing north, hanging mats over the front during the day and throwing open during the night. The roof being thatched, a cooler and more equable temperature can be maintained than could otherwise be secured if the roof was of slate. Often a very cool site may be secured at an angle of a north and east wall, and if partially overhung with trees, all the better. A cool cellar, if not too confined, is also suitable for a summer bed. During the winter these underground cellars are well adapted for Mushroom growing on account of the genial surroundings, the temperature also being considerably lower than in a structure above ground. Many people are led away with the idea that ridge-shaped beds formed in the open air are good for summer crops. This is a very erroneous opinion, for they become so hot and dry, that what Mushrooms are produced are of a very unhealthy description, and, in fact, would be discarded as useless.

It is an old practice, but, nevertheless, a good one, where the roots of Rhubarb are surrounded with manure, to insert pieces of spawn in May, in which position the spawn commences to run and some useful Mushrooms are secured. Many gardeners no doubt could point to success with Mushrooms during the summer

months through quite accidental means. I once paid a visit to a gardener during the month of July, and he showed me a fine bed of Mushrooms in his Mushroom house, which was a thatched structure behind a north wall. This bed was made up during the early part of the year for a spring supply, but the Mushrooms did not appear at the time expected. The bed was, however, left untouched, and a plentiful supply of good produce at the time stated was obtained. If coolness is one of the essential points in securing a summer supply, moisture is also requisite. It would pay even now to give partially exhausted beds a thorough soaking of water impregnated with salt. Diluted manure water I have also used with success, this assisting in re-storing the material with ammonia, a very desirable element if Mushrooms are expected to thrive.

Insects are troublesome at all times, but never more so than during the summer months. It must be remembered that these very cool sites, which are selected and also kept correspondingly moist, are very apt to harbour slugs, which quickly devour the young Mushrooms. Woodlice are the greatest enemy to contend against. The well-known bait of boiled Potato enclosed in a small flower-pot with hay is a good plan for capturing these, but it must be remembered that the Potato is only an allure ment, so the flower-pots must be examined daily where these marauders are known to be present in large numbers. The practice of laying two rotten or decaying boards together in their haunts and covering with hay will attract numbers, which can then easily be destroyed.

The surface of these summer beds should be lightly mulched with sweet litter—not hay, this being too close. If this be regularly moistened, it will assist in keeping away the flies. The Mushrooms as they appear must be pulled whilst in quite a young state, for it will be noticed that it is when they become old through being left too long that they become maggoty. It is easy enough to advise Mushroom beds to be made up in cool sites behind north walls to produce a summer supply, but it requires unremitting attention if Mushrooms worthy the name are to be produced. When forming open-air beds behind a wall I would advise excavating the soil to a depth of a foot or more, this conserving the moisture in the material. Instead of thickly covering these beds with litter, as sometimes advised, and which I could never see the policy of, except during the early spring months, I place a thatched framework over the whole bed at the distance of 6 inches from the surface. If necessary, a mat should be hung over this to assist in causing extra shade during the day. The old practice of inserting pieces of spawn in Vegetable Marrow beds at midsummer often results in good Mushrooms being secured, the shade from the Marrow leaves being just what is wanted. Spawn may also be inserted in Cucumber beds, and by the time the Cucumbers are over I have known the surface of the bed "alive" with Mushrooms.

A. Y. A.

Potatoes as ground-cleaners.—Whilst the value of a good breadth of some strong-growing, disease-resisting Potato cannot be too highly estimated in its food-producing sense, it has considerable value also in its cleansing and disintegrating influences on rough, foul soil. Passing Sandown Park, Esher, recently, I could not but note with much satisfaction the spectacle of a large number of working-men hard at work trenching up several acres of old and very tough pasture land, which had been placed at their disposal as allotments by the racecourse company. That trenching was in

this case the only method of bringing the ground into a useful condition for cropping was evident, as the Grass was long and the roots deep. The only fault to find with the work was that it did not seem to be deep enough, as the crops of whatever kind following would have to be sown or planted almost into the turf. The two evils to be encountered, and which might make the allotments for a couple of years, perhaps, something of a white elephant to the tenants, were a plentiful stock of wireworms and a good deal of coarse Twitch or Couch Grass growth. From the wireworms no crop would be safe, but one of coarse, strong-growing Potatoes would perhaps suffer least. Still further, no crop would be so efficacious in helping to check, by smothering the surface with foliage, the gross Grasses, that would otherwise grow rapidly; whilst the strong roots of the Potatoes would prey upon the decaying sods and during the summer thoroughly disintegrate them. Thus henceforth this old pasture would be in good clean working condition, and were it allowed to lie fallow all the following winter, being occasionally turned up to allow rooks and starlings to get at the wireworms, it might be materially freed also from those pests.—A. D.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

APRIL 19.

THIS meeting, were it not for the show of Auriculas, Primroses, and kindred flowers, would have been considerably less than that held during the previous week. The additions, however, of these popular spring flowers made it quite a full show, more space being occupied than at any previous meeting during this year. A few good seedling Amarylises were staged; as also several choice Orchids, both imported species and hybrids. Hardy plants were also well represented in the new Rhododendron racemosum and Astilbe (Spiræa) Thunbergi. A good display was made of Daffodils in the competing classes; with these, however, more method of arrangement by the exhibitors is desirable. It should be made compulsory to exhibit the flowers in boxes or stands with a groundwork of green Moss; if this were done, the effect as a whole would be considerably enhanced, whilst it would not incur very much more trouble on the part of the exhibitors.

Orchid Committee.

A first-class certificate was given to—

CATTLEYA HYBRIDA BURBERRYANA (C. intricata × C. superba).—A beautiful hybrid variety with sepals and petals suffused with the palest pink shade, the lip having a distinct purplish crimson blotch, the flowers resembling those of C. superba in form. From Messrs. Sander and Co.

Awards of merit were given to—

ODONTOGLOSSUM WENDLANDIANUM.—An imported species from the United States of Colombia; in the form of the flower it partakes much of O. Andersonianum, with markings of a chestnut-brown colour. From Messrs. Sander and Co.

ODONTOGLOSSUM OWENIANUM.—A distinct species from the same locality as the former. This Odontoglossum is unique, inasmuch as it has a pure white lip with the faintest trace of pale lemon-yellow, but devoid of the blotches of distinct colours as in other species; the petals have blotches of a pale brown shade, the sepals almost self-coloured. From Messrs. Sander and Co.

ONCIDIUM GRAVESIANUM.—This species partakes in its bulbs of much the character of O. crispum, but has smaller flowers produced upon freely branched spikes; upon each lip is a large blotch of golden yellow, the other part of the flower with the margin of the lip being of a rich brown shade with occasional markings of a lighter colour. When better established this should prove yet more valuable; it was shown upon a raft by Messrs. Sander and Co.

CATTLEYA PHILO (C. iricolor × C. labiata Mossiae).—A choice addition to the hybrids, the sepals and petals lighter in colour than in good forms of C. Mossiae, with the markings upon the lip similar to those of that species, the entire formation of the flower partaking of the characteristics of its other parent. From Messrs. Veitch and Sons.

CYPRIPEDIUM EXUL.—Shown at the previous meeting as C. insigne siamense. Named by Mr. Ridley, of Singapore. For description see GARDEN August 16 (p. 362). From Mr. R. J. Measures.

Messrs. Sander and Co. sent a choice little group of Orchids consisting of several good types of Cattleyas, as C. gigas; diverse, but fine forms of C. labiata richly coloured; C. Schrederæ and the var. virginalis (a delicate shade); C. intermedia punctatissima; an excellent example of the hybrid Phaius Cooksoni with its singular, but attractive combinations of colours; a fine example of Phalænosis amabilis with a branching spike of extra large blooms; and Spathoglottis Lobbi, always attractive with its distinct rich yellow blossoms. Dendrobium Venus, a hybrid bearing much resemblance to D. Falconeri, but of more erect growth, as in the case of its other parent D. nobile, was also included (silver Banksian medal). From Mr. Smith, Silvermere, Cobham, came plants of Oncidium luridum, well flowered, and a well-grown example, although small, of Dendrobium Wardianum.

Floral Committee.

First-class certificates were given to—

GREVILLEA ROBUSTA ELEGANTISSIMA.—A very graceful form of this well-known decorative plant, the foliage finer than in the type, but the leaf growths individually much longer and of more elegant habit, a decided acquisition as a vase plant for the dinner-table or any other purpose. From Messrs. Veitch and Sons.

SPIRÆA THUNBERGI.—This, shown in very fine condition, bears some resemblance to S. astilboides, but is more graceful in its character; in colour the flowers are of a French white shade, the spikes some 2 feet in height, with foliage and habit after S. palmata. From Messrs. Veitch and Sons.

RHODODENDRON RACEMOSUM.—A hardy species from China, of extremely dwarf and compact growth, the trusses of flowers after the manner of Azalea amœna in the size and form when that plant is well grown, the colour a faint pink with the edges of the petals of a pleasing rosy-pink shade. A valuable variety for planting upon rock-work or for the alpine garden. The plants shown of this Rhododendron were flowering whilst only a few inches high. From Messrs. Veitch and Sons.

Awards of merit were given to—

AMARYLLIS SYLVIA (reticulata × Bernard).—This is a beautiful seedling from the afore-named parents, having the foliage of A. reticulata with the vigour of spike seen in the best hybrids, the colour a bright rosy crimson veined with white and having a broad outer margin of white; this distinct break is a still further advance. From Messrs. Veitch and Sons.

AMARYLLIS CHARLES PENNY.—An extra fine variety with deep crimson-scarlet flowers of large size, petals very broad and well reflexed. From Viscountess Hambleton.

The proprietors of the Guildford Hardy Plant Nursery sent two baskets of alpine plants, well arranged, consisting of Saxifraga longifolia of extra fine growth; Gentiana verna, in fine flower, with several other Saxifrages, a few species of Primulas and good examples of Thalictrum anemonoides. These baskets attracted much attention and admiration from the visitors, the arrangement being out of the common stereotyped exhibition style of staging, the plants being set up in an impromptu manner with small pieces of rock and sandstone, affording a lesson to all who are disposed to learn (silver Banksian medal). Mr. C. E. Smith, Cobham, showed Gelder Roses (cut examples) with trusses of fine size and pure in colour, also Acacia hispida (pink) and Jasminum revolutum, with its sweetly-scented pale yellow

flowers (bronze Banksian medal). Messrs. W. Paul and Son showed baskets of new Roses. Of these, *Christine de Noe* (Tea), a pale form of *Reine Marie Henriette*, but apparently of better habit; *Waban* (Tea), shown at the last meeting, but now in much better condition, a full flower of a deep pink colour, the habit close, evidently a good bedding Rose; *Spenser* (H. P.), shown last week and then described; *Corinna*, after *Comtesse de Nédailiac*, with fuller flowers and of a rather paler shade, habit vigorous; and *Pink Rover* (H. Tea), with flowers of the popular colour of *Souvenir de la Malmaison*; all promise well. Mr. J. R. Chard showed *Cyperus laxus variegatus*, a dwarf plant with silvery variegation, and useful for decoration. From the Royal Gardens, Kew, came a most interesting and instructive exhibit of *Hyacinths* (cut spikes); these had been taken from bulbs in from three to five years in the Royal Gardens; the spikes and bells were extra fine, the best being *Grand Maître*, blue; *Baron von Tuyl*, blue; *Robert Steiger*, red; and *Queen of Blues*. These were in no case inferior to those from imported bulbs, but rather in the instances named finer in all respects, showing that *Hyacinths* can be forwarded from stage to stage in this country under practical modes of cultivation.

From Mons. J. Sallier, Paris, came a variegated form of *Tropeolum Lobbianum*, which is no improvement upon the green-leaved type. From Messrs. Boelens frères, Ledeberg-lez-Gand, came a very good form of *Clivia* named *Britannia*, bearing a large truss of well-coloured flowers. The Viscountess Hambledon sent several excellent seedling *Amaryllises* besides the one certificated; all were of a high order of merit in all respects, showing plenty of vigour both in the growth of the plants and bulbs as well as in the spikes of flowers. It is a marked sign of the popularity of the best strains of *Amaryllis* when private growers bring forward seedlings of their own raising instead of leaving the competition for certificates entirely to the well-known trade growers.

Narcissus Show and Competition.

The exhibits in the classes were on this occasion much better than usual. For nine varieties of *Daffodils* (distinct), Mr. H. Berkeley James, The Oaks, Carshalton, was first, showing *Grande*, very pure in colour and of fine size; Sir Watkin, Emperor, Empress, Horsfieldi, Dean Herbert, smaller than *Grande*, but rather deeper in colour; Nelsoni major, Barri conspicuus, and maximus. Rev. J. E. Bourne, Dunstan Vicarage, Lincoln, was second; the best here were albicans and Princess May, both in good condition. Mr. Berkeley James was also first for six kinds with a good assortment of fresh flowers, and Mr. Melles, Sewardstone Lodge, Chingford, a close second. For a collection grown in the open air, Mr. C. W. Cowan, Valleyfield, Penicuik, Midlothian, was first with a large and most varied assortment, consisting of the finest of the large-flowered and the choicest of the smaller sections; the finest in this excellent exhibit were Emperor, Empress, Sir Watkin, Duchess of Westminster (extra fine), Captain Nelson, M. J. Berkeley, Glory of Leyden (extra large and fine), Mme. de Klemp (one of the very finest with large flowers)—the two last are grand additions from the collection of M. de Graaf—Nelsoni (pure in colour), incomparabilis Goliath, bicolor, and grandis; these have large or medium-sized flowers. The following were the finest of the miniature growing varieties: Ajax minor, A. cyclamineus, A. Minnie Warren, and vars. of *Bulbocodium*. The second prize collection was from Mr. Adams, Roseneath, Enfield, who also showed a fine assortment well set up, as in the case of the premier collection, upon green Moss. The best here were incomparabilis Frank Miles, Gwyther, Beauty, Ajax grandis, J. B. M. Camm, Leeds, Minnie Hume, incomparabilis Queen Bess, Ajax Dr. Hogg, and Nelsoni. For a collection of varieties (*Polyanthus* excluded) Mr. Bourne was first with an assortment containing several choice kinds—incomparabilis C. J. Backhouse (extra), Barri Beatrice, albicans, Stella, tortuosus, Santa Maria, incomparabilis John Bull and Barri sulphureus were amongst the best kinds. Mr. Adams

was a close second, showing a similar collection of good kinds as in the previous class, the blooms having a fresh appearance, but wanting more room to display them to the best advantage.

Messrs. Barr and Son showed a miscellaneous assortment of *Daffodils*, amongst which were excellent examples of *incomparabilis Beauty*, *cernuus pulcher*, M. J. Berkeley, M. Dobell, *incomparabilis Queen Bess*, Leeds Beatrice, W. C. Milner, Barri conspicuus, Leeds Grand Duchess, Harrison Weir, and bicolor J. B. M. Camm—in all a selection of choice kinds.

These exhibits of *Daffodils* from various localities, and these far removed from each other, afford excellent opportunities for comparison amongst growers. The later kinds, as the varieties of Leeds, were on this occasion shown in better form; these may not be quite so showy, but they are nevertheless extremely handsome, affording a change from the deep yellows, as seen in the varieties of bicolor. There is still room for improvement in the modes adopted by some growers in setting up their flowers; the sooner the blacking-bottle arrangement is dispensed with the better. In the Penicuik collection the naming was especially noteworthy.

Fruit Committee.

This committee had few exhibits before them. Strawberries were sent in quantity, and a dish of new Grapes with seedling Apples. Mr. Gilbert, Burghley, sent some remarkably fine *La Grosse Sucrée* Strawberries, about two dozen fruits. A sample of *Vicomtesse Héricart de Thury*, sent from Mr. F. Lees, The Vineyard, Connaught Road, Reading, was in fine condition as to colour and ripeness. From Syon House Mr. Wythes sent a seedling Strawberry same as exhibited last meeting, but larger fruit and well finished. Three dishes were sent of this variety to show its free-bearing, the fruit having been gathered from the same plants as at the last meeting. This the committee wished to be sent to Chiswick for trial. A bunch of white Grapes (*Foster's Seedling*) and one of Black Hamburg, of good colour and finish, were sent from the Royal Gardens, Frogmore, by Mr. Thomas. They had been cut from permanent Vines and ripened in March. A new seedling Apple named *Barnack Beauty* was exhibited by Mr. Divers, Ketton Hall Gardens. It somewhat resembles *King of the Pippins* in shape and colour; flesh very firm for so late in the season, but somewhat deficient in flavour.

The lecture on the English florists' Tulip, in the absence of the Rev. F. D. Horner, was read by Mr. Douglas. Mr. Horner stated that he did not intend to give a long paper as to the origin of the florists' Tulip or date of introduction of the original type, as there was a difference of opinion on these points. In years gone by the Tulip was cultivated largely, and in many cases fetched fabulous prices, as much as £700 or £800 having been paid for a single variety. Some twenty-five years ago Tulip shows were fairly numerous in this country. These had declined to some extent, but still there were enthusiastic cultivators who prided themselves on their strains or types of roses, bizarres and bybloemens. Though some seedling Tulips came ruffled, others plain, and the self varied in height and colour, they were all one and the same species, only varying in colour and size. The rose Tulips in some instances give off a sweet perfume, and are more toned down in colour than others. These are favourite colours in most gardens where the Tulip is cultivated. The bybloemen, on the other hand, should be free of red in the petals. The yellow ground Tulips of the bizarre section are the largest and best class. One of the best is Sir J. Paxton. As colours decide class of flower, the different kinds are regulated by their colours; feathered Tulips well describe the variety. The plain Tulip is flushed with colour, though there are almost endless numbers of the feathered type. The preference of the florist is for brilliant markings and distinct blotches. A perfect Tulip should have six petals, more or less disqualifying it; the form should be round, and the flower

should not be curving inward or reflexed, but of equal proportions, and the base of the cup yellow. The quality of the Tulip is only obtained after many years' patient labour, and though there are some long cupped types with smooth petals at the edges, they are not desirable; some may like them, but the taste differs. For instance, it has been the custom for the northerner to look to markings as the chief point in a good type, whilst the southern idea was perfect form. To get good types, a combination of these two qualities was necessary. The raiser should reject those seedlings that did not come up to the desired form, and he was sure there was yet much room for improvement in this respect, as often in collections of this flower there was a lot of old kinds of little merit. The aim of the raiser should be to select flowers of great purity to start with when raising seedlings. The raising of seedlings requires much patience, as a seedling Tulip is some time before its true value is known. It is from three to six years before the colours become fixed. Many persons look with surprise upon this changing of colours in the seedling Tulip and wonder how it takes place, but till it does the section to which the seedling belongs cannot be settled accurately, as the first flowers are usually self-coloured. These break into other colours; hence the term breeders, which is applied to them at this stage. He hoped to see more interest taken in florists' Tulips, as he was sure they deserved extended cultivation, and sincerely trusted a revival would take place.

The chairman said many years ago fabulous sums were paid for these bulbs, and every town of any size had its show, and though they could not expect to see such large sums expended as in former days, he hoped we should see more interest shown in these beautiful flowers. Mr. Turner, of Slough, had for many years given these flowers every encouragement and kept up the reputation of the florists' Tulip, and he had many beautiful types in his collection.

NATIONAL AURICULA AND PRIMULA SOCIETY'S EXHIBITION.

JUDGING from the inquiries made by visitors, the popular mind appears to take in the differences between the various sections of the florist's Auricula somewhat imperfectly. The Auricula fancier puts the green edges on the highest pedestal, because the edge of pure rich green on the petal is so difficult of attainment in anything like a perfect form, more especially if it can be associated with another characteristic still more difficult of attainment, namely, the golden tube or eye. The casual observer appears to think there is green enough in the leaves, and therefore it is out of place in the flowers, and turns instead to the jewelled grey and white edges. The contrast in the self flowers between the marginal border of blue, violet, purple and maroon and the zone of white paste which encircles the eye of the flower are also noticed and admired by the public. In the rich and striking alpine varieties, the combinations and contrasts are very different in character to what are seen in the show varieties, and it is impossible not to admire their great beauty. The rich golden are preferred to the cream or white-centred flowers, because the former are more startling in the contrast; but a good white centre has, after all, a wealth of beauty that is highly appreciated by the florists, the more so because the true white-centred flowers form a very limited section indeed. The bright and show fancy or Giant *Polyanthuses* and the brilliant-coloured *Primroses* found their admirers; the varieties of the gold-laced section looked quite commonplace by the side of their more alluring relatives. The species of *Primulas* were delightful, especially those so charmingly arranged in baskets by the Guildford Hardy Plant Nursery Company. Very few double *Primroses* put in an appearance; the winter, we fear, proved fatal to many of the plants, but those who can manage them rightly find them delightful subjects to grow in pots under glass in cold houses. They naturally flower early and need protection of

this character. On the whole, the exhibition of the National Auricula and Primula Society proved much larger and better than could have been expected. In some way the plants of the show Auriculas were got into bloom, but the use of artificial heat had to be resorted to to secure the expansion of their pips.

SHOW AURICULAS.—The competition in most of the classes was keener than for years past. There were as many as six collections of twelve plants, Mr. J. Douglas, gardener to Mrs. Whitbourn, Great Gearies, Ilford, taking the first prize with Abbé Lizst, Prince of Greens, and the Rev. F. D. Horner, green edges; Mabel and Marmion, two fine varieties raised by Mr. Douglas, grey edges; Elaine, Acme and Magpie (Horner), white edges, and Mrs. Potts, Fanny Glass, Heroine, and Black Bess, self; 2, Mr. T. E. Henwood, Hamilton Road, Reading. Mr. C. Turner, Royal Nursery, Slough, who has not exhibited in this class for a few years, took the third prize; Mr. P. J. Worsley, Rodney Lodge, Clifton, Bristol, being fourth. There were six competitors in the class for this number of varieties, and here Mr. Douglas took the first prize with Rev. F. D. Horner and Abbé Lizst, green edges; George Lightbody and Marmion, grey edges; Acme, white edge, and Mrs. Potts, self; Mr. T. E. Henwood took the second prize; Mr. A. J. Saunders, Bookham Lodge, Cobham, being third. In the class for four Auriculas, there were five competitors, and here Mr. William Badcock, Oxford Road, Reading, an amateur cultivator, who is speedily coming to the front as a leading cultivator and exhibitor, was placed first with Rev. F. D. Horner, green edge; Marmion and Richard Headley, grey edges; and Black Bess, self; 2, Mrs. Kyrke-Penson, Dinham Lodge, Ludlow; 3, Mr. C. Phillips, Hamilton Road, Reading, who had a promising seedling green edge, and a good, dark self seedling from Heroine. With two Auriculas, Mr. Badcock was again placed first out of six competitors, having Rev. F. D. Horner, green edge, and Richard Headley, grey edge; 2, Mr. C. Phillips; 3, Mr. W. L. Walker. Then followed a number of classes for single plants in their several sections, viz.: *Green edges.*—1, Mr. J. Douglas, with Rev. F. D. Horner; 2, Mr. W. Badcock; and 3, Mr. T. E. Henwood, with the same. *Grey edges.*—1, the Rev. F. D. Horner, Low-fells, Burton-in-Lonsdale, with Samuel Barlow (Bolton), a flower of very fine quality; 2, Mr. William Smith, Bishop's Stortford, with George Rudd; 3, Mr. W. L. Walker, with George Lightbody. *White edges.*—1, Mr. T. E. Henwood, with John Simonite; 2 and 3, Mr. J. Douglas, with Acme. *Selfs.*—1, the Rev. F. D. Horner, with Precision; and 2, with Kathleen, two dark selfs of very fine quality, raised by the exhibitor; 3, Mr. J. Douglas.

In the class for fifty Auriculas, Mr. J. Douglas was, as usual, first, with the Rev. F. D. Horner, Smitherfield, Abbé Lizst, Prince of Greens, and Dr. Hardy (Simonite), green edges; Mrs. Moore, Mabel, and Neatness, grey edges; Elaine, John Simonite, Peri, and Acme, white edges; and Black Bess, Mrs. Potts, Sapphire, Friar Tuck, Dignity, Heroine, and unnamed seedlings, selfs. Second, Mr. Charles Turner, Royal Nursery, Slough. Third, The Guildford Hardy Plant Nursery Co., with selfs chiefly. In the class for twelve alpine Auriculas, Mr. W. L. Walker, one of the young Reading growers, was placed first, with admirably grown and bloomed plants of Defiance, Hotspur, T. E. Henwood, Edith, and some very fine and promising seedlings; 2nd, Mr. C. Turner, with some very fine varieties; 3rd, Mr. J. Douglas; 4th, Mr. J. Weston, Ravensholme, Balham. In the class for six plants, Mr. W. L. Walker was again first with very fine seedlings; 2, Mr. C. Turner, with Unique, H. E. Milner, Rev. F. D. Horner, Mrs. Meiklejohn, and two seedlings; 3, Mr. C. Phillips, with small seedling plants of a very promising character. The best four varieties came from Mr. A. J. Sanders; 2, Mr. C. Phillips, with small plants of fine seedlings; 3, Mr. J. Nicholson, Sewardstone Lodge, Chingford, also with seedlings. In the classes for single specimens of gold and white-centred flowers, there was, as usual, a brisk competition. With gold centres, Mr. C.

Turner was placed first with John Beswick, very bright; 2, Mr. W. L. Walker with Florrie Henwood, and third with Hotspur. With cream and white centres, Mr. W. L. Walker was first with Mary Frances; 2, Mr. C. Turner with Countess; 3, Mr. Walker with Edith.

The gold-laced Polyanthuses were only fairly represented. The best six plants came from Mr. Richard Dean, Ranelagh Road, Ealing, who had William IV., Sir Sidney Smith, George IV., Lord Beaconsfield, and two seedlings; 2, Mr. James Weston, with much the same varieties; 3, Mr. J. Nicholson, with seedlings. With three plants, Mr. Mottershead, Slough, was first with George IV., Prince Regent, and Napoleon, the two former in fine character; 2, Mr. J. Douglas; 3, Mr. J. Weston. In the class for single plants, Mr. J. Douglas was first with George IV., and 2nd with William IV.; Mr. Weston was 3rd with Lancashire Hero. Owing to the severe weather the fancy Polyanthuses were hardly up to the mark. Mr. R. Dean was first and Mr. J. Douglas 2nd with twelve pots. Primroses were bright and gay, the deep red and crimson hues being very attractive. Here Mr. R. Dean was first with twelve pots of his fine strain, Mr. J. Douglas being 2nd. Mr. R. Dean took the first prize with a basket of Primroses, Mr. G. Phippen, nurseryman, Reading, being 2nd.

Mr. J. Douglas was the only exhibitor of twelve fancy Auriculas, the varieties having orange and yellow body colours, and generally of a fantastic character. In the class for species of Primula Mr. J. Douglas was placed first with twelve, having fine pots or pans of denticulata, Sieboldi var. laciniata, obconica, japonica, rosea, verticillata, Nelsoni, marginata, villosa, nivea, viscosa, hybrida, and decora; 2, The Guildford Hardy Plant Nursery Co., who had rosea grandiflora, nivea, Auricula from San Martino, ciliata purpurea, Fosteri, viscosa, magnifica, ciliata coccinea, pubescens, &c. The only exhibitor of six species was Mr. O. T. Hodges, Chislehurst, who had nivea, marginata, viscosa, viscosa variety, and Wulfeniana.

The premier Auricula selected from the entire exhibition was green edge Abbé Lizst, shown by Mr. J. Douglas in his collection of twelve varieties.

Miscellaneous contributions of Primulas included a small collection of new varieties of show Auriculas from the Rev. F. D. Horner, which included his fine yellow self Buttercup; a group of Polyanthuses and Primroses in pots from Mr. R. Dean; a basket of Gilbert's white Polyanthus Harbinger, and also a basket of what was termed the old single white form from Mr. W. H. Divers, The Gardens, Ketton Hall, Stamford.

PUBLIC GARDENS.

The proposed open space at Fulham.—The Council decided to grant the Vestry six months' extension of time in laying out this ground.

Recreation ground for Walmer.—The Walmer Local Board are about to acquire a large tract of land for the purposes of a recreation ground.

Peckham Rye extension.—A letter was read from the Assistant Solicitor of the London County Council asking the Vestry to pay the sum of £500, the promised contribution towards the purchase of the extension of Peckham Rye Common. After some discussion it was agreed that the contribution which had been promised by the Vestry should be paid.

Recreation ground for Chester.—The Duke of Westminster has presented the Edgar Field at Handbridge, Chester, for the recreation of the poor children of that suburb of the city, and has, it is understood, further intimated his intention of placing £1000 to the credit of the Corporation of Chester as an endowment fund for keeping the grounds in order. The opening of the recreation grounds took place on Easter Monday.

The Millbank Prison site.—On the recommendation of the Parks Committee it was agreed that the Council should address a communication to the

Vestry of Westminster, to the effect that it is not prepared to take into consideration any scheme for the acquisition of 10 acres of the site of Millbank Prison for the purpose of an open space which does not provide for half the purchase money being found by the local authorities or by private persons.

The Albert Palace.—A public meeting was lately held at Chatham Hall, Battersea Park Road, to consider the advisability of urging the London County Council to purchase the Albert Palace. Mr. Hood Barry presided, and said that it was highly desirable to acquire the palace for use as a winter garden or in some other way for the public good. The opportunity of making this purchase would occur on the 27th inst. He had doubts whether the County Council had any power to acquire the building, although the Vestry of Battersea and other local bodies might perhaps be able to do so. Mr. Howard moved a resolution in favour of the purchase of the palace and calling upon the County Council to do their best to acquire the property. Mr. Whitmore, in seconding, said that the palace had been offered to them for £5000, a mere nothing when they considered that it cost over £12,000. After a long discussion the resolution was carried.

How these florists love one another!—Mr. Sydenham writes us from Birmingham:—

I am very sorry to see in Mr. Dodwell's report of the Carnation and Picotee Union the very ungenerous remarks he makes at the bottom of p. 41 about the prizes you have so kindly given to our midland society, and I could not help writing to him yesterday and saying that I thought the remarks were very uncalled for; and inasmuch as you have done so much for the Carnation and have come forward to do what you can to help us, I should like you to thoroughly understand that these remarks are quite contrary to my ideas, my wishes, and my feelings. You have always met me in a very kind and generous manner when I have had occasion to communicate with you in any way, and I trust our connection in the future may always be as pleasant as in the past.

This is the graceful paragraph alluded to:—

Special prizes at the coming exhibition of the Midland Carnation and Picotee Society, given by Mr. Robinson, of THE GARDEN, Gardening Illustrated &c., are for "A bunch of self Carnations, not less than twenty stems, any colours to be shown as grown, the plants to have been grown and wintered out of doors, not dressed in any way or the buds thinned, shown with its own foliage and buds, no ties or bands around calyx and no paper collars, wires or supports of any kind to be used." Query: Is this cultivation or its negation? What would be said to a proposal that the Grape grower should be restrained from thinning the berries, and leave every bunch, whatever the luxuriance or excess of Nature, untouched upon the Vine? Would that find favour with practical men or the experienced physiologist? Would it not be said the proposer was qualifying for a lunatic asylum?

* * The beneficent and most amiable Mr. Dodwell is angry with me. He sheds such rays of generosity and peace about him wherever he is, that I will not quarrel with him. Without discussing the question of lunacy, I will only assure him that the Carnation in the open air, if well grown, does not require thinning any more than the Lily or the Rose, or many other noble garden flowers. If he doubts the truth of what I say, I shall be very happy to show him flowers grown in the open air to the fullest size and beauty without thinning, also gardens in which their effect is of the finest.—ED.

New or rare flowers for drawing.—Readers will kindly remember that we shall be greatly obliged for any specimens of new or rare plants, or information concerning them.

Names of plants.—Daniel Rooney.—1, Poinsettia pulcherrima; 2, Lygodium scandens; 3, Fittonia rubro-nervia; 4, Jasminum sambac; 5, Euphorbia jacquiniæflora; 6, Selaginella cæsia; 7, Selaginella japonica; 8, Selaginella Martensi variegata; 9, Grevillea rosmarinifolia; 10, Hydrangea hortensis variegata. — J. Crook.—1, Narcissus pseudo-Narcissus (the common Lent Lily); 2, Narcissus incomparabilis fl. pl.—W. Blenkinsop.—Odontoglossum Cervantesi.

WOODS AND FORESTS.

TREES AT LULLINGSTONE CASTLE.

THE ancient park of Lullingstone, with its fine old castle and moat, its prettily wooded slopes, and giant species of the Oak and Beech, is well worthy of inspection. Never before have I seen on an equal or smaller extent of ground so many fine old Oaks and Beeches as are growing in the wood adjoining the keeper's lodge. That they are remnants of one of the most primæval forests for which this part of England was once so remarkable cannot be doubted, the Weald of Kent having been once probably the finest forest of Oak that could be found anywhere in the British Isles. In their heyday these Lullingstone Oaks must have been of great value, the demand for shipbuilding and many other almost equally important purposes having placed the Oak in the highest rank of our forest trees.

The system of pollarding, neglect of pruning wind-broken branches, as also accidents arising from the ingress of stock are a few of the causes why our fine old English Oaks are at present in so dilapidated a condition. Go where one will, visit the most remarkable of our remaining forests, and the same sorry feeling comes over one that mainly through neglect and bad management (far more so than on account of age) these giants of old look so wretchedly crippled and forsaken. Look at the famous Wilberforce Oak at Holwood, the equally famous Witch's Oak at Knole Park, the Royalist's Oak at West Wickham, and many others, and we find that more through neglect and want of timely attention than from old age these remarkable Oaks have fallen sadly into decay, and present a generally miserable and woe-begone appearance.

On measuring one of the Lullingstone Oaks I found it to be 29 feet 7 inches at 2 feet from the ground, and not one, but many of the trees must have been equally large. Several had clean straight trunks of from 20 feet to nearly 25 feet in height, but in almost every case they were hollow, only a shell remaining to hold the vast tottering pillars together for a few years longer. So large were the openings, that fowl-houses and kennels for dogs were conveniently and with ample room fitted up within the giant trunks, and in some instances one could find space sufficient to walk about within these crumbling logs. A door-like opening into one of the largest Beeches tempted me to enter, and unusual was the appearance here presented, the huge trunk being but a shell and quite hollow from top to bottom, the height being probably about 23 feet. But many were the trunks of such size and which before decay set in must have been of considerable money value, particularly the Oaks. Some of the finest and most valuable of Beech timber in the county is got from one of the woodlands at Lullingstone, the whole, or nearly so, of the trees being giant Beeches with straight, clean trunks of 40 feet and more in height, the total height of the trees being nearly double those figures. The timber in this particular wood is highly prized, being unusually well grown and of excellent quality.

A small plantation, clump would perhaps be more applicable, has, strange to say, been completely destroyed by the immense flocks of starlings that congregate there, but particularly towards evening. Thousands of these birds may be seen at the same time, and frightening them by shooting has proved quite ineffectual. The main damage to the trees, in my opinion, has been brought about by the droppings from

the starlings, which have quite manured the ground as well as smeared the stems, branches, and foliage. The smell emitted is most disagreeable, and it is days before the clothes of a person who dares to enter this woodland can be freed from it. I have never known nor heard of a similar case of trees being killed outright by this bird, and I would be glad of any opinions that may be advanced. That the starling is a noxious bird and will not be eaten by birds of prey (eagles, hawks, owls, &c.) I know full well from experience, while a trusty keeper tells me that unless a ferret is almost starving it will not touch the flesh, and should it, there are parts that are always left untouched.

The park being well stocked with deer, very few young trees are to be seen, but the jungles and thickets of Bracken, the fine old Oaks and Beeches, some in clumps, others standing singly, with the quickly undulating ground and the clear winding river all combine to render Lullingstone one of the most natural and untampered-with of our ancient English manorial homes. Antiquarians find much to interest them in the private chapel, where many relics of the past are stored away, while the castle gate and watch house, both dating from a very early period, have been sketched and figured times without number.

There is a pretty walk by the river-side leading from the castle, where numbers of choice shrubs and plants and portly-stemmed trees find a congenial soil in the alluvial deposit of the river bed.

A. D. W.

THE GOLDEN-LEAVED OAK OF CALIFORNIA.

THIS (*Quercus chrysolepis*) is one of the largest of the California Oaks, and perhaps the most beautiful of them all; it is an evergreen tree, and the distinctive character to which it owes its Latin name is the golden tomentum, composed of a dense fuzz of jointed glandular hairs which usually covers the under surface of the leaves and the cups of the acorns, although the amount of this covering and the brightness of its colour vary greatly on different individuals: it is generally common, however, on the leaves while they are young, but gradually disappears, leaving the under surface whitish or bluish white. It is usually a tree 40 feet to 60 feet in height, although individuals nearly 100 feet high may sometimes be found, with a short trunk 2 feet to 4 feet or rarely 10 feet in diameter, dividing near the ground into great branches which, spreading at right angles, touch the soil with their extremities and form a mass of foliage sometimes 150 feet across. The bark of the trunk and of the branches is ashy grey and covered with flaky scales. The leaves, like the young shoots, as they unfold are clothed with the golden pubescence, and make a charming contrast with the mature leaves of previous years. They are thick, firm, bright and lustrous on the upper surface at first, although in time the bright green becomes more or less shaded with yellow. The acorn is half an inch to 1½ inches long, its base being enclosed in a cup covered with small appressed scales more or less hidden in the dense fulvous tomentum.

In the fog-laden atmosphere of the valleys of the coast ranges *Quercus chrysolepis* develops into such a tree as we have tried to describe; more remote from the coast, and as it often grows scattered on high foot-hills, it becomes more symmetrical in the general outline of its narrow head, or at high elevations it is smaller, and on the slopes of the Sierra Nevada, where it is often found between 3000 feet and 8000 feet above the level of the sea, in Lower California and on the mountains of Southern Arizona and of Sonora it is a small tree or often a little shrub with minute leaves and small acorns, but with the same general characters that serve to distinguish the great tree of the coast valleys. As a timber tree *Quercus chryso-*

lepis is the most valuable broad-leaved tree of the California forests, although the trunk rarely produces logs long enough to manufacture into boards. The wood, however, which is heavy, solid and tough, is well suited for waggon wheels, agricultural implements and other tools, and the best trees, in spite of their inaccessibility, are now fast disappearing. It is probable, therefore, that in a few years, unless they can be protected in some way, all these great Oaks will have disappeared for ever; for no one in California ever thinks of planting these trees or of protecting self-sown seedlings, which fall a prey to sheep and cattle, or are swept out of existence by the fires which year after year are burning ever-increasing gaps in the Pacific coast forests.

The California Oaks, when removed from their home, have not usually flourished. They are not hardy in the east, where, perhaps, our summers are too moist for them; and in Northern and Central Europe they do not succeed, but in Australia, or in some part of the Mediterranean basin, perhaps some spot can be found where congenial conditions can be provided for these trees, and where, if they grow as they have grown in the California valleys, they will repay the care and labour needed to rear them.—*Garden and Forest.*

Felling hardwood.—As to the time for cutting down a crop of hardwood timber, much depends upon the soil and the position in which it is growing. When trees are planted in inaccessible places, it is sometimes almost impossible, or may cost more than the value of heavy timber, to have it removed. In such situations, therefore, trees should be felled before they reach full size, to render their removal possible without cutting them into unsuitable lengths.

Twig and cone of the Austrian Pine.—(*W. J. Novell*).—From the twig sent it is clearly evident that the tree is a form midway between *P. austriaca* and the Corsican Pine (*P. Laricio*), which is of by no means rare occurrence. In front of the garden at Penrhyn Castle, North Wales, may be seen several trees of the same kind—in fact almost every intermediate form between the typical Austrian and Corsican occurs in that particular patch, and as they are growing side by side, the differences are distinctly visible. Indeed so distinct are these, that I some years ago in *THE GARDEN* devoted an article, or rather a portion of an article, to the fact, and I believe that I am backed up by many in supposing these two Pines to be but varieties, less or more distinct as the case may be. The twig sent, from the absence of the conspicuous white, woolly buds at present, would rather indicate that your form more nearly approaches the Corsican than the Austrian, but the cone, on the other hand, is that of *austriaca* proper, this always being more globular, larger, and whiter than that of the true Corsican. Again, the peculiar twist in the leaves that is so characteristic of most specimens of the Corsican is almost wanting in the specimen sent. I should unhesitatingly pronounce your tree as a form about midway between the typical Austrian and Corsican Pines.—A. D. W.

"The Garden" Monthly Parts—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of *THE GARDEN* from its commencement to end of 1891, forty vols., price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

CHRYSANTHEMUMS.

CHRYSANTHEMUM NOTES.

THE variety Mrs. Alpheus Hardy has been cultivated in this country for two seasons, but to judge by the small number of blooms of it seen last autumn many growers must have given it up in disgust after a first trial. To those who followed this course I would say, try once more. Its constitution, on this side of the Atlantic at least, is anything but robust, and the very great interest attached to its introduction when everybody appeared to wish to possess a plant of it caused high-pressure propagation, which in itself ruins for a time so many of our floral novelties. But the hirsute character of the florets of this kind give to it such a distinct and attractive appearance, and a well-grown bloom is so gracefully formed, the white, too, being so delicately tinted, that it seems to me worth while to go on with its cultivation till we succeed as others have done. One who has grown Mrs. Alpheus Hardy successfully recommends that the plants be topped in April and grown on in poor soil and small pots, that is, for the final potting, those of 8-inches diameter. The variety takes a long time to open its bloom-buds, and those resulting from the growths after topping will not be too early even if they show before August 1. A vigorous plant may carry two blooms. It should be sparingly watered and cannot take manure water or other stimulants. It is important that the pots be carefully drained and an extra amount of charcoal may be mixed with the soil. Keep the plants in an airy part of a cool house till well on in June, when a sunny spot outside should be selected to ripen the growth, placing them again under glass early in September. Some capital blooms I saw last year were grown in a mixture of peat, loam and sand. But I fancy the skill which was brought to bear on such details as watering and air-giving had something to do with the success. I have a variety sold as Mrs. Alpheus Hardy Improved. It was particularly spoken of as stronger. It may be too early perhaps to pass an opinion, but as yet I do not see the slightest difference. At Ryecroft Nursery I saw three seedlings that will be watched with interest. If the blossoms come equally fine, they will be acquisitions of the first order, for they are decided improvements in constitution. Louis Boehmer came last year with a great flourish, but the general opinion seems to be against it. This variety ought to have another trial. Being exactly opposite to the white kind in vigour of growth, large blooms were plentiful, but mostly of a dull, washed-out pink colour anything but taking. These were grown from the crown bud. Where the buds had been secured from a terminal shoot, the flowers had a soft, downy appearance, were of excellent shape, and pleasing in colour. I would advise that this later flower-bud should in all cases be chosen. This variety, again, would make a capital plant to grow as a bush for a quantity of blossoms. W. A. Manda is the latest of these novel hairy Chrysanthemums. It has a bright yellow colour to recommend it, and also possesses a strong, sturdy habit, which will make it a useful addition.

With snowstorms and nights registering 12° of frost, even in the south of England, the wisdom of well-protecting young Chrysanthemum

plants during April has been this year illustrated. But we may now surely hope for more genial weather and place them entirely outdoors. Where these are cultivated for large blooms or extra-sized specimen plants, it is well to prepare thus early for placing them into their flowering pots. It appears to me the reverse of wise to wait for a stated time if the 6-inch pots are well filled with roots by the middle of May. A month later has been so often mentioned as the proper time, that I fear, in fact I know, many who start in the culture of exhibition Chrysanthemums allow the leaves to become yellow and stunted, because the month of June is not reached. The final potting is an operation that takes considerable time if done well, and this alone should be a reason for making a start with the forwardest, so that, through pressure of such work as bedding out, every plant shall be properly done. All pots ought to be thoroughly cleaned and crocked ready for use. Oyster shells are capital for placing at the bottom. Do not put too much drainage in each pot, but rather place the material in with care. Half of the compost may be loam, which, of course, is of different quality. For choice, I would prefer cutting it myself from a meadow about three months before it is wanted for use, so that the fibre is retained alive. But I know too well near London this is a difficult matter, and we must depend upon the dealer. Much that is used hereabouts comes from near the Downs noted for horseracing. It is of a good yellow colour, but soon loses its body, and requires plenty of charcoal and the like to keep it open. Horse droppings, as prepared for Mushroom culture, are preferable to ordinary rotted manure which has its goodness washed out. These, with leaf mould, coarse sand, or road-scrappings, should form the other half of the soil. Besides charcoal, bones in the form of meal may be applied at the rate of about 3 lbs. to the bushel. Half-inch or quarter-inch size will prove beneficial to the plants if a layer be placed over the crocks. The effect of bones is always apparent in the smooth leathery texture of the florets, and they also give a healthy tone to the foliage. Use the soil in a medium state of dryness, then it cannot well be rammed into the pots too firmly, and finish off with a good margin at the top, so that each plant may have enough water to soak the whole of the ball of earth. Unless for large bush specimens, which will require a 12-inch pot, pots of 9-inch diameter, inside measurement, are large enough for the strongest growers, and a size less for the weaker ones. Especially in wet summers, and these seem to prevail, is the practice of employing comparatively small pots sound. Thoroughly soak the plants with water before repotting. It is well to place them afterwards for a couple of weeks in a shady position, where they may be syringed two or three times daily and the roots assisted in taking to the new soil. Afterwards, when a stick has been placed to each, they can be stood in an open spot for the summer. Happily, the newer kinds are less leggy in habit than the older sorts, so that 10-foot stakes are things of the past. A 6-foot length will now do for the tallest, whilst for most of them half that length is sufficient. With a few exceptions, allow a single stem only to proceed till a natural stoppage takes place, and then pinch out all shoots but those that are required to produce a bloom on each, tying these securely as they proceed. Boule d'Or, Edwin Lonsdale, Violet Rose, Coronet, W. W. Coles, Mrs. E. W. Clarke, Eve, and Mabel Ward are a few so late in showing their natural break, that the tips may with advantage be taken from the plants the last week of May

to induce side growths and bring the well-developed flower by November. Be watchful for aphides, which may be easily destroyed by a pinch of tobacco powder dusted on the tips of the shoots. Stop the shoots for bush plants continually, and strike the cuttings for making nice little plants, most useful for decoration in small pots.

H. S.

CULTURAL NOTES.

THE present and past bright weather is all in favour of a fast growth of the plants. I never saw them looking better than they do now. Ample opportunities have been given of late to supply the plants freely with air; the lights should be drawn off the frames during the day in the case of those that have been potted a week. Any recently transferred to larger pots should be placed at one end of the frame or in a separate one, so that they can be kept rather closer for a few days until the roots are running into the new soil. In the case of those plants intended to produce large blooms and which are mainly grown somewhat in a natural manner, that is, the plants allowed to grow with a single stem until the first natural break takes place, will shortly require much attention in the manipulating of the additional shoots. Many collections of plants have been ruined through a want of knowledge as to the best method of training the growths. What is known as the first break is caused by the formation of a flower-bud in the point of the young growing stem. This bud causes other branches to start from the axils of the leaves below the point where the flower-bud formed. There is no exact date when this break takes place, so much depends upon the variety, the time when the cuttings were inserted, and the method of cultivating them afterwards. Those plants which have had entirely cool treatment will not make their first break quite so early as those which have been subjected to some artificial heat. I notice some of our plants are now forming their first bud, which the starting of the growths below the extreme point of the main shoot indicates. Condor, for instance, is now nearly 2 feet high from the top of the pot, W. H. Lincoln is 11 inches, while others are lower still. Again, varieties like Mme. C. Audiguier and Belle Paule will sometimes run up as high as 4 feet before this break takes place.

I mention these few instances to instruct the learner in this phase, that it is more a matter of variety than ought else which determines the time for this break to occur. Some sorts will show as many as ten additional shoots, while others may not start more than four. Even in the case of the maximum number, the plants would grow the whole of the shoots, and each would perfect a bloom, but where the object is to have large blooms it is found in practice that a limit must be put on each plant, so as to concentrate the energy of the plant more with a view to giving finer results. Three blooms are recognised as the orthodox number for each plant to perfect, and as the shoots require to be grown and perfected thoroughly, it is the best practice to commence this at an early stage by the removal of superfluous shoots when the first natural break is made, and by restricting the growth of the plant afterwards to these selected three branches, the best results are assured. Nearly always the most promising growths are those which spring from the nodes immediately below the flower-bud. Directly the best can be discerned, all others should be promptly removed, thus concentrating the whole energy of the plant into those retained. The bud must also be removed; if done early, the finger and thumb is the best means of taking off these shoots. Place a neat stake to each plant, securing the three growths to it as fast as they progress, but be sure they are not tied too closely, or they quickly buckle and snap off.

E. MOLYNEUX.

New Chrysanthemums.—From the short article concerning the above on p. 293 it would appear that we are to be again inundated with so-called

new varieties of *Chrysanthemums*, as the preliminary announcements amount up to a total of 570 names. The principle that is now followed of putting such vast numbers of *Chrysanthemums* on the market every year and calling them new, in conjunction with the wretched system of nomenclature pretty generally adopted, is so confusing, that the average gardener cannot spare the time or bear the expense of wading through such a mass, as in many cases it will only result in disappointment. Anyone on whom the responsibility falls of maintaining a good display of *Chrysanthemums* at the proper season cannot afford to indulge in a lot of experiments, and consequently the older and tried varieties are preferred to the newer ones. That many beautiful varieties have been introduced within the last few years no one can deny, but what percentage do they represent of the numbers put into commerce during that time? In many cases no care seems to be taken in ascertaining whether the proposed name has been used before, and consequently we have in some instances two, three, or even more totally distinct varieties bearing the same cognomen. Whether the present season will be as bad as the few preceding ones in this respect remains to be seen; but in any case the *Chrysanthemums* as a class have attained such dimensions, that a good deal of study is now needed to keep up with the subject. Apart from using names that are identical with each other, a very fruitful source of confusion is in the case of complimentary titles to call the varieties after different members of the same family; and as in many cases the initial letter only of the Christian name is given, it is easy to understand the mistakes that frequently arise. At some exhibitions it is quite ludicrous to see the transformations the names undergo, even in the case of clearly defined ones; but when such pitfalls are laid as indicated above, the chances of confusion are, of course, greatly increased.—T.

ROSE GARDEN.

ROSES AND THE PAST WINTER.

ALTHOUGH we might reasonably consider ourselves fairly well into the spring months, we have had here (Mid-Sussex) rather a sharp reminder of the precarious nature of our climate, particularly in the spring. Snow falling in such quantities as to break down telegraph wires must naturally be very injurious to many Roses, more especially strong growers that were carrying from 3 inches to 6 inches of young growth, which many in this neighbourhood are doing. It is at such times that one regrets having pruned the Roses too early, and so inducing more forward growth than is at all advisable until we are free of the severe frosts we have been experiencing during the last few mornings. Many of the stronger growing dwarfs in a neighbour's garden are sad wrecks, having been broken down by the snow lodging upon the young foliage. These plants were pruned early, and being in a very sheltered position have escaped injury until now.

Up to the present, we have not had at all a favourable spring for Roses; the warm days have excited the plants, particularly those upon walls and in very sheltered places; and being followed by cold, frosty mornings, such plants are not likely to afford so satisfactory a result as those that are in a more backward state. Taking things altogether, I consider the past winter has been one of the most trying I have ever experienced. Up to the end of February my Roses had every appearance of having passed through the winter in a fairly satisfactory manner, and had we escaped the severe frosts and winds of about that date, I should have had few complaints to make. Late-transplanted Roses have been feeling the effects of the very drying weather during the last three or four

weeks. I have seldom seen our stocks, especially those of the Manetti and seedling Brier, looking so dried up as they do at present. Unless we get a shower soon, I fear we shall have many blanks among these. The standard Briers are looking quite up to the average; this is somewhat strange, as, generally speaking, they have shown the effects of a dry March more than dwarf stocks. The dwarf stocks that were budded last summer have come through the winter satisfactorily, although they received no protection whatever, with the exception of that afforded by the few unripened rods that were not sufficiently firm to be used in the propagation of more stocks. As the buds of these are very backward compared to those on established Roses, I anticipate a quick and unchecked growth later on. This is what rosarians desire, as such growth will produce better flowers and plants than any which has been severely checked by frost or other causes. The buds upon standard Briers are not looking quite so well as in former years, and this I attribute to the excessively cold and biting winds of the latter end of February. Much of the wood upon my Tea-scented and Noisette Roses was fatally injured at the same time, and many strong shoots contain dark brown coloured pith—a bad sign, as such shoots seldom produce good flowers, although they will often survive through the following summer. It will be found a good plan to remove such frost-affected growth in a rather rigorous manner, and so concentrate the whole strength of the plant into the more healthy eyes. R.

Rose William Allen Richardson.—This Rose was introduced about fourteen years ago, and immediately became very popular on account of its charming and unique colour. In this respect it is one of the most distinct Roses we have. Unfortunately, it has two or three peculiarities that are more generally associated with *Maréchal Niel*; I allude to canker, wartiness and very erratic and uncertain growth. One may plant either of these varieties, say six of each, and although they are all treated alike and are of equal strength and quality when planted, a couple of seasons will probably see two-thirds of them grown into grand subjects, while the remaining third will scarcely have improved since they were transplanted; indeed, some may be worse than when first planted. This is a peculiar characteristic in both of these grand Roses, and one which I cannot account for in any way, as I have found the same results occur among plants that were propagated from the same shoot and upon stocks of similar strength and quality. Both varieties are also much subject to canker, and this annoying disease naturally attacks the strongest plants with extra severity. The complaint which I will call "wartiness," for want of a better name, seems to me to also be a species of canker, but this occurs at many places upon the plant, and not at the junction of stock and Rose as is usually the case with the ordinary form of canker. William Allen Richardson also varies very much in colour, the flowers sometimes being of a very deep orange-yellow, while at others they may be almost, and even quite pure white; other flowers will consist of these two colours blended more or less with one another. In either case it is a most useful Rose for button-holes. It is necessary to call attention to this variation of colour, as many purchasers have complained prematurely of having been supplied with an inferior or spurious variety. I have noticed these different shades of colour upon the same plant and even upon the same truss. This is the finest deep orange-coloured climbing Rose we have, and deserves to be quite as extensively planted as *Maréchal Niel*.—R.

— This fine Rose is as hardy in Scotland as most varieties, but I would like to say a word in favour of it for forcing. In an early Peach house some plants

were started in December last; they were tied up to stout stakes placed in the centre of the pots. The first flowers began to open early in February, but not at all satisfactorily then. As the season advanced, however, they opened beautifully and in great numbers. We have had a continuous supply up to the present time. Now (April 25) in a greenhouse they are beginning to open nicely. The plants are led up under the rafters, three or four stems to each, and the side growths are allowed to hang down, and on these the buds have formed. I do not know of a more popular Rose than this at any season. The blooms should be cut when three parts open. The flowers last well when cut and placed in a cool room. Severe pruning ruins this Rose. It should have gross shoots stopped when in full growth, and the short stout ones will supply the crop of flowers.—M. T.

ROSES ON WALLS.

IN the interesting notes on the culture of Roses on walls by "A. P." (p. 489) there occurs this sentence: "The best aspect for Roses is a wall or fence due south." Nevertheless, "A. P." has just been showing in several sentences previous to this how to shelter Roses on an east wall with a stiff hedge or building, and adds, "provided the easterly wind cannot play directly on the wall, it does not so much matter." Exactly; Roses may be grown equally well on walls at every point of the compass under favourable conditions of soil, selection and culture. With the single exception of due north in bleak, unsheltered localities, almost all Tea and other Roses may be successfully grown on east, west, as well as south walls. The chief differences will be in the times of blooming rather than in the quality of the blooms, with, perhaps, the two exceptions of *Cloth of Gold* and *Maréchal Niel*. A west wall or fence will produce more perfect Roses than a south one, while the commoner Teas, such as *Gloire de Dijon* and *Homère*, will often come more perfect on a north than on a south wall.

And then the variety of aspects produces such a charming succession of the same Roses throughout the year. It is always worth while growing a few *Maréchal Niels* on a north wall for the sake of obtaining some fine flowers in the late autumn. It is easy to protect such tender Roses as the *Maréchal Niel*, *Lamarque*, *Triomphe de Rennes*, *Niphetos* and others on north or east walls in winter, and gather such flowers as can seldom be cut from southern or western aspects. Of course, the earliest Roses from the open will be gathered from the warmest walls, but it by no means follows that the finest Roses will be gathered from the sunniest aspects. After or even before midsummer the finest Teas and other Roses are often gathered from the coolest aspects. It is, in fact, quite a relief to turn from the panting heat of the midday sun's broad glare in June to pick Tea Roses from the deep shadow of a north or the partial shade of an east wall or fence. Such Roses as *Gloire de Dijon* from north walls put on new colours and more delicate forms, and are virtually new Roses as well as old favourites at new seasons and in unexpected places. Hence the lesson of most practical moment is that all aspects may prove best for Roses according to times and circumstances, and each will contribute to that greatest of all Rose charms, continuous supply.

D. T. F.

The Tea-scented Rose Waban was exhibited in good condition the other day at the Drill Hall. This variety has been a good deal talked about in America where it originated. I think it fully comes up to the character given it—a sport from *Catherine Mermet*, retaining the matchless form of that Rose, but several shades darker in colour. Being one of those who prefer the delicate colouring of Tea Roses, I would not say the new one is better than the parent. There is, however, room for both, and I think it will in time, like the other *Catherine Mermet* sport, *The Bride*, be esteemed one of the choicest.—H.

FLOWER GARDEN.

THE PAPER-WHITE NARCISSUS.

(NARCISSUS PAPYRACEUS.)

THIS is an old garden plant, having been grown in Italy (where some of its phases are native) for centuries for the sake of its pure white flowers. Both perianth and cup are alike totally white. Broadly speaking, the plant has

flowered forms from the Riviera, and in Northern Africa *N. pachybolbos* is found. No doubt the so-called white Jonquil (*N. dubius*) is in part closely related to this species, although extreme types are very distinct from each other.

As a rule, *N. papyraceus* does not thrive in the open air in English gardens; coming into growth late in autumn, it is crippled and injured by the frosts of winter. Now and then a bulb or two exists and flowers pretty well on a warm border where the frost is kept at bay by the proximity of hot-house pipes, as used to be the



The Paper-white Narcissus (*N. papyraceus*).

a wide range in Southern Europe as well as in the Canary Islands and Northern Africa, and there are many forms, one of the finest in point of size being that well represented in the accompanying engraving. This enlarged or improved form has been imported largely from Italy during the past few years under the shop name of *N. papyraceus* major, and when well and strongly grown, few early or forced bulbous flowers are more exquisite in form and purity of texture. At least ten or twelve forms of this plant have been figured or described as species from time to time. *N. canariensis* and *N. micranthus* are two of the smallest, the latter being found at Toulon and the former in the Canaries. *N. virgineus* and *N. Pannizzianus* are other small-

case in front of a warm plant house in the late Messrs. Osborn's nursery at Fulham years ago. In Italy acres of this plant and the common single and double yellow Jonquil, and also the double Roman Narcissus are grown and sent to the more northern parts of Europe for pot culture and for forcing into early bloom. The bulbs are large and shapely in form and of a glossy chestnut hue, sometimes approaching black, and we have here an anomaly, since the Narcissus which has decidedly the darkest-hued bulb produces by far the whitest of flowers. Bulbs potted in August may quite easily be had in flower early in November, and fortunately they are cheap enough to enable anyone to grow them.

F. W. B.

ARE DAFFODILS IMPROVING?

HAVING visited the Daffodil show at the Drill Hall last week, I am led to ask this question. The newer sorts seem to me to abound in feeble flowers of little substance and of a poor delicate look, very different from the rich yellow and the noble port of the older varieties. Again, the tubes of some of the newer sorts approach the monstrous or the deformed. Both in colour and in shape, a flower that Nature has evolved in the course of ages has acquired a perfect balance and a complete adaptation to its environment. Doubtless within certain rather wide limits, human selection may alter a wild flower so as to give us more pleasure, though there may be a considerable departure from the natural development of a plant. At the same time, good taste fixes a line somewhere, hard as it may be to draw. Possibly that line has not yet been passed with the Daffodil, but to my mind it bids fair soon to be reached if our hybridists go on "improving" as they have done of late. Nothing is or can be more lovely than our own wild Daffodil, or than the Poet's-eye Narcissus—another natural production. Yet we are called on to pay large sums for bulbs that are not nearly so beautiful, simply because they are novelties. No doubt the raising of new Daffodils takes up years of time and can never be remunerative. But, as Lord Melbourne said, "Why not leave it alone?" We are now confused by being offered hundreds of different sorts under fancy names, when a dozen or twenty distinct types, for variety and succession, would answer any conceivable purpose in a garden. I fear that the hybridists will pour out the vials of their wrath upon me, but ordinary readers of horticultural papers are getting very tired of the inordinately long discussions, on the subject of the slightest question connected with the names, shape or growth of more or less weakly Daffodils. We have even already too many perfectly hardy and free sorts. Why trouble ourselves about others?

J. I. R.

Saxifraga Malyi.—I never could see any difference in this and the one called luteo-purpurea. I only took plants of the latter name in hand about three years ago, but I have grown the former much longer. It is now in splendid form—little capitæ clusters of big sulphur-yellow flowers over the deepest green tufts of evergreen foliage.—W.

The double crimson Primrose.—This is a fickle beauty which everybody who knows it aspires to grow. I think there can be little doubt as to its partiality for light, rich, moist land, and some gardens may have the right conditions to suit it. It loves plenty of leaf-mould, incorporating it deeply with the soil, to be divided and set more deeply every spring-time just after flowering, if a similar operation has not been done in previous late summer—a time which some people prefer in order not to interrupt the flowering process. I have always found, however, that if a fair piece of rootstock could be taken with each division in the month of March or April, the plants would not only grow vigorously in the newly-prepared soil, but the flowers would open perfectly, though perhaps a little later than usual. Set the divisions well down and never allow the plants to go longer than two years without transplanting.—J.

Gentiana verna.—It is, I think, quite true that plants from different nurseries or from widely varying climates are the better for being humoured. It accords with my experience that Teesdale plants are the better if planted in stiff soil, Swiss Alps specimens in limy and gritty stuff, whilst those from near the seashore have been benefited visibly by sprinklings of rather salt water. Plants from the seaside I have always found the most fickle to deal with, often refusing to "go" either when carefully tended or left to themselves. The vernal Gentian from near the coast is not the only plant which I have proved to be better for a pinch of salt in the watering-pot. *Pyrola* from the seashore can be grown like a weed with such help; whereas without it, it is by no

means an easy plant to start. Indeed, the results of the experiment on this plant gave me the hint as to similar treatment with seashore examples of *G. verna*, and no doubt other such general conditions which can in a reasonable measure be adopted are helpful, such as giving stiff putty-like loam, calcareous grit, &c., to the respective specimens according to the character of the soils in which they healthily existed before.—J. W.

A HYBRID NARCISSUS.

AMONG the most graceful and delicate of all Narcissi are the drooping *N. triandrus* of Spain and Portugal and the little white Hoop-petticoat of Algeria. These two species can be cross-fertilised without difficulty, and the engraving on page 395 represents hybrids raised by myself from seed of the Hoop-petticoat fertilised by pollen of *N. triandrus*. Both Prof. Michael Foster and myself have flowered seedlings the other way of the cross, and the flowers are almost identical with those now shown.

Appleshaw, Andover. G. H. ENGLEHEART.

FLOWER GARDEN NOTES.

VERY bright for the last ten days in the flower garden have been the rose and white-coloured *Cydonias* on walls, and one or two members of the incomparabilis family of *Narcissus* in the herbaceous border. For a grand all-round variety of the last-named, commend me to John Bull, not so much for its striking merit as a flower, perhaps, but for its grand constitution, very free-flowering properties, and the length of time it will stand in a cut state. It will come in admirably this year for church decoration. I must own to a strong partiality for the "star" family of *Narcissus*, and should give them the preference in forming a collection, although where grand masses of colour are required they might possibly have to stand on one side in favour of the single and double trumpets. I have before me at the time of writing a strange contrast in Daffodils in the shape of one extra-sized flower of *Telamonius plenus* and another of cyclamineus major. As inquiries have been occasionally made respecting the well-being of this, I may mention that it appears likely to do very well here naturalised in Grass on a cool, shady west aspect. Although certainly in its way a little gem, it is barely likely to become very popular except with the enthusiastic collector of varieties; it is more adapted for tiny nooks in small gardens than for extensive planting in large pleasure grounds. It is sometimes objected to that the herbaceous border is not the place for collections of Daffodils, but all the members of the incomparabilis family do better here than on Grass if the natural soil is not altogether to their liking. If they occupy front places, it is very easy to fill up the gaps through the summer months. I generally work in a couple of inches of fresh soil about the dying foliage and plant with *Portulaca*, the nana compacta section of *Phlox Drummondii*, the pumila varieties of *Lobelia*, or anything of a similar nature that can be lightly dibbled into the fresh mould without in any way disturbing the bulbs.

ANNUALS.—The idea of introducing these into the summer arrangements for the flower garden except for special purposes, as, for instance, Stocks, Asters, and Mignonette, or in the case of long-standing varieties, as *Phlox*, the dwarf *Marigolds*, and the like, does not find favour in the majority of gardens. Many annuals, however, find their way into the more remote parts of the flower garden or pleasure grounds, while others that are valuable for cutting get a piece of ground to themselves in some portion of the kitchen or slip garden. Among these may be mentioned *Godetias*, *Clarkias*, *Cornflowers*, annual *Chrysanthemums*, *Scabious*, *Helichrys*ums, where these are

required, besides plenty of Sweet Peas and Mignonette. Bearing in mind the old adage, "that whatever is worth doing at all," &c., all annuals grown for cutting should have a piece of good ground that has been well manured and deeply dug in autumn. This will break down well in April and furnish an excellent seed-bed. If the hints thrown out some time back were acted on, all plants for filling pans, vases, &c., will now be in first-rate trim and ready for the hardening off stage, and all boxes it was possible to fill are getting nicely furnished. Let me enter just one word of protest against overcrowding in these cases; it is simply useless putting a great number of varieties in the one box, for so soon as they begin to grow, they crowd each other out and the desired effect is invariably destroyed. If the back of the boxes is against any balustrades or railings and trailers are required, there is nothing better for the purpose than the old *Cobæa scandens*. I have tried many things, but for rapidity of growth, capacity for covering space, and immunity from sudden failure (a characteristic of some summer trailers), the *Cobæa* is the most satisfactory. If sown early, grown on quickly, and then carefully hardened off, the plants are some 6 feet long when placed in their summer quarters, and will make headway with astonishing rapidity. Other good box plants are *Fuchsias* *Rose* of Castile, *Abundance*, *Flower of Summer*, and *Mrs. Marshall*, and *Heliotrope Roi des Noirs*, edged respectively to act as a front row and front trailers with *Tropæolum Ball of Fire*, *Harrison's Musk*, and the trailing *Campanulas*; whilst others may be entirely filled with *Petunias*, which make excellent box plants. The great thing with these boxes is to keep everything nicely on the move. A bit of good soil at planting will ensure plenty of flower and foliage until summer is well advanced, but with the advent of a spell of hot weather, a little artificial feeding may be immediately resorted to to keep up the supply of flower and the foliage clean and healthy.

Claremont.

E. BURRELL.

THE WINTRY WEATHER.

TO THE EDITOR OF THE GARDEN.

SIR,—To all of us who are interested in and naturally look for pleasure and beauties in outdoor gardening at this season, this unseasonable wintry weather is apt to discourage us, for its effect on vegetation is disastrous and most disheartening to all concerned. True, in this district the first half of the present month was a great improvement on what we had previously experienced—intense heat during the day and occasional slight frost at night, with a continuous strong easterly breeze night and day. These combined have in some cases considerably parched us up to the extent of withering tender foliage and some blooms while only partly developed. Still, the change manifested on every side was almost magical in its suddenness, and (apparently) beneficial in its effects in the rapidity of the development of leaf and bud, bloom and blade, thus raising our hopes even to expect that winter had at last, though tardily, given place to spring. The past week, however, has decisively proved our expectations to be a delusion, for King Frost again rules. On the 13th snow fell at intervals throughout the day, of which we have had a repetition more or less every day up to date. On the morning of the 14th we registered 8° of frost; 15th, 11°; 16th, 12°; 17th, 10°; 18th, 11°—the whole country this morning being clad in a mantle of snow to the thickness of 3 inches or 4 inches in the lowlands not 30 feet above sea level, and correspondingly thicker as elevation increases. As I write it is still snowing heavily, but melting. As the thermometer from which the above readings are taken is in a comparatively sheltered portion of the grounds—a walled-in garden—I consider that where more fully exposed the readings would be 2° lower.

The effect of such severity at this advanced date must be appalling. Many fruit trees have most of the blossoms fully expanded, notably Plums, both on walls and in the open, as bushes and standards;

also Pears on walls, &c.—the unprotected reproductive organs of which cannot possibly be proof against such low temperature. However dry they may be on early blooming varieties, we must expect but scanty crops, if indeed any this year. The Gooseberry and Currant crops, I fear, are utterly lost. Raspberries are killed almost to the ground, the buds on the upper parts of the shoots being as dry as powder—evidently killed earlier in the season either by weather or something else. I have never seen Raspberries suffer in a similar manner before. Most Pears in the open, and all Apples, Damsons, &c., and also Strawberries, will pass through this visitation safe enough (if not very prolonged), as they are in a backward state, the buds only now swelling.

Vegetables, as a matter of course, have not escaped. Potatoes that were through the ground and unprotected succumbed to the first nip, and the same applies to Asparagus, while also fully-developed Broccoli heads and tender leaves surrounding them are tinged. Here Cauliflowers are not yet planted out, so are safe. Peas and Broad Beans as yet show no signs of injury—at least, to any appreciable extent. Young seedlings coming through the ground, such as Onions, Carrots, Turnips, &c., look none the better for having gone through the ordeal.

The tender foliage of deciduous trees and shrubs that leaf early is blackened, and presents a sorry sight, while the same fate has overtaken the expanded blooms and many buds of early-flowering subjects—which are numerous; so we are thus deprived of their chief beauty for the season. Comparatively early flowering varieties of *Rhododendrons* that were in fine bloom—objects of grandeur, beauty, and admiration but a week since—have all partly and fully expanded blooms destroyed, littering the ground around in all directions, necessitating their removal by barrow-loads—a truly disheartening operation. Young growths and flower-spikes of many herbaceous plants which are tender at this stage are killed to the ground, such as *Bocconia cordata*, *Polygonums*, *Dielytra spectabilis*, *Fuchsia Riccartoni*, *Spiræas*, &c.; while *Liliums*, from auratum down to davuricum, are apparently uninjured and all throwing up strong succulent stems. Happily, the Dahlias have not yet appeared above ground. Daffodils, all of which are grown in the Grass on steep sloping lawns, are nearly over, owing to the dry and piercing easterly winds which prevailed during the recent heat. Sir Watkin appears to stand it best, and has a more prolonged blooming season—at least this year. It is a veritable gem when planted and established in bold clumps on the Grass, exquisite in colour and form.

There is nothing cheering to write about under present circumstances. On banks among the trees there are but few Primroses, wood Anemones, &c., and no Bluebells as yet—in fact, the impression gains on one that what the winter left us the spring will effectually destroy.—J. R., Merioneth, April 20.

— It will be impossible to estimate the harm the late severe frosts have done at present, but here many things forced into early growth by the hot sun of the past fortnight have suffered severely. A grand *Magnolia* some 30 feet high and of proportionate width one mass of half-opened buds has suffered terribly, and the blooms look shrivelled and black. *Dielytra spectabilis*, a well-established clump in a warm south corner, is laid low and prostrate. Some large plants of *Spiræa aruncus*, which had made very fine growth, are severely scorched and withered, and *Spiræa astilboides* is in the same sad condition. The tender shoots of *Epimedium pinnatum* hang limp and shrivelled, and the strong growths of *Gunnera scabra*, uncovered, alas! too soon, are black and smitten. I do not think we are exceptional here in the early growth of many undoubtedly hardy plants occasioned by the late spell of hot and sunny weather, and I fear many beautiful and rare herbaceous plants and shrubs will have suffered in many places. What about the fruit trees and Roses? I have only had a hasty glance over my garden and noticed the sufferers I have mentioned. No doubt the list will be much lengthened on closer examination.—M. C. Sussex.

— Our self-registering thermometer, which is placed in a case with its back to the sun, 3 feet from the ground, and protected on three sides, for three or four days registered 80° and over recently in the middle of the day. On the morning of the 15th (Good Friday) the same thermometer registered 14°, or 18° of frost. Such severity has made great havoc among the fruit tree bloom. Although our Apricot wall has a glass coping 2½ feet wide, with strong cotton and wool garden netting strained from the coping to the ground, the greater portion of the blossoms has been destroyed, only a few just under the coping being left; many of the fruit was as large as a Horse Bean. Plums are much injured, and had we not protected them with Fir branches, every bloom must have been destroyed. Some on a north wall have escaped, not being forward enough. Pears are much injured, and the blooms where not even showing colour are destroyed in exposed situations. Cherries where in bloom have also suffered. Figs where the fruit had begun to swell are all destroyed. Many hardy plants that had made a lot of growth are much injured. Asparagus was cut to the ground. I find many of the blooms of the forward Apples are destroyed, as is also the greater portion of the Gooseberry blooms. So severe was the cold, that it destroyed all growths and bloom on Clematis montana on the south wall of the abbey. The young shoots of Rhododendrons are also destroyed.—J. CROOK, *Forde Abbey, Chard.*

— The present month came in with beautiful summer-like weather, and on several occasions the thermometer reached 80° with its face to the north; this continued till the 14th, when a sudden change set in. Snow, hail and rain fell all the afternoon, this being followed by 8° of frost. On the 15th we registered 14° of frost; on the 16th, 6°; 17th, 8°; 18th, 10°; and 19th, 4°. All chances of a crop of fruit, at least such as Pears, Plums, Cherries, Gooseberries, Peaches and Apricots, must be past. Where the trees were not well protected with canvas or mats, nets and Fir boughs were of little use. I have carefully examined some of the Pears and Apples, and nine out of ten were blackened. This is somewhat surprising, seeing that the Apples are only approaching opening. One would have thought they were safe. I have never seen a finer prospect of fruit till the frost came, every tree seemed loaded with healthy fruit-buds. I covered most of the best Pear trees with mats, and so hope to have saved some of the flowers.—T. A., *Cirencester House, Gloucester.*

STOVE AND GREENHOUSE.

HALF-HARDY ANNUALS IN POTS.

THESE supply us with a lot of most useful material for conservatory and greenhouse decoration, particularly during the summer and autumn months. Being in most instances of comparatively easy culture, they may be relied upon as a good source of supply when there is not sufficient room to grow plants of a more permanent character. Prominent amongst these annuals are the Rhodanthes, which for flowering in 6-inch pots from May onwards are most desirable, lasting such a long time in good condition. It is now too late to sow for early flowering, but seed now sown will provide a stock of plants to flower early in July. The soil for Rhodanthes should be made firm, as in the case of Mignonette, no further potting being required. It should be raised in a slight heat, not by any means too warm, so as to produce a weakly growth. A shelf in a vinery just started would do well, shading the pots until the seed is seen to be germinating. When a good start has been made a cooler house will be better, the vinery meanwhile rising too rapidly. Water carefully until the pots are tolerably well filled with roots. When the plants are showing flower a cold pit or frame

will suit them very well if room in the greenhouse is short. Another annual of this class that gives a good return, flowering continuously for many weeks, is *Alonsoa Warscewiczii compacta*; its bright scarlet flowers are not at all unlike those of a *Chorozema* when seen at a distance. This *Alonsoa* will thrive well under the same treatment as advised for *Rhodanthes*. The *Amaranthuses*, as represented by *A. bicolor*, *A. tricolor*, and *A. melancholicus ruber*, supply a class of plants that are not so often seen in pots as they deserve to be. Their value lies, of course, in the foliage effect produced. They require rather more warmth than either of the foregoing, with more moisture until well established; by that time a cool house or pit will suit them well if guarded against any excessive draught. Balsams hardly require more than an allusion; they are not, however, seen in nearly so good form as their merits justify. It is a mistake to sow the seed too soon. This is often done; hence the plants become too large before there is room to accommodate them after the bedding plants are disposed with. When sown in April or May a cooler course of treatment will be safe, resulting in more sturdy plants that will do a good turn in July and August. *Browallia elata grandiflora* is a very useful annual for the summer and autumn, lasting a long time in flower, at the same time supplying a colour none too plentiful. The plants do best in a gentle warmth until well established in their flowering pots. By sowing in pans, pricking off into 3-inch or 4½-inch pots, three or five plants in a pot, and then shifting into 6-inch or 8-inch pots, and pinching once or twice, nice bushy plants will result. When a large stock and variety of plants are essential in August and September, it is well to grow some of the best strains of *Helichrysums* in pots. These, if raised in the usual manner as for planting out of doors later on, will, if retained in pots, make very useful material for a large conservatory. Until well established it is best to keep them in a cold frame; then they can be plunged in an ash bed to receive one more shift later on when in need of it. Being gross feeders, these plants will take a liberal supply of manure water when the pots are well filled with roots. *Lobelia gracilis* should have a place in the most limited collections either for hanging baskets or to arrange along the margins of stages, over the sides of which the drooping branches will hang in a most graceful manner. For bedding this kind is not of so much use, except it be as a carpeting to tall plants or for rustic vases or baskets, but when applied to purposes suitable to its habit of growth, it is a most beautiful plant. *Nicotiana affinis* should not on any account be omitted; it is not necessary to grow a quantity of plants, it is true, for a few even will emit a delicious perfume during the latter part of the day and in the evening. It is easily grown, and until in flower, may be kept out of doors after being well rooted and fairly started into a robust growth. The compact growing types of *Petunias*, both single and double, should have due consideration treated as for bedding out, but retained in pots they will be found useful after a few pinchings to increase the number of shoots. These will come into flower after the *Pelargoniums* have ceased to be effective towards the end of June or beginning of July. The *Salpiglossis*, particularly the dwarf strains, will prove of considerable service for autumn flowering in conjunction with the *Helichrysums*, and may be grown under the same treatment. *Schizanthus retusus* and the vars. *albus* and *Grahami* make fine plants for

the conservatory in the spring if sown later in the year, whilst if sown now they will flower in the autumn, lasting until the *Chrysanthemums* turn in. This is a half-hardy annual that should be more grown than it is where much flower has to be provided, or where easily cultivated plants are more essential. Ten-week Stocks are almost indispensable; they may be had during a prolonged season by sowing at intervals. The earliest sown seed will soon be making flowering plants, but a sowing now made will provide a supply for the summer, and one or more later on will form a good succession in the autumn. For extra early flowering in pots the intermediates are the best, these being kept through the winter in a cold frame. The common mistake made with Stocks in pots is that of supplying them with too much water in the earlier stages of growth. No anxiety need be entertained as to their recovering their freshness after having been potted off; this they will quickly do without the aid of frequent dampings overhead. This attention in many cases would be beneficial; with Stocks it is otherwise. With half-hardy annuals it is most essential—as in the case of all annuals, in fact—not to overcrowd the plants in their earlier stages of growth in the seed-pans. A good start made with dwarf stocky plants will go a long way towards ensuring success. Such plants have every advantage compared with those of a weakly and spindly growth, the result of either sowing the seed too thickly or through deferring the first pricking off or thinning out, as the case may be, until it is almost too late to perform it. Too much warmth in the earliest stages is equally injurious, and eventually fatal if persisted in. Light is an all-important factor in developing a substantial growth; so also is free ventilation when the plants are fairly well started on their course. As soon as the plants cease to be of any use they can be thrown away to make room for those of a permanent character before frost sets in. H. A.

Olearia stellulata.—The *Olearias* or Daisy Trees are all natives of Australia and New Zealand, one of them at least—*O. Haasti*—being quite hardy in most parts of this country, while some of the others will stand the winter in the more favoured districts as shrubs in the open ground. The subject of this note—*O. stellulata*—is a grand outdoor shrub in some parts of Ireland, whilst it is also well suited for growing in pots in the shape of neat little bushes, which are now thickly studded with pure white Daisy-like blossoms, each composed of about a dozen petals. The disc, which is small, is of a yellowish tint. The blooms last in beauty a considerable time, and a well-flowered plant is in general appearance quite distinct from the numerous hard-wooded subjects, such as *Heaths*, *Chorozemas*, *Pimeleas*, *Eriostemons* and others, all of which require much the same treatment. Cuttings of this *Olearia* root quickly and the plants flower freely in quite a small state.—T.

Vitis heterophylla variegata.—This pretty little variegated-leaved Vine is occasionally to be seen bedded out during the summer months, but if the weather is at all wet and cold, the leaves are not nearly so brightly coloured as in a higher temperature. Very handsome little specimens of this Vine may be grown in pots 5 inches or 6 inches in diameter, and in this state they are valuable for decoration. Cuttings strike readily at any time during the growing season, but the best time for the purpose is in the spring or early summer, as if grown on they form effective little specimens for the following season. If the tops are pinched out once or twice and the plants secured to a single stick, they assume somewhat of a pyramidal habit, and will reach a height of 18 inches to 2 feet. They may then be wintered in a cool greenhouse from which frost is excluded, and if the plants are

on the return of spring placed in an intermediate house temperature, they will become quickly furnished with most beautifully variegated foliage. As a rule, the first leaves that are produced are almost green, but the majority of them are mottled and marked in various ways with white, while many of the younger shoots have leaves almost entirely of that hue, against which the purplish pink of the young bark stands out in a conspicuous manner. This Vine is of quite a climbing habit, and may be employed as a greenhouse climber, but it is in a general way more useful in the shape of the neat little specimens noted above.—T.

CAMELLIAS.

THE Camellias mentioned on page 347 must be nearer one hundred than fifty years old. They were planted by Fairbairn, the predecessor of McIntosh, and I had it on the authority of a very old inhabitant that in the Waterloo year they were bushes some 4 feet high. They are interesting as furnishing a striking illustration of the success of the non-exposure culture. Not only is there no means of removing the top sashes, but the house itself is ventilated in a very indifferent manner, as of twenty top-lights only four can be opened at all. True, the front lights, going up to a height of 12 feet from the ground level, can be lowered or raised half this height, thus providing for the admission of a plentiful supply of air; but this is not exactly exposure as one understands it when speaking of the benefit plants may derive from this during the summer months. Although the Camellia as a flower is no longer fashionable, and its use on an extensive scale for vases hardly permissible, I find a certain number of them very useful for different purposes through the winter months when other flowers are scarce. The season is a long one, beginning with the old French White about the middle of December and ending with rubens and alba plena on back walls towards the middle of May. This season, however, we were considerably later in starting cutting. The sunless summer of 1891 caused the growth to be later, and flower-buds were also both later in their development and in starting the final plumping up. No attempt at forcing is made, the minimum winter temperature being from 35° to 40°. Bud-dropping is unknown. What amount of flower the trees would carry I have no means of judging. They set any quantity of buds, and of these we leave two to each shoot, one terminal, the other about 3 inches down the stem. In such a structure as the one under notice, if the soil is right and there is always the proper attention to the watering, I think the chief factor towards success is plenty of sunlight. As for ventilation, I always leave a chink of air night and day on front sashes except in very bitter weather, when plenty gets in through crevices and under glass without troubling to open lights, whilst the appearance of warmer weather is the signal to get on all ventilation available. For several seasons I used no shade whatever, but in a summer when sudden April-like storms were succeeded by bursts of fierce sun, I found the rain, beating this way and that in those top-lights that were open, was responsible for a thorough wetting of the foliage, and this being well up to the glass was in a few places rather badly blistered by the sun. To avoid any danger of this, I have given annually a very light syringing of "summer cloud" all over the top of the house. E. BURRELL.

Clitoria ternatea.—Flowers of such a rich blue as those produced by one form of this *Clitoria* are very seldom to be met with; yet, though it is an old plant of easy culture and seeds can be readily obtained, for some reason or other it is very rarely grown. A very characteristic coloured plate of it was given in Vol. XXXVIII. of THE GARDEN, and Mr. Wythes, of Syon, where the drawing for the plate was made, stated that there were at least a few blooms open on the old plants nearly every day in the year. This *Clitoria* is a slender-growing climber, better adapted for training as a screen plant at the end of a house or

in some such a position than for furnishing a roof or rafter, unless the structure is small, for it is not vigorous enough to prove satisfactory in a large or lofty house. In a low structure, however, it is wonderfully pretty if trained to some strings or wires along the roof till the space is covered, when if allowed to grow naturally, the drooping shoots studded with blossoms are wonderfully pretty. It is by no means a vigorous-rooting subject, and at the same time should be grown on as freely as possible, for if it receives any check, and especially if the atmosphere is somewhat dry, the foliage is very liable to be attacked by red spider, which will soon destroy the beauty of the specimen. This *Clitoria*, may, if a convenient place exists for the purpose, be planted out or grown altogether in pots, in which case a liberal supply of liquid manure is necessary as the pots get full of roots. A good light position must be assigned it. Another way of treating this *Clitoria* is to allow it to ramble loosely over a few twiggy branches stuck in the pot, as by this means some pleasing specimens are produced. There are several different forms of this *Clitoria*, as in some the bloom is blue and in others white, while in one these two colours occur and form a very striking combination. Again, some have an unusual number of petals, thus forming a more or less double flower.—H. P.

THE CHOROZEMAS.

THE New Holland plants sent by Messrs. Hugh Low and Co., of Upper Clapton, to the meetings of the Royal Horticultural Society deserved more attention from visitors than they actually received. All that New Holland plants require in winter is to keep the frost out of the house where they are growing, and if by any accident the temperature should fall below the freezing point, fatal results need not be expected. The Chorozeas, so well represented by C. Lowi, a variety or species with larger flowers than are usually found upon other species in this genus, are amongst the most useful of greenhouse plants, especially to amateurs who have no convenience to force plants or shrubs into flower. Although the Chorozeas may be grown into specimens large enough for exhibition, so large that they can with difficulty be moved by two men, this is not the kind of thing the general public want, and even frequenters of exhibitions have become satiated with such unwieldy specimens. One can appreciate the skill of the cultivator who has worked well and patiently to bring his plants up to the highest standard of excellence, but the primary object of cultivating these specimens being to win prizes at flower shows, they serve their purpose when the exhibitor has won the coveted award, whatever it may be, for as decorative plants for the greenhouse they are not to be compared to the smaller specimens naturally trained. One can safely recommend Chorozeas to amateurs because of their easy culture and the cheap rate at which the plants can be purchased. The leading dealers in these plants say that there is but little demand for them; therefore there is but little encouragement to propagate a stock of plants. No one can complain of the attention now given to Orchids; they must ever command admiration; but we cannot nor ought we to compare one class of plants with the other. Orchids will do in a comparatively cool house in winter, but there must be a heated house for even the coolest of the *Odontoglossums*; whereas the New Holland plants succeed well in a house that need not be heated except on sharp frosty nights, and the dry atmosphere in which the plants delight in the winter season is pleasant for invalids, who must have air and exercise without being exposed to cold east winds.

The culture of Chorozeas is very simple. Seedling plants are the best; they grow more freely than those propagated from cuttings, and make a better growth. They also grow rapidly when they have reached the flowering stage. The two main points to be attended to in their culture are careful attention to planting in the right kind of soil and placing them in a light, airy position in the house, but avoiding a continuous draught of air. The potting soil ought to be yellow loam, such as is

found on moorland pastures in the vicinity of peat, and in which Bracken or the Brake Fern grows freely. I use two-thirds of light fibrous peat with this yellow loam, and add a good sprinkling of coarse sand if it is needed. The plants grow freely and make a mass of fibrous roots; and if repotting is delayed, they form a compact hard mass, and when this has taken place it is necessary to take a pointed stick or, what is better, an iron skewer and ease out the roots a little. Good drainage is necessary, and over the drainage put some of the fibre from the turf from which most of the soil particles have been shaken out. In removing the plants from one flower-pot to another, an inch all round the ball of roots should be allowed for the new compost. As a rule, all these hard-wooded plants require to be potted firmly, and the Chorozeas are no exception. In a few words I will point out the reason for this firm potting. The ball of roots being a compact, very solid mass, if the soil was put in loosely the water applied after repotting would pass rapidly away in the new soil and scarcely penetrate the part containing the roots, so that a plant might be suffering from want of water, while to all intents and purposes it had been freely supplied. It is to obviate this evil that the roots are picked out a little with the aforesaid skewer, so that they may the more readily lay hold of the new soil, and if the soil is packed in firmly with a wooden rammer, the water applied will pass through very much more slowly and the roots will be supplied with it. Before one of these plants is repotted, the roots should be well on the moist side to avoid giving any water for two or three days after repotting, and when it is seen that water is really needed, give a good supply. Most of the Chorozeas have long slender stems, which make them useful to train against a wall or trellis-work; but they ought also to be trained to neat sticks to form even a moderate-sized plant. Avoid the formality of balloon-shaped or any fantastic form other than that of a bush, which should be well furnished from base to apex with healthy flowering growths. There is no need to starve these plants into flower. They flower profusely with liberal treatment, and when the plants are kept too long in one pot, the leaves assume a greenish yellow tinge, instead of a deep full green. When well established, a good supply of water is required at the roots, but some discretion is needed; the points of the fine fibrous roots may be injured with too much as too little water. The plants may be placed out of doors during the summer and autumn months, but if the pots are fully exposed to the sun, it is well to lean a slate against them to prevent injury; the pots would absorb the heat to such an extent that the roots in contact with the inner surface would be positively burned. When out of doors they should also be sheltered from violent winds, which would overturn even a moderate-sized specimen; a stout stick should be driven into the ground at the side of each pot, so that plant and flower-pot may be both made secure. They must not be left out so late in the autumn as to become saturated with cold rains. J. DOUGLAS.

IXIAS AND SPARAXIS.

CONSIDERING the cheap rate at which bulbs of these beautiful flowering plants are disposed of during the autumn and winter months, it is (especially when other items are taken into consideration) a matter for surprise that they are not more employed for greenhouse decoration during the spring and summer. It can be urged in favour of these bulbs, firstly, that if obtained from a reliable source and at a suitable season, they may all be depended upon to flower; next, their cultural requirements are very simple, while a great amount of variation is to be found in the colour of the blossoms, some of them especially in the case of the *Sparaxis*, being particularly noticeable by reason of their bright tints, and the great contrast that exists between the two or more colours of which some of the blooms are composed. In commencing their culture a start should be made in the autumn, as the bulbs are then quite dormant, and will be all the better if potted with-

out delay. Of course the bulbs can be grouped in any way to suit the wishes of the cultivator, but for general purposes a very good plan is to put about eight or ten bulbs in a pot 5 inches in diameter, as in this way neat little clumps are formed. The pots should be well drained, and a suitable compost is an open loam, lightened by a liberal admixture of well-decayed leaf-mould and sand, while if any good manure is available, a little may with advantage be added. The bulbs when covered should be about an inch below the surface of the soil. After potting, a light shelf in the greenhouse or in some such a position is a very suitable spot, and all that is necessary is to keep the soil slightly moist till growth recommences, when an additional amount of water should be given. When the blooms are expanded if shaded from the full rays of the sun, they will remain in beauty a considerable time, but during the growing season the plants must not be shaded in any way, otherwise the foliage and flower-stems will run up thin and weak and much of their beauty will be lost. A good many of these bulbs may be grown out of doors if there is a warm, well-drained border in front of a greenhouse or some such a spot available for the purpose, but they are often a good deal knocked about by rains during their flowering season, and consequently are as a general rule most satisfactory when bloomed under glass. As both *Ixias* and *Sparaxis* can be grown in a greenhouse under exactly the same conditions as *Fuchsias* and *Pelargoniums*, it will be seen that they are well within the reach of the amateur with a single glass structure, and I venture to think when in flower they would attract a far greater share of attention than is bestowed upon the above-mentioned plants and others more commonly grown.

H. P.

THE FLOWER MARKETS AND FLOWER-MARKET GARDENS OF PARIS.

(Continued from page 352)

THE second part of my subject is to answer the inquiry, "How and from what sources are all these consignments of plants and flowers supplied?"

OPEN-AIR PRODUCE.

The principal purveyors of the Halle and the other flower markets of Paris are the small cultivators and market gardeners of the Seine and the adjacent departments who grow, either in the open air or under movable coverings, whatever flowers they think are most likely to be profitable. Some of them cultivate annual plants exclusively, while others confine themselves to perennials. One grower devotes himself to Pinks or China Asters; another gives the preference to Dahlias, Begonias, or Chrysanthemums. There is hardly any market gardener who does not grow a few flowers amongst his vegetables. The Quatre Saisons Violets are grown in the open air, and especially at Fontenay-aux-Roses, Sceaux, Chatenay, and Verrières, but this crop is a very uncertain one in these localities, and is more to be depended upon in the southern parts of France. Generally, the cultivators who grow bulbs or other kinds of plants for sale make an additional profit on them by disposing of the flowers. Thus, the gardeners of Montreuil sell piles of cut flowers of Poet's *Narcissus* and Paris Hyacinths, while some nurserymen supply Pæony flowers and Roses in profusion, and from Fontainebleau and Montreuil are despatched thousands of flower-spikes of the fine hybrid *Gladioli* which are so well grown there. The diversities, divisions, and other details of these small branches of industry are so extensive as to baffle the ordinary statistician who attempts to tabulate them with any degree of accuracy.

PLANTS GROWN UNDER GLASS.

It is easier to ascertain, at least approximately, statistics respecting the various cultivators who supply Paris with plants and flowers grown under glass. The principle on which this mode of culture rests, and which is very interesting from a physical point of view, is that the glass prevents (in a great measure, at least) the radiation and loss of the diffused heat which is enclosed by it, while at the same time it readily admits the light which is so necessary to vegetable growth, and also the heat which comes to it from the direct rays of the sun. It follows from this that, by means of glazed frames, &c., gardeners can imprison the sun's heat and utilise it for growing plants placed under these frames. In the climate of Paris, however, the sun is very often invisible, so that our glass-houses and plant-frames have to be heated artificially. It may be calculated in round numbers that about 400 or 500 growers, employ-



Narcissus seedling (*Narcissus Bulbocodium* x *N. triandrus*).
See p. 392.

ing 2500 to 3000 glass-houses or groups of 20 frames, are engaged in this business, which is distributed nearly as follows:—

	GROWERS.	Glass-houses or hotbeds.
Lilacs	20	300
Roses...	15	400
Bulbous plants	12	60
Heaths, Ferns	15	500
Foliage plants	50	250
Flowering plants	300	1200
Camellias	10	25
Azaleas	20	50
Geranias	5	15
Orange trees	1	7
Orchids	10	15

The forcing of Lilac is one of the most important and special branches of floral horticulture in Paris, and although Paris does not hold the exclusive monopoly of this business, the Lilac which is forced there takes the foremost place in all the flower markets of Europe. I do not think that I am going beyond the mark in stating that the forcing of Lilacs in Paris puts in circulation every year nearly £80,000, and as this branch of horticulture is of so much importance, I shall here give some particulars of the processes which are employed in it. It is nearly a hundred years since Mathieu, a cultivator at Belleville, commenced the forcing of Lilacs. Vitry-sur-Seine is the centre where the plants used for forcing are grown, and in this single commune 650 acres of land are devoted to the cultivation of Lilacs exclusively. As the plants are not suitable for forcing until they are five or six years old, the produce of about the sixth part of the area, i.e., about 108 acres, amounting to 1,500,000 plants, is taken up for forcing every year. The plants, delivered to the forcers as they require them, are by them pruned down to the size at which they are to flower, and are then planted close together in the forcing-houses.

From the red-flowered or Marly variety of Lilac, both white and pink flowers are produced by forcing. When pink flowers are required, the plants are forced at a slow rate in a gentle heat with air admitted, and require nearly double the time in which white flowers are produced in a higher temperature. It is only about ten years since this method of forcing Lilacs to produce pink flowers began to be regularly practised.

The variety named Charles X. and the Persian Lilac are also forced occasionally, but they do not yield the slender, pliant, graceful branches that are obtained in forcing the Marly variety. The latter, in the hands of a skilful forcer, acquires a whiteness, a pliancy and a grace for which it is unsurpassed. The manner in which a large-sized bunch of it is made up by fastening eight sprays in a handful of straw is one of the marvels of Parisian expertness.

It seems to be now ascertained that absence of light is not absolutely necessary for the production of white Lilac flowers if the forcing is pushed forward at a very rapid rate. It is very possible that the formation of the natural colouring matter of the flowers only takes place within certain limits of temperature, which, in the case of rapid forcing, are speedily passed by. Practically, however, this is a matter of little importance, as it will always be found advantageous to cover forcing-houses with thick mats, which, however superfluous they may be as light-excluders, will yet be most useful in preventing the radiation and loss of heat.

In the department of the Seine there are about twenty regular forcers of Lilac, and it is not excessive to compute the number of their forcing-houses to be from 300 to 350, and yielding from six to ten crops yearly, each operation of forcing lasting from twenty to thirty-five days during nine months of the year.

The forcing of Guelder Roses differs but little in its details from the forcing of Lilac.

Rose-forcing is a long-established branch of industry, dating back probably to 100 years ago. It is chiefly carried on in Paris itself and in the suburbs, but many of the plants employed are supplied from localities as distant as Brié. A period of two years is required for the preparation of plants of the variety named La Reine, a non-perpetual kind of Rose, with large and very full flowers of a fine pink colour, which is employed for the production of forced flowers, to the exclusion of almost every other variety. From September to May the forcing-houses are actively at work, receiving a fresh batch of plants to be forced every two months or every two months and a half. In spring, of course, the flowers make their appearance in the shortest space of time. A few non-flowering shoots are retained for the sake of the foliage, which is used for garnishing the market bunches of flowers. These are each made up of twelve or twenty-four flowers with long stems, such as are commonly the result of the forcing process. As before stated, the variety La Reine is almost the only one that is used for forcing, but occasionally the varieties Anna de Diesbach and Souvenir de la Malmaison are employed for the same purpose.

Another plant which is forced to a very great extent is the Lily of the Valley. The roots or stools of these are usually imported from Germany or Holland, and the forcing of them is carried on from October to April. The process

is easy and speedy, a fortnight to twenty days being the regulation time for producing flowers fit to cut; but if well-developed foliage is also required, from twenty-five to thirty days will be necessary. The stools need not be planted in soil, as they force very well in Sphagnum or other sorts of Moss, and they are just the kind of plants for grouping in the elegant little baskets which our florists so well know how to furnish. Various authorities estimate £20,000 to be something like the sum of money which yearly changes hands in transactions connected with the forcing of Lily of the Valley in the neighbourhood of Paris.

Bulbous plants, such as Hyacinths, Tulips, Crocuses, Muscari, Narcissi, and Star of Bethlehem, are forced without any difficulty, as their bulbs contain all the nutriment they require while being forced. The forcing of this class of plants is consequently not so much confined to the hands of specialists as is the forcing of Lilac or of Roses. Almost all the cultivators around Paris force some of them for the markets in the early part of the season. Besides these, the growers in Brittany have a system of plain hotbeds, slightly heated, the produce of which—chiefly Tulips—is sent to Paris in a half-grown state to be utilised by the florists in furnishing vases, &c.

In winter, Parma Violets are sent to Paris from Toulouse, but some are also grown under frames in the vicinity of Paris, Bourg-la-Reine being one of the principal centres of their production. One of the leading growers here has discovered the art of composing with eighty flowers of these Violets one of those flat bouquets which previously took as many as 600 flowers to make them up.

The Persian Cyclamens, which have been so greatly improved during the last ten years that one can hardly recognise them as the same flowers, are grown in large quantities by half a score of specialists. Versailles is one of the chief centres of their cultivation. It takes from ten to eighteen months to grow such specimen plants as one admires in the florists' windows about Christmas-time and New Year's Day. The total value of the Parisian Cyclamens sold in or exported from Paris cannot be much under that of the forced Lily of the Valley.

Versailles, which I have just mentioned in connection with Cyclamens, is also the district *par excellence* for both plants and cut flowers of Rhododendrons and Azaleas of all kinds. Ferns, Bromeliads, Dracenas, and other fine-foliaged plants are also largely grown here, and it is, moreover, one of the chief centres of Orchid culture where the plants are grown for sale like ordinary flowering plants.

Until within recent years it was generally supposed, and not without reason, that the culture of Orchids was a luxury reserved for the rich, but for some time past, owing to the extensive supplies sent home by collectors and the simplification of the methods of growing them, added to the circumstance that the flowers continue fresh for a very long time after being cut, Orchid flowers have now become an indispensable part of the florist's stock-in-trade. In drawing-rooms we now often see and admire the flowers of *Cypripedium barbatum* or *C. Sedeni*, of *Dendrobium nobile* and *D. Sedeni*, the large airy-looking flowers of *Lælia anceps*, those of *Cœlogyne cristata*, of *Lycaste Skinneri*, the prettily fringed flowers of *Odontoglossum Alexandræ*, those of *Phalænopsis grandiflora* and *P. Schilleriana* (which more than any other Orchid flowers resemble huge butterflies), and the large two-coloured flowers of the Cattleyas.

Many other specialities of merit might be mentioned if this did not occupy too much of the time which is now at my disposal. The homely, but universal favourite, *Mignonette*, must not be forgotten. This is never absent, one might say, from the markets, being grown in heat during one-third of the year and merely sheltered under frames for the rest of the time. The fine pyramidal-growing, large-flowered varieties are of Parisian origin. Heaths and Epacris are also very regularly to be seen in the markets and the florists' shops. These are winter flowers which must be grown as close to the light as possible. Chinese Primroses, in numerous and fine varieties which have sprung from the small rose-coloured flowers that were introduced about the year 1820, also form part of the winter floral decorations, and are soon followed and accompanied by the *Cinerarias*, which, in like manner, have made great strides in improvement since the type appeared at Ghent, in the year 1809, at the first horticultural exhibition of which there is any record. Many other different kinds of plants are either forced or are grown under temporary coverings for market, such as *Pelargoniums*, *Begonias*, *Laurustinus* and *Staphylea colchica*, whose clusters of white flowers have an odour of Tuberoses. Lastly, there is at Paris a horticultural establishment where the speciality is the production of fresh Orange flowers all the year round, and which competes successfully with the growers who send supplies of these flowers from the south of France. The various other productions which these southern cultivators send to the Paris markets will occupy the remainder of this address.

(To be continued.)

ORCHIDS.

NOTES ON VANDAS.

I AM in receipt of a spike of bloom of the beautiful *V. Roxburghi*, which used some years ago to be common in our plant houses, but which has now become somewhat scarce. This was the first *Vanda* which was cultivated in our gardens, and it flowered for the first time in cultivation upwards of seventy years ago. It has a deep violet-purple lip, but there is also a variety of it with a rosy red lip, which is figured in Paxton's "Magazine of Botany," vii., 265, under the name of *V. tessellata*. It undoubtedly is but a variety of *V. Roxburghi*, as I have found it frequently crop up with the blue-lipped kind. In order, if possible, to render these small-growing *Vandas* more popular, I will make a few notes on the best of them. They are all easily grown and flower most profusely; all they want is well-drained pots or baskets. I prefer pots with perforated sides, as they are more lasting. They only require fresh Sphagnum Moss to grow in, and this can easily be renewed when any sourness or decay sets in. By this time, in all probability the plant will have attached itself to the pot by its roots, and consequently the Sphagnum can be easily removed. I like Sphagnum for these plants better than anything else. In the olden times it was a favourite plan to boil the Sphagnum before using: this plan was adopted for killing small slugs and snails, which are often brought into the house with the newly-gathered Sphagnum, and which are very annoying. I never liked the boiled Sphagnum after losing the original plant of *Aerides Schroederæ*, which had been bought when Mr. Schroeder's plants were dispersed, and which was potted in boiled

Sphagnum. These small *Vandas* should be kept in a temperature which does not fall below 60°, but which in the summer-time may rise to that of the East Indian house. Most of them occur in situations that become cool in their resting season. Water should be freely given whilst growing, and the atmosphere should be well charged with moisture. During the winter much less will be necessary, and they should never be allowed to become quite dry, or serious injury may result. The following are the best:—

V. AMESIANA. This is a native of the Shan States, a territory of considerable extent, and watered by the river Cambodia. It lies to the north of Siam. *V. Amesiana* was found by Boxall while engaged by the Messrs. Low and Co., of Clapton. It is a strong-growing variety. The spikes are erect, much longer than the leaves, branching, and becoming paniculate in some instances. The flowers are numerous, thick and waxy in texture, slightly fragrant, white, and with a stain of rose colour or of lilac on the lip. In the variety named *alba* the lip also is white. This is a very desirable plant, as its flowers are borne during mid-winter. The plant which flowered first in Mr. Low's nursery, and was figured in the "Orchid Album," t. 296, went to America. Of the plants which we now have, not one of them has produced such richly coloured flowers, and in some cases the blooms have been pure white.

V. BENSONI is a small-growing plant from the warm parts of Burmah. The sepals and petals of a yellowish brown hue, netted with bright chestnut and green on the inside, white behind, the lip being light rosy purple. This is not a showy species, but contrasts well with *V. cœrulescens* and its varieties. It was introduced through General Benson, and first flowered with the Messrs. Veitch, of Chelsea, some twenty-one or twenty-two years ago; its flowers are pale blue in the outer whorl of the perianth, and the lip is deep blue. There are several varieties which vary only in the colour of their flowers.

V. DENISONIANA.—This plant, like the two preceding, is a native of Burmah. The flowers are medium-sized and ivory-white. A very fine specimen of this was shown at one of the recent meetings of the Royal Horticultural Society.

V. KIMBALLIANA, a species from the Shan States was sent home to the Messrs. Low and Co. by Boxall, who collected it at the same time as *V. Amesiana*. Its flowers, some six to twelve on a spike, are very beautiful, each flower being from 1 inch to 2 inches across. The sepals and petals are white, and the lip rich purple. It is the most beautiful of all the small-growing *Vandas* yet discovered, and I was told by Boxall that it had hoarfrost upon it in the resting season. It was figured in THE GARDEN, April 5, 1890.

V. PARVIFLORA, better known by the name of *Aerides Wightianum*, although widely spread in India, has always been somewhat scarce in our gardens. The flowers are numerous, though somewhat small, the sepals and petals being nankeen-yellow, with a light purple lip. It is an exceedingly pretty species, well deserving more extended cultivation.

V. ROXBURGHII.—This, sent me from Messrs. Seeger and Tropp's nursery at Dulwich, has a spike bearing six flowers, the sepals and petals being pale green on the inner side, marked with deep brown netted lines, china-white on the outside, and the lip deep violet-blue.

There are a few others, such as *V. cristata*, *V. Hookeriana*, *V. lamellata*, and *V. limbata*, which are deserving of the attention of every Orchid grower.—WILLIAM HUGH GOWER.

— It is now a little over seventy years since the first *Vanda* was flowered in the gardens of Great Britain. The species was *V. Roxburghi*, which, although a handsome Orchid, and one whose exceptionally fragrant flowers

give it a claim to the notice of cultivators, is far from showing the genus at its best. It was on the introduction in 1847 of the well-known *V. suavis* and *V. tricolor* in one importation that the full beauty and horticultural value of Vandas began to be apparent, and since then the genus has been constantly enriched. With the exception, perhaps, of *Cypripedium* and *Dendrobium*, there is no tropical genus of which more may be said in recommendation, for whilst *Phalænopsis* and *Angræcum* are unsurpassed in the wealth and loveliness of their flowers, they are not so easily grown as Vandas, which, except in a few instances, are easily managed. Vandas include also some of the most stately habited of Asiatic Orchids, and this, combined with their handsome evergreen foliage, makes them attractive at every season of the year. It is, in short, one of those genera which anyone forming a collection of the warmer class of Orchids will do well to draw largely upon.

About thirty species are known, these being spread over a wide area in Tropical Asia; from the Himalayas they stretch southwards and eastwards through India and Burmah to the islands of the Malayan Archipelago, one species even reaching Australia. They are always epiphytal, the leaves being mostly arranged in a distichous manner, and are usually strap-shaped, although in a few species they are nearly or quite terete. The chief distinguishing character of the genus is furnished by the lip, which is continuous with the short stout column, and is divided into three lobes, the central one of which is expanded, whilst the side ones are smaller and usually erect, the base forming a sac or short spur. The pollen masses are two in number.

In regard to the cultivation of these plants, it is impossible, especially in the matters of temperatures and moisture, to speak of them as a whole. The widely separate localities over which they are spread, and the peculiar climatic conditions which attend the growth of individual species, necessitate in several instances marked differences in the methods of cultivation. The majority of the species, however, especially those of dwarf growth, require identical conditions, and, except where stated otherwise, the following particulars as to treatment may be taken as applying to the whole of those here mentioned. They may be grown in pots, baskets or cylinders; for the dwarfier kinds the two last are preferable, pots being generally used for the stronger growers like *V. suavis* and *tricolor*. In whichever of these they may be planted the lower two-thirds of the space should be filled with drainage, the remainder with clean living Sphagnum. No species requires peat or any like material about the roots, but when large pots have to be used a few lumps of charcoal or porous brick may be mixed with the Sphagnum. Whilst Vandas may be termed stove plants they do not require such essentially tropical conditions as some Orchids, such as *Phalænopsis* do, and mistakes are more frequently made in giving too high a temperature than in the other direction. A winter temperature of 55° to 60° and a summer one of 65° to 80° will be found sufficiently high, the lower figures indicating the night temperatures. A point of great importance in the successful cultivation of all the species is that they should have the greatest possible amount of light, short of causing actual discoloration or damage to the foliage. It is found that by keeping the plants within a few inches of the glass and shading only when the sun's rays are most powerful, not only is the foliage harder and sturdier, but the flowering is more

regular and profuse, and the blooms themselves of better colour. During the growing season an abundant supply of moisture at the roots is indispensable, and as a considerable proportion of these are usually outside the pot or basket, the necessity of maintaining a moisture-laden atmosphere is forcibly suggested. In the matter of ventilation a regular supply of fresh air without permitting a cold current to pass over the plants should be aimed at. Vandas and the allied genera of *Saccolabium* and *Aerides* were the Orchids in which the dreaded "spot" used most frequently to make its appearance. Owing chiefly to a better appreciation of the importance of light and fresh air, it is now much less common. In winter the supply of moisture should be greatly reduced, but the Sphagnum should, nevertheless, be kept slightly moist at all times. As soon in spring as the tips of the roots show signs of renewed activity by pushing forth green points, the dead Sphagnum should be replaced by new, and the drainage put in good order. When the roots have attached themselves to the sides of the pots or baskets, care should be taken not to disturb them; the material which has to be replaced can generally be removed by the aid of a pointed stick and by syringing. For the same reason it is advisable, when more root room is desirable, to place the old pot with its roots attached inside a larger one.

V. AMESIANA.—This is a dwarf grower, with stiff, dark green leaves a foot in length by about an inch in width at the base, tapering gradually to a long fine point. It was introduced four or five years ago by Messrs. Low, of Clapton, from Upper Burmah. The flowers are on tall erect spikes, the sepals and petals white, flushed with rose; the lip rich magenta-rose, with paler coloured margins. From twenty to fifty flowers have been borne on one spike, and as many as eighty have been counted on imported spikes. This species may be grown in an intermediate or even cool house.

V. KIMBALLIANA.—It is also to Messrs. Low that we owe the introduction of this Vanda. It comes from the same country as *V. Amesiana*, and is nearer to it in relationship than any other. It is undoubtedly one of the loveliest of the genus. It has leaves still narrower than those of *V. Amesiana* and almost terete. The flowers are between 2 inches and 3 inches in diameter, and from six to nine are borne on the spike. The sepals and petals are sometimes of a pure white, sometimes flushed with rose, a beautiful contrast being made by the rich rosy purple of the lip. It requires the same temperature as *V. Amesiana*.

V. TERES AND *V. HOOKERIANA*.—These two species are distinct from other Vandas on account of their terete foliage. As a garden plant, *V. teres* is the superior. It has dark green stems about the thickness of a goose-quill, and cylindrical leaves about 6 inches long. From three to six flowers are borne on the raceme, each of which is 3 inches across. The oblong sepals are white tinged with rose, the large and more rounded petals being deep rose. The lip is very showy; in front it is of a rich rose veined with orange, but in the throat the latter forms the ground colour, and it is spotted and striped with crimson. This plant is usually seen in flower at the Royal Horticultural Society's show in the Temple Gardens in May. It is a native of Burmah and Northern India. *V. Hookeriana* is easily distinguished from *V. teres* by its paler green, more pointed and smaller leaves. The racemes usually carry two flowers. The sepals are white, tinged with rose; the petals larger, more spatulate, and spotted with magenta. The lip is 1½ inches wide; in front it is of a purple-tinted white, spotted with magenta towards the edges, streaks of the same colour occurring in the centre. *V. teres* was introduced in 1823, but it was not

until 1873 that *V. Hookeriana* was seen in English gardens. The cultivation of these two species is different in some respects from that of other Vandas. They require the greatest possible amount of sunshine to induce them to flower, and may be kept pretty well unshaded at all times. In summer the night temperature should not fall below 70°, and an abundance of moisture must be given. It has been found a good plan to set apart one light of a well-heated frame for them, planting pieces about a foot long in a bed of Sphagnum 4 inches deep, draining it well. In the active season the frame may be shut up and syringed about 4 o'clock, putting on again before evening a crack of air. In winter they may be kept quite dry in a temperature of 55° to 60°. The essential points, therefore, in the cultivation of these two species, more especially of *V. teres*, are unrestricted light, a high degree of heat and moisture, and a thorough ripening off in autumn and winter.

V. SUAVIS AND *V. TRICOLOR*.—For general garden work there can be no doubt that these two species are the best of Vandas. In habit both are stately and handsome; they grow well with other plants, and they illustrate, moreover, a style of growth which is comparatively rare in plant houses. Reichenbach considered them to be varieties of one species. Out of flower they are indistinguishable, and in flower the chief distinguishing character is in the ground colour of the sepals and petals, which in *V. suavis* is white, whereas in *tricolor* it is yellow. They are both natives of Java. The commonest error in the cultivation of these two species is in giving them too high a temperature and too much shade. They are intermediate rather than stove plants, and a minimum winter temperature of 50° will suit them.

V. CŒRULEA.—This species blooms in late autumn, and at that season there is no Orchid which excels it in the wealth and beauty of its flowers. The spikes, two of which not unfrequently appear simultaneously on one plant, carry from ten to twenty flowers; the latter number, however, very rarely, and only on newly-imported plants or on those of extraordinary vigour. In the best varieties each flower is 4 inches in diameter, and the sepals and petals (which ought to slightly overlap each other) are of a lovely pale lavender blue, tessellated with a darker shade. The lip is small, but of a yet deeper blue. It is a plant of erect habit, with two opposite rows of dark green rigid leaves each 6 inches to 8 inches long and strap-shaped. This species has acquired the reputation of being a difficult one to deal with, and no doubt with some justice. The following treatment has been pursued with a batch of plants, some of which were imported ten years ago and are now in good health and flower annually. They are grown in the coolest part of the Cattleya house throughout the year, special care being taken to maintain a constant supply of fresh air. They are planted in tall cylinders of teak, the upper half only of which is utilised for the potsherds and Sphagnum. From March up to the time they have finished flowering, they should be kept moist at the root; after that the supply of water is gradually reduced until in winter none at all is given.

V. SANDERIANA.—Whilst this species does not possess the charm and delicate colouring of *V. cœrulea*, it is, on the other hand, the largest-flowered and showiest of Vandas. The flowers are each 5 inches across, and a dozen or more are produced on one spike. The upper sepal and petals are pale rosy lilac tinged with yellow and have also crimson dots at the base. The lower sepals are 2 inches in diameter, fawn-coloured and reticulated with brownish crimson. The lip is small and of a dull crimson. Notwithstanding their marked structural differences, the flowers strongly suggest those of *Odontoglossum vexillarium*. The species was introduced in 1881 from Mindanao, one of the Philippine Islands, and first flowered in Mr. Lee's collection near Leatherhead.

V. CATHCARTI is a tall-growing plant with slender, terete stems and pale green, narrowly oblong leaves 6 inches long. It is a handsome species

but does not flower freely as a rule. The flowers are upwards of 4 inches in diameter, with broad oblong sepals and petals, the ground colour of which is pale yellow, but marked with bars of reddish brown. The lip is white with a tinge of red on the side lobes, whilst the large central lobe has a yellow incurved margin. Sir Joseph Hooker discovered this species in the hot valleys of the Eastern Himalayas. It has been most successfully grown when trained on a damp wall, and differs from most Vandas in preferring a good deal of shade.

V. PEDUNCULARIS (*Cotonia macrostachya*).—Although usually known as a Vanda, and originally described as such by Lindley, this curious Orchid is now separated into another genus—*Cotonia*. It differs from the true Vandas in having no spur to the lip, also in the structure of the pollinia. It was first discovered in Ceylon by Mr. James Macrae about forty years ago, and was afterwards found to be rather widely spread over Southern India. It is chiefly remarkable for the insect-like appearance of its flowers, which somewhat resemble those of our English Bee Orchis. They are borne in great numbers on an erect branching scape 2 feet to 3 feet long, but only a few are expanded at one time, the flowering period extending over three months, or even longer (from April onwards). The sepals are oblong, obtuse, and of a pale yellowish green striated with dull red lines; the petals differ only in being somewhat smaller. The central area of the lip is raised and of a black-purple, and surrounding this is a border of green, the margins being hairy. The whole flower is a little over an inch in depth. The plant itself is slender growing, and has narrow strap-shaped leaves with unequally bilobed tips. This species requires to be kept warm and moist at all seasons of the year.

There are still to be mentioned a number of dwarf growing species, which form a beautiful and important section of the genus. **V. Bensoni** is a charming species with flowers 2 inches across, whose sepals and petals are marked with numerous red-brown dots on a yellowish ground, whilst the lip is of a soft violet. **V. cœrulescens**, as the name implies, has flowers in which the prevailing tint is blue. They are over an inch across, the sepals and petals being pale purplish blue and the lip a rich violet-blue. This delightful plant should be in every collection, a remark which applies as strongly to **V. Denisoniana**, whose beautiful white flowers render it distinct from all other Vandas. The true **V. insignis** is not a common Orchid, what is generally known under the name being a totally different plant and a variety of **V. tricolor**; the true plant has tawny yellow sepals and petals, blotched with dark reddish brown, and a lip of a delicate rosy white. **V. Parishii** is distinct by reason of its handsome bright green leaves, which are oblong and unusually thick and firm. The outer segments of the flower are of a greenish yellow spotted with bright reddish brown, the lip being white, striped with orange at the base, but magenta in front. **V. Roxburghii**, already mentioned as the oldest Vanda in cultivation, has pale green sepals and petals tessellated with olive-brown, the lip being violet-purple and white. In this and various other species of Vanda the outside of the sepals and petals is white—W. J. B.

Cypripedium Chamberlaini (*An Orchid Grower*).—I am asked if the plant known by the above name is not really a *Selenipedium*. It is not. I give two reasons for this assertion; first, I have the statement of its introducer, Mr. Sander, of St. Albans, who told me that the plants were collected in and brought home from the East, whilst the *Selenipediums* have never been found, I believe, out of the western hemisphere. They are said to intercross very easily, but I cannot call to mind any one hybrid between the two divisions

of the family. I am asked, too, how growers are succeeding with *C. Chamberlaini*. My inquirer says that the plants bought by him are not moving, and that there is no indication of their doing so. In every place that I have seen this species it was doing very well. I would advise my friend to place his plants in a warmer temperature and moister atmosphere.—W. H. G.

Odontoglossum rævium (*Charles Godfrey*).—This is the species you send a flower of, and not *O. cirrhosum*. The latter is a very different plant. *O. rævium* is a much rarer Orchid. The majus variety used to exist in Mr. Turner's collection at Pendlebury, near Manchester. The flower sent measures nearly 3 inches across, the sepals and petals and lip being very similar—all white spotted with purple, with a bright yellow crest. In the majus variety the spotting is heavier and darker in colour. Both forms, however, are very rare. It is just fifty years ago since the plant was first found by M. Linden.—W.

ODONTOGLOSSUMS FROM ARDDARROCH.

I AM in receipt of some beautiful flowers of this genus, most of them natural hybrids. No 1 is a very pretty form of the *Ruckerianum* type, I think, having white sepals and petals, all of them marked in the basal half with about six dotted lines of bright chestnut, lip flat, tapering to the recurved point, creamy-white tinged with yellow, and having one or two spots in front of the crest, which is tinged with yellow. It is a very pretty hybrid form, having to my mind unmistakable evidence of *O. gloriosum* and *O. crispum* for its parents. No 2 is a pretty flower, evidently from the same parents, but retaining more of the characters of *O. crispum*, the sepals and petals round and full, the former being white tinged with rose, the petals undulated on the margins, pure white, with a few central dots of chestnut; the lip is purely that of *O. crispum*. It is a very elegant and chaste form. No 3 is a very handsome form of *O. Andersonianum*, the sepals and petals being white tinged with yellow, heavily spotted with deep chestnut; lip with a broad blotch of the same colour in front of the crest. It is a good round flower, exceedingly beautiful. No 4 is another pretty form, having the sepals and petals narrower and more pointed, the ground colour white flushed with rosy-carmine, the former thickly spotted with chocolate, the petals equally as thickly marked, but with smaller spots and dots; the lip is narrow and tapers to a sharp point. No 5 is called *O. egregium*, under which name it is said to have received a first-class certificate from the Royal Horticultural Society; the ground colour is white, the sepals and petals and the lip being thickly spotted and dotted throughout with deep chocolate; it bears the unmistakable evidence of *gloriosum* parentage. No 6 is a very pretty flower of the *gloriosum* type, having the sepals and petals wholly of a deep rose, narrowly bordered with soft yellow saving the centre of each, which towards the base is pale yellow; the lip is yellowish-white, having a blotch of dark chestnut in front of the crest. No 7 is a flower much after the character of No 4, but I think even prettier; they are a set of beautiful hybrids. With these also come flowers of *O. Rossi majus*, the sepals and base of the petals being thickly banded in a transverse manner with dark chestnut, and also a flower bearing the name of *O. triumphans aureum*, having the sepals and petals rich deep chocolate, the tips of all rich golden-yellow, with sundry transverse lines of the same colour in the lower parts. The lip is white at the base, rich deep chocolate in front, the point golden yellow. WM. HUGH GOWER.

SHORT NOTES.—ORCHIDS.

Dendrobium luteolum chlorocentrum (*C. Turner*).—The flower sent is of this variety. It is one of the best flowers for withstanding the London fogs. It is larger than that of the typical plant; the sepals and petals of a primrose

hue, the front lobe of the lip of the same colour, the side lobes and the throat being orange-yellow. It comes from Burmah, and consequently requires plenty of heat and moisture during its growing season, but after growth is finished it may be rested in a cooler house with a drier atmosphere.—W.

Dendrobium Kingianum (*S. D.*).—This is the name of your plant; it is an old and well-known variety from Australia. It was introduced nearly fifty years ago by the Messrs. Veitch and Sons when at Exeter. It appeared to be a very shy bloomer when I first had the plant, but it now appears to be better understood and blooms more freely than it did. I saw it recently in bloom in the Burford Lodge and several other collections. It thrives under the same conditions as the other kinds from the same district.—W. H. G.

Angræcum sesquipedale (*T. Brooks*).—The flower sent was well packed and reached me safely, but I do not see the slightest difference in the spring-flowering plants. They are only late flowers, and therefore I cannot think them different, because whiter than many which one sees in the winter. It is a plant very susceptible to injury from fogs; in fact, only this last spring I noted when visiting the Messrs. Veitch's nursery that the whole of the plants had been deprived of their blooms by the fogs with which we were afflicted a short time before Christmas. The plant was first introduced from Madagascar in 1855 by the Rev. Mr. Ellis.—W. H. G.

Odontoglossum Vuylstekeanum. "W. W. Cheshire," sends me a flower remarkably bright in colour, but wanting somewhat in size. It was found among some imported plants of this genus. The sender asks if it is new. It is not new, but I think still very rare. It was flowered for the first time about eight years ago in Ghent by M. Vuylsteke, whose name it bears. Although so named by Reichenbach, it would appear to be a variety of *O. luteo-purpureum*; indeed, I can see no difference saving in the colour. The sepals and petals are of a rich deep nankeen-yellow, all tipped with pale yellow, the petals having a few blotches of the same colour in addition; they are all somewhat coarsely toothed; lip white spotted with pale yellow and having a deep yellow crest. It is a very pretty form, which should be taken great care of, its colours rendering it very showy.—G.

GARDEN FLORA.

PLATE 855.

HYBRID CALANTHES.

(WITH A COLOURED PLATE.*)

It is now thirty-three years since Orchid growers were surprised and delighted with the flowering of *C. Veitchii*, the first hybrid raised amongst deciduous *Calanthes*, which Reichenbach, wisely or not, separated under the name of *Preptanthe*. The hybrid then raised stands at this day amongst the most valuable for winter decoration. It was figured in *THE GARDEN*, July 9, 1887 (p. 12). Sir W. Hooker, in figuring this plant in the *Botanical Magazine* in 1863, calls it a "singular production," but then Orchid hybrids did not find much favour in the author's eyes. It was obtained by Mr. Dominy by crossing *Limatodes rosea* with *Calanthe vestita rubro-oculata*. For many years after, very little was done in the hybridisation of these *Calanthes*, until the late Mr. Spiers, when at Burford Lodge in charge of Sir Trevor's collection, took them in hand, and the plate issued with this number illustrates some of the kinds which have resulted from his efforts. *C. burfordensis* is the very richly coloured cen-

* Drawn for *THE GARDEN* by Miss Marie Low, in Sir Trevor Lawrence's garden, Burford Lodge. Lithographed and printed by Guillaume Severeys.



HYBRID CALANTHES

tral form, a much deeper and brighter coloured variety than *C. Veitchi*, but certainly not the finest of these seedlings, *C. sanguinaria* being, I consider, the richest and deepest coloured form of all those which have been raised at Burford Lodge. It is a great pity that so few records have been kept of the early crosses of Orchids. Dominy was not blameless in this matter, and we still have no authentic record of the parents of one of his greatest achievements, *Lælia exoniensis*. Spiers also appears to have kept no record of these *Calanthes*, and we therefore are in the dark regarding their parents. The figure on the left hand side of the plate is *C. rosea*, whilst that on the right, *C. versicolor*, received a first-class certificate when shown before the Orchid Committee of the Royal Horticultural Society. Others have also added some beautiful forms to our deciduous *Calanthes*. Amongst them the Messrs. Veitch and Sons, of Chelsea, have contributed some of the very best through their collector, Mr. Seden. Among the best kinds are the varieties *lentiginosa*, *lentiginosa rosea* and *Sedeni*, raised by Seden; *Sandhurstiana*, which has the same parents as *C. Veitchi* and *C. Aurora*, raised by Mr. C. Winn, of Birmingham. *C. porphyrea* and *C. sanguinaria* may be reckoned amongst the most beautiful of the dark forms. Mr. White, the gardener to Sir Trevor Lawrence, has started hybridising, so that in three or four years we may expect some more handsome varieties, and perhaps he may be able to fix some of the parents of the many beautiful forms which last year were blooming in the collection at Burford Lodge. The want of foliage is not felt when the plants are nicely arranged amongst Ferns.

Calanthe vestita and its near relative, *Limatodes rosea*, grow naturally upon trees, and it is singular how they take to loam and thrive in it better than in any other compost. Mr. White uses this and some chopped Sphagnum Moss, mixed with some fine crocks. Plenty of drainage is also necessary. As soon as the bulbs begin to grow, the old soil should be shaken away, the old roots cut off, and the bulbs stood upon the new soil, using small pots to start them in, as they can be easily shifted when they have filled these into larger ones. If necessary several bulbs can be placed together in one pot, and they will soon grow apace. Water must be given very sparingly at first, this being in my estimation the only critical time in the cultivation of *Calanthes*. When they are well rooted a plentiful supply may be given, and at all times a moist atmosphere must be maintained. When the plants have rooted well, some growers like to supply them with liquid manure, but it should be given in a weak state and at distant intervals. I know full well that many growers top-dress their bulbs with dried cow manure, which feeds the bulbs up to an enormous size, but after two or three years a nasty black disease breaks out in the pseudo-bulbs, and it takes years to again produce a healthy progeny. Speaking of liquid manure for Orchids, we hear nothing now of some growers who were working with it and achieved wonders. I consider a little given occasionally may be advantageous, but I prefer to give it in the atmosphere rather than to the soil. A point of the greatest importance in the growth of *Calanthes* is the ripening of the bulbs. The plants, when growth is about finished, should be fully exposed to the sunlight, so as to ripen up their leaves and cause them to fall away, as there is nothing gained by retaining the leaves in a half green state. At the beginning of the season the plants require shade and the temperature of the East

Indian house, with a nice moist atmosphere; later on in the season more sun may be given with less water, which should not be wholly stopped until the flowers are over.

WILLIAM HUGH GOWER.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

SALSIFY AND SCORZONERA.—Sown before this date, these useful winter vegetable roots are apt to run to seed, when, of course, their value as vegetables would be gone. These roots require light sandy soil. The soil for both Salsify and Scorzonera must be in a fertile state and also have been deeply worked to enable the roots to go straight down. The ground should not have been recently manured, as if manure is at all near the surface it causes the roots to come forked. On poor soils the best method is to take out a trench, one or two as the case may be, as a couple of these 20 yards in length will supply sufficient roots for any ordinary family. The trenches should be taken out 15 inches or 18 inches in depth and a layer of manure spread to the depth of 3 inches or 4 inches over the bottom, filling up with the soil taken out. The rows should be quite 20 inches or 2 feet apart, as overcrowding must be avoided if good produce is to be secured. The treatment given to Salsify and Scorzonera is applicable to Chicory. This is not so fastidious as regards soil as the former, as even on heavy land the roots grow to a large size.

CARDOONS.—It is now time to commence operations to produce this little-grown, but, nevertheless, useful vegetable. Not that many plants need be grown, a score or two being ample. The seeds are sometimes sown in the open on warm, well-worked soils in favourable districts, but for the generality of purposes the best course is to raise the plants under glass. Two or three seeds should be sown in a 4-inch pot, the soil used being fairly rich. If placed on a gentle or half-spent hotbed, the seeds will not be long in germinating, when directly the best plant can be perceived the others should be thinned out. Grow them on sturdily, giving air as weather permits, taking the utmost precaution that the soil is not allowed to become dry for fear of giving a check, which predisposes the plants to run to seed. Neither must the plants be allowed to become pot-bound. Being gross feeders, a rich feeding ground is necessary, and to concentrate the feeding material about the plants trenches should be formed and filled up with richer material, the same, for instance, as for Celery. The trenches also form a medium for supplying liquid manure, of which during a dry time or on sandy soils Cardoons will take a good supply. The plants must be set out 30 inches apart. Where it is decided to sow in the open, trenches should be formed if the soil is at all light and apt to dry quickly. Not that the manure must be too near the surface, there being quite 5 inches or 6 inches of soil over the manure. There being such a distance allowed between the plants, the seeds, instead of being scattered along the drill, should be placed two or three together at intervals and the seedlings afterwards thinned out.

MAIN-CROP BEET.—The recent genial rains should have brought the soil into good condition for the reception of Beet seeds. Burnt refuse and a light dressing of soot, also salt at the rate of 2 ozs. to the square yard, will be highly beneficial in storing the soil with those elements which are natural to the Beet. If the soil is at all loose, it should be lightly trodden over previous to drawing the drills, which should be 15 inches apart and an inch and a half in depth. If the weather and the soil should be dry, soak the drills overnight. The seeds should be sown early the following morning before the moisture has evaporated, and the soil which is drawn into the drills will conserve the moisture and so ensure an early germination. The seeds should be sown thinly, as thick sowing causes the

roots to be disturbed more than is necessary, or, at any rate, desirable for their after well-doing.

LATE CELERY.—A little Celery seed sown now will come in useful for the latest supply. The main point with late Celery is not to excite it during its earliest stages, but to grow it on as sturdily as possible. In favourable districts the seeds may be sown in a sheltered corner. A layer of manure in a decayed state surfaced with fine and fertile soil is what is needed, and if kept moist the seeds will germinate and produce good plants, when they may either be planted direct into the trenches or pricked out if needed. In cold districts protection will be needed, such as a half-spent hotbed, drawing the lights off when the seedlings are fairly on the move.

PICKLING ONIONS.—It is now a favourable time to sow this crop. Select an open plot where the soil is not over-rich and where it is firm. The drills should be drawn about 6 inches apart and the seeds sown thinly, when all that appears may be allowed to form. By sowing on firm and rather poor ground, the bulbs produced are of the size most desired for pickling. A. YOUNG.

PLANT HOUSES.

GREENHOUSE.—**HARD-WOODED PLANTS.**—These commonly termed Cape and New Holland plants, and which flower during the spring season will now be making a good display or rapidly advancing towards that stage. Rather more attention will be necessary now both in respect to watering and ventilation. Plants which are flowering profusely, particularly those that may be in proportionately small pots, will require more water when coming into bloom. If they do not need it when the watering is overhauled in the morning, in all likely cases another inspection should be given later on when the weather is such as to encourage rapid evaporation. If the plants are in good health and pot-bound, once filling up the pot with water will not be sufficient to penetrate all parts of the ball, unless an abnormal amount of room has been left when the potting was last done. A plant of this description when it is watered should have this work thoroughly performed; it will then stand over for a much longer time.

As a rule, syringing of these plants is not to be recommended. There are a few exceptions, however, in which a light application of the syringe towards the evening would be beneficial; such, for instance, as in the case of *Pimeleas*, *Adenandra fragrans*, and the *Genetyllis* or *Hedaromas*. When these last are not too far advanced in flower, or if there is not a good crop of bloom upon them, it will encourage an early growth, the securing of which is favourable to a good floral display another season. In the case of all of these plants this syringing occasionally during bright sunshiny weather will tend to check red spider. In dealing with the *Aphelexis* and *Phœnochas*, great care is necessary not to let the slightest amount of water from any source fall upon the flowers. It causes them to fail prematurely when they have arrived at their full size; meanwhile it will check their development. Guard against a close damp atmosphere where these plants are grown; what might in the case of many plants be termed a growing atmosphere is prejudicial to these plants at such a stage. A light buoyant condition of the atmosphere arrived at by a judicious circulation of air is what should be aimed at. Both top and bottom ventilation should be left on all night now, unless when it is actually raining or when the glass falls too near the freezing point. Avoid overcrowding also; this is very prejudicial to this class of plants; neither let them be overshadowed by plants of taller growth or such as have large leaves or are of quick growth.

SOFT-WOODED PLANTS.—Such of these as are now fast coming into flower will take liberal supplies of water; in fact, to keep them now on the dry side means yellow and prematurely faded foliage as well as weakly or decrepit flowers. Show and fancy *Pelargoniums*, for instance, will be greatly assisted when they are knotting for flower

by frequent applications of manure water; that from the farmyard, when it can be obtained, is not yet surpassed for these plants. Some soot may be added to this with advantage, inasmuch as it tends to impart a darker green colour to the foliage. Of the two, the show section will take more water and more artificial feeding than the fancies; if not carefully handled, the latter will at times cast their foliage. Herbaceous Calceolarias will now require a considerable amount of attention; these will take large supplies of water up to the time of the flowers beginning to fade; whilst they are now advancing manure water will greatly assist them. Any little needful attention in the way of staking should be seen to before the flower-spikes are too top-heavy; only use sufficient sticks, however, to support the growths by the aid of judicious slinging between each other. Allow all the foregoing plants as much room as can be conveniently spared, so as to keep the foliage intact and healthy. Watch closely also against any attack of green-fly; occasional fumigation as a preventive is far better than stronger doses in case of actual need. Another good remedy is a weak solution of Quassia chips and soft soap for a light syringing. In the case of the Calceolarias some slight shading will be necessary, but by all means avoid any undue amount; on the other hand, the Pelargoniums will be all the better if fully exposed up to the flowering time. A portion of the stock of Calceolarias may be advantageously retarded in a cold pit or frame so long as the frost is just excluded, if by chance there should be any sudden change. Late plants of Cinerarias will be found very useful between this and the middle of May where conservatories have to be kept gay. Cinerarias at any time make a good succession to the bulbs, now nearly or quite over. Hardy Rhododendrons and the Azaleas (both Ghent and mollis sections) will now come into flower with comparative ease so as to suit any prospect of a break in the succession. An advancing stock of *Spiræa japonica* in two or three stages with the same of the Lilies of the Valley will do good service now the bulbs are passing by. Where Callas are still throwing up spathes they should be retained, otherwise the room they occupy is too valuable now that they may be stood outside with a little contrivance for a temporary protection. Mignonette in pots will now take a quantity of water where the pots are filled with roots, otherwise the foliage will quickly turn yellow.

JAMES HUDSON.

HARDY FRUITS.

PEACHES AND NECTARINES.—It is very doubtful now if there will be much thinning out of fruit necessary this season, but it is to be hoped a good many of those very close up to the wall and otherwise protected have escaped destruction by frosts. These must be taken good care of, the wood being loosened in some places, nails moved in others, and everything done to favour the uninterrupted swelling of the fruit. In most seasons, or whenever there is a good set, the fruits that will in most cases constitute the crops this year are removed early, only those well placed for swelling being reserved. There was a great abundance of good bloom this season, and if there are instances of the newly-set fruit being all saved, then the usual system of thinning out should be resorted to. Up to the present time the trees have made a remarkably healthy leafy growth, but there is yet plenty of time for blistering to take place, and disbudding ought not, therefore, to be severely practised for some time longer. By all means thin out the shoots where badly placed or at all crowded, stopping others at the fourth leaf at joints where there are sound fruit. Later on the young shoots should be more freely thinned out, leaving only enough to furnish blank space at the ends of the bearing wood, and more to take the place of much of the latter that will be cut out next autumn or winter. Double fish nets suspended over the trees should not be removed as yet, and where blinds are used these ought to be run over the trees early

every evening, or at about 4 o'clock, and taken off again in the morning, this favouring a strong clean growth. In mild weather commence the afternoon syringings with clear water, but avoid the use of insecticides, as the latter are very liable to damage the tender skins of the fruit. Blistered leaves should be early picked off, and if mildew puts in appearance, either well coat the affected parts with flour of sulphur or else dip them in a mildew specific.

YOUNG TREES.—It is not often young Peach and Nectarine trees make such a good start as they have done this spring, and the long spell of wintry weather has not greatly checked their progress. They are apt to break most strongly near where the union of the scion with the stock takes place, more especially in the front of the tree. Such strong foreright shoots ought always to be early pulled out, those better placed for training to the wall being favoured accordingly. Also thin out some of the latter, the aim being to provide good room for as many shoots as are needed for laying the foundation of a serviceable tree. It is the usual practice to leave shoots principally on the upper side of the ripened wood, this much simplifying subsequent pruning and training operations, but this rule need not be rigidly adhered to, especially when a good opportunity offers of laying in lower branches. Strong young trees may be allowed to produce a light crop of fruit with advantage, this tending to check a gross habit of growth.

WATERING AND MULCHING.—Where the soil is of a somewhat heavy nature, watering will not as yet have been needed, though an early soaking of liquid manure would not have come amiss to large old-established trees. If the soil is light and the subsoil gravelly or chalky, the long spell of bright weather will have dried this considerably, and if on examination it is found to be in a crumbling state, give water or liquid manure freely. The soil about the younger trees should also be examined and water given if found at all dry, as the rainfall must be very heavy indeed that will soak the ground near to garden or house walls. All alike, whether old or young, or whether the season turns out to be either wet or dry, will be benefited by having a mulching of strawy manure about their roots. These mulchings, in addition to preserving the moisture in the border and preventing cracking, also serve to keep the roots active near the surface—the prevention of deep root-action being an important point in Peach culture. The older trees should have something the roots can feed on, and, if not already done, carefully remove the surface soil down to the roots, and after giving a dressing of fairly rotten manure return it to its original position. In this case the mulching of strawy manure may be dispensed with, but it is desirable all the same. Merely giving a surface-dressing of decayed manure is labour and manure wasted, as it quickly dries up and is of no assistance to the roots.

STRAWBERRIES.—These, as anticipated would be the case, have started very feebly, and they will have to improve surprisingly to yield good average crops. They have so few leaves, that no natural protection whatever will in most cases be offered against frosts, and already forward flowers and buds have suffered. Some method of protecting the more forward ought to be devised, even if this only amounts to a handful of strawy litter thrown over each plant whenever frosts are anticipated. A change to warm showery weather should hasten the application of manure and mulching, in order that the plants shall have the full benefit of these. Peruvian guano is one of the best quick-acting manures that can be applied, enough of this being spread round the plants and not too close up to them to colour the ground. If applied in a liquid state, use at the rate of 1 oz. to the gallon of water. Various other quickly soluble manures can be procured and used with advantage at the rate suggested by the vendors, and a free use of soot is better than no manure at all. Chemical manures must not touch the leaves, or they will most probably cripple them. After applying the manure, well stir in with a flat hoe, and if a soaking rain does not fall soon, wash in with

soft water. Following upon this, give a rather heavy mulching of strawy manure, this answering the double purpose of conserving the moisture and providing a clean resting-place for the fruit.

W. IGGULDEN.

ORCHIDS.

A CHANGE came suddenly upon us on the evening of April 15. We had been enjoying fine spring-like weather, for although the nights were cold, the days were really fine. On the morning of the 16th the ground was covered with snow, reminding us, but for the Cherry, Plum, and Peach trees in full blossom, rather of Christmas than Easter. The east wind was searching every cranny of the Orchid houses, but we were prepared with the houses well heated. Orchids are certainly not so sensitive to the effects of sudden changes of weather as many other plants under the care of the gardener. What I would urge upon the attention of young gardeners is to alter the treatment, so far as damping down the houses and watering the plants are concerned. The active growth which has generally commenced must be maintained, and in a mixed collection of plants, with some of them at rest, others preparing to develop their flower-spikes, and a large number in active growth, the cultivator must do the best he can. It is easy for those with half-a-dozen or more Orchid houses to arrange their plants where they can get the treatment they need at the time. But many persons have to do the best they can with one or two houses, and to keep their flowers as long as possible in good condition. This can only be accomplished by maintaining a comparatively low and dry temperature, with much closer shading than plants in growth like. I find that many of the most beautiful Dendrobiums, such as *D. nobile*, *D. Wardianum*, *D. Ainsworthii*, *D. crassinode*, &c., will stand well in a moderately warmed greenhouse for a few weeks without injury, and the flowers will last twice as long in the comparatively dry atmosphere of the greenhouse or conservatory. When the flowers fade the plants should be placed at once in a warm growing temperature where the minimum of the greenhouse or conservatory does not fall much below 50°. Any of the occupants of the Cattleya house may be placed in it when they are in flower. If this method can be followed, the Cattleya house may have more sunshine and a higher temperature with more moisture in the atmosphere. What growing plants like best is to have the houses closed rather early in the afternoon before the sun passes from them. Water any plants needing it, and sprinkle the paths, stages, &c., of the houses freely with water. This raises the temperature considerably, and the glass becomes obscured to a certain extent with the condensed moisture, and the most tender plants are not injured by the declining sun shining upon them. The lovely Dendrobium Devonianum has been in beautiful condition this year. We kept the plants quite dry during the winter, but never moved them out of the Cattleya house, and the long slender growths were wreathed with the most lovely blossoms. We placed these Dendrobiums during the winter in quite a cool house with *D. nobile*, *D. Wardianum*, &c., but I fancy when the plants are kept too cool during winter they are more likely to suffer from its effects when the time has arrived for next season's growth. The later flowering species of this genus, such as *D. Bensoniæ*, *D. lituiflorum*, *D. crystallinum*, *D. Pierardi*, &c., are now showing their flower-buds freely. We do not give too much water to these and others not yet showing their buds. *D. Dalhousianum* is crowded with spikes this year, simply because we put it in a warm house last summer and autumn, so warm, in fact, that the temperature was frequently up to 100° after the house was shut up in the afternoon. The young growths were so near to the glass, that the plants had to be lowered two or three times to prevent the shoots coming into contact with it. This treatment seems to suit most of the Dendrobiums. *D. formosum giganteum* and others of the nigro-hirsute section succeed admirably when they make their growth in this high temperature grown and suspended in teak baskets near to the glass

roof of the house. As soon as the plants pass out of bloom, all these Dendrobiums that need it require to be repotted or placed into teak baskets. If it is not thought desirable to repot them, it is always well to place some fresh Sphagnum Moss or fibrous peat about the baskets or on the surface of the flower-pots. In the cool house there ought now to be a wealth of bloom. The lovely *Oncidium Marshallianum* seems to do best in this house grown near the roof glass, and with not too much of the usual peat and Sphagnum compost about the roots. The plants do admirably in shallow teak baskets. In the first year or two of their existence under the artificial conditions we are able to provide for them, I have seen the plants make splendid growth merely fastened to a piece of plain teak board a foot long and 6 inches wide. The old back bulbs seem to contain enough stored up sap or some latent vigour to produce fine, strong-flowering growths under those conditions, but the plants are more likely to become established in baskets. The much-valued *O. macranthum* is now producing its long straggling spikes, which will in June, July, or August be furnished with their showy flowers. This species seems to do best planted in flower-pots, but one of the best plants I have ever seen had been merely tied on to an Apple tree log at the bifurcation of a branch. The log, about 18 inches in length, was suspended near the glass at the coolest end of the cool house, and the long, dangling spikes had an excellent effect. The very beautiful *Epidendrum vitellinum majus* is now developing its flower-spikes and needs a good supply of water. It seems to do best on a shelf near the roof glass. J. DOUGLAS.

TREES AND SHRUBS.

THE CHILIAN PINE (ARAUCARIA IMBRICATA) FROM HOME SEEDS.

In an interesting note and illustration of this Pine (p. 321) it is stated that home seeds produce much harder plants than imported seed. As last year the writer's plants in a Sussex nursery are reported to have produced 12 bushels of seed, it must be admitted that he has had exceptional opportunities of proving his point; still, from the very nature of the case, other facts besides English-grown seed by the dozen bushels a year, the bulk of which has been sold to German and French growers, are needed to establish a fact of this character. Among these must be such crucial tests as the growth in considerable bulk, and on various sites and soils, of plants raised from Chilean seeds and those raised from English side by side.

Probabilities are wholly against this contention. In so far as the English climate is inferior to that of Chili, the plants raised from it are likely to be less, and not more hardy. Assuming, however, that the two lots of seeds were equally ripened, the hardness of the plants raised from them can hardly be affected by the place of their growth. Were it otherwise, our Potatoes before this late period in their home culture ought not to have been frosted, instead of being just as liable to be frozen back to the ground-line as on the eve of the day of their introduction from their warmer home. As nearly all that has been said and written as to the acclimatisation of plants through simply growing and ripening their products under cooler conditions than those provided by Nature are either sheer nonsense or the very reverse of the truth, the more thoroughly their products, whether of buds, bulbs or seeds, are matured, the harder the plants raised from them.

The late James Barnes, of Bicton, was one of the first that raised the *Araucaria* largely from home-grown seeds in this country, but, so far as

I remember, he never claimed that the Bicton seedlings were harder than those from imported seeds, and as a matter of fact and of necessity, the finest plants in the avenues and groups at Bicton were of foreign origin. The female plants are generally supposed to have formed the best trees, and it is pleasing to have "R.'s" experience to the effect that there is no difference. Within the last few weeks I have had his statement confirmed in regard to both sexes being found on the same tree.

Part of the last paragraph deserves a passing notice. It is to this effect: "Seed should be sown in the autumn as soon as ripe. It takes about six years to grow the young plants 1 foot high." This must refer to the raising of the seeds in the open air—a slow and precarious process, as mice and rats feast on these seeds with special relish if they can get at them. Many years ago I was engaged in raising a large consignment of Chilean Pines in a London nursery. The system adopted was safe, sure and rapid. Each seed was placed in a 2-inch pot and set near the glass in a plant stove. So soon as roots were formed, the seedlings were shifted into 3-inch pots, and when well established they were moved into cool pits and kept pretty close, being ventilated without draught throughout the first season. The second summer they were planted out in nursery beds where they could be sheltered with mats during the succeeding winter. These plants made rapid progress, and I can verify "R.'s" experience that after they reach a foot or so high, young *Araucarias* under favourable conditions will often grow 18 inches to 2 feet or more in a single season. *Araucarias* in such splendid condition and robust health as those at the Pitdown Nurseries, Maresfield, are very beautiful and effective; but intending planters should be careful at first, adding to their numbers if found to thrive, for, as a rule, the tree is far from satisfactory, having a trick in many places (even where cultural and climatal conditions seem favourable) of losing a tier of branches at awkward seasons—sometimes annually. This results in ragged, top-heavy trees that bring little of freshness or of beauty to the landscape, and that are very liable to be wrecked by the first gale that sweeps over them.

CALEDONIA.

Erica carnea.—Where a comparison can be made of this Heath grown under different conditions, the great superiority in colour possessed by those fully exposed to the sun over any that are in a shady or partially shaded spot is most noticeable, the blooms of those in the full sun being very much richer in colour than the shaded ones. This little Heath has been very fine during the present season, and, owing to its early-flowering qualities, it ranks among the best of our hardy forms. The white form, though less showy than the type, is still very pretty, and well worth growing for the sake of variety. A small bed of *Erica codonodes* edged with the deepest coloured form of *E. carnea* would form, where the larger kind is not injured by the frost, a beautiful picture in early spring.—T.

Spiræa Thunbergi.—While most of its allies still wear their winter garb, this little Japanese species is bright and cheerful by reason of the myriads of tiny white blossoms with which the entire bushes are thickly studded. This season, owing to the warm weather we have had lately, the blossoms are open earlier than usual, but, singularly enough, the foliage has not advanced to a corresponding extent, so that the plants are barer of leaves than is usually the case when they are in flower, for blossoms and foliage, as a rule, make their appearance almost simultaneously. The absence of rain in all probability the cause of the difference noted this year. Where a group

of shrubby *Spiræas* is formed, this one that must be assigned a place near the outskirts thereof, and while this is the earliest of all to bloom, another white-flowered kind (*S. callosa alba*) of less stature stands forth as directly opposite to it, for blossoms are often produced till October is well advanced. After *S. Thunbergi*, the next to flower is *S. prunifolia* fl.-pl., a wide-spreading bush of 6 feet high or thereabouts, whose long slender shoots are studded for the greater part of their length with clusters of double rosette-like blossoms of a pure white tint. The foliage of this, too, unlike that of most other members of this genus, frequently dies off in the autumn richly tinted. At the present time the most conspicuous *Spiræa* next to *S. Thunbergi* is *S. opulifolia aurea*, as the unfolding leaves, which are still in the form of little tufts disposed along the shoots, are of a pleasing golden tint, which, by contrast with the naked appearance of most of its relatives, is additionally attractive.—H. P.

RUBUS SPECTABILIS.

EXCEPTION is at times taken to this *Rubus* on the ground that in some situations it may become a perfect weed, but much the same remarks will apply to many other beautiful plants, the object of the gardener being as far as possible to find the spot most suitable for them where their charms can be seen to the best advantage without interfering in any way with their neighbours. The *Rubus* in question is a native of North America, and is a free upright-growing species that from the profusion of suckers soon forms a large mass, and reaches a height of 6 feet to 8 feet. The drooping blossoms, which are borne in great numbers, are bright purple, a tint but little represented among outdoor shrubs. This *Rubus* is the first of the genus to unfold its blossoms, which open about the same time as those of the Flowering Currant, so that there are really very few shrubs then in bloom. It is better adapted for the wild garden or a spot where the conditions are unfavourable to a plant at all delicate in constitution than it is for highly cultivated ground. This *Rubus* will hold its own in hot sandy soils, and also succeed far better than most shrubs under the shade and drip of trees. The next species to bloom after that above mentioned is *R. deliciosus*, a beautiful shrub, and one well worthy of a place among the most select. This, which is totally devoid of spines, forms a much-branched bush clothed with lobed Currant-like leaves, and about May it is profusely laden with pure white blossoms like single Roses. *Rubus nutkanus*, with large lobed leaves and pure white blossoms, is another Bramble for which a place may often be found, and much the same will apply to *R. odoratus*, whose flowers are purplish. Towards the latter part of the summer the most conspicuous of all the Brambles are the two double-flowered forms, white and pink, but more especially the latter. In this, the blossoms, which are borne in great profusion, are composed of a number of closely packed quilled florets of a pleasing shade of pink colour. As they are at their best when most shrubs are over, and will succeed in soils that are of too dry and sandy a nature for many things, these Brambles well merit a word in their favour. During the winter season, when quite devoid of foliage, one species stands out quite conspicuous from any of the others by reason of the stems being of a silvery whiteness, which, associated with other things, may tend to form a striking winter picture. This Bramble is the Himalayan *R. biflorus* or *leucodermis*, a strong-growing rambling kind. T.

Trimming Ivy.—Now is the time to clip or trim Ivy on walls or buildings, as it will soon be making its growth, and instead of being bare and shabby for weeks, as would have been the case if the work had been carried out before, the surface will quickly become re clothed with new leaves. If the walls are low and can be got at easily, I find that the best implement is a scythe, which soon shaves the old foliage off close, and a sharp

hook is also very useful. In places the shears must be used where a blow cannot be struck, as in angles and corners or under eaves. If Ivy is looked after and thus treated annually, it presents a fresh appearance all the year through and is kept close to the walls, instead of jutting irregularly out or becoming detached from its surface. In cases where Ivy has been neglected it may with safety be at once cut in, and if there is any rubbish amongst it, this may be got rid of by giving it a good brush over with a Birch broom, driving or using it upwards so as not to break the Ivy away from its support.—S. D.

Staphylea colchica.—This is one of the most useful shrubs anyone can have for forcing, as it is readily amenable to that treatment and responds quickly to artificial heat, as when put into a warm house in a moist atmosphere its blooms open quickly. These, pure white, borne in long racemes, and resembling Orange blossom, are produced freely from the young wood of the previous year and also from spurs of the old. *Staphylea colchica* is quite hardy, and may therefore be grown in the open ground and be taken up and potted in the autumn, or kept in pots during the summer. If the latter plan is adopted, the plants should be plunged in some open sunny spot, so as to ripen the growths. After forcing, when the plants go out of flower, it is necessary to afford some protection for a time, as the foliage will not then bear exposure till it gets a little hardened and spring frosts are over.—J. S.

KITCHEN GARDEN.

DWARF OR KIDNEY BEANS.

UP to the time runner Beans are plentiful there is always a good demand for dwarf or kidney Beans, and in some instances the latter are preferred to the coarser and less delicately-flavoured pods obtained from most of the tall-growing or running varieties. Dwarf Beans are of remarkably easy cultivation; yet, strange to state, those in charge of small gardens and very many amateurs either ignore them altogether in favour of the runners, or else make but a poor attempt to grow them in serviceable quantities. It should be remembered that they stand drought remarkably well, this being no hindrance to free setting; whereas the other section fails badly if at all dry at the roots. Being also much the quicker to come into bearing, the least that can be done is to make one or two sowings, a sufficiency of plants being raised, say, to produce tender pods during the whole of July. An early start ought always to be made even at the risk of the first sowing being caught by spring frosts, though a very little protection would always obviate this difficulty. Those who have handlights at their disposal—any number from ten up to fifty being of good service—may well utilise these for forwarding kidney Beans on a warm border. Supposing they are now being used for covering the earliest Cauliflowers, and for which they will probably be wanted for another three weeks, the requisite number of Beans should be raised in boxes or small pots in readiness for the handlights directly they are available. They can be raised and grown to a size large enough for planting out in gentle heat in about a fortnight, and being duly hardened off, can be transplanted readily, always provided good care is taken of the roots. Such delicate plants should have the benefit of fine light soil, a watering being given after the planting is completed, and the handlights be kept rather close till they are growing freely. After all danger of frost is past, or say by the middle of June, not much is gained by keeping the lights on.

Now is a good time to sow a few rows of dwarf Beans on a south or other warm border, a long row sown or planted on a ridge placed at the foot of a south wall being particularly valuable for an early crop. Some of the plants that result may be crippled by frosts, but these may be made good either by transplanting some of those that escaped or by raising a few score in boxes in anticipation of such failures. These early rows should really be moulded up in good time and be lightly protected with branches of Firs or Evergreens whenever frosts are imminent. It is not so very much time that need be expended on their protection, and they fully compensate for all the trouble taken with them. Seeing that the plants are not continuous bearers, heavy cropping effectually preventing this, successional sowings ought to be made at fortnightly intervals up to the first week in August, or if they are not required throughout the summer and early autumn months, about three sowings would perhaps be ample. Any sunny open spot suits them well, and after the first crop the shelter of walls and fences can be dispensed with. They thrive admirably in a single row on the ridges between the Celery trenches, and immense quantities are so obtained in the open fields by market growers, who supply them to manufacturers of pickles. Private gardeners will do well, therefore, to get out their Celery trenches early and to turn the ridges to good account in the production of kidney Beans as well as Lettuces.

At one time Osborn's Forcing was my favourite variety for the earliest sowings, but it has been supplanted by the more productive *Ne Plus Ultra*. The old *Syon House* is still one of the best for early sowing, and *Sir J. Paxton* is another good old early form. None of these require much room when sown early, and with us the rows are arranged 15 inches apart, the plants being eventually thinned to about 6 inches apart. Successional sowings are allowed an extra 3 inches between the rows and the plants thinned to 8 inches apart. The two favourite main-crop varieties are *Negro Longpod* and *Canadian Wonder*, the last-named being perhaps the most popular form in cultivation. For the former the drills need to be from 20 inches to 24 inches apart, and the plants regulated to a distance of 10 inches asunder. *Canadian Wonder*, being the strongest grower of all, should have the most room, the rows being located 2 feet apart and the plants thinned to a distance of 12 inches apart. It is a good plan to lightly stake this variety, especially if clean, long, and straight pods are required for exhibition, and in order to further favour the growth of these, thinning out should be resorted to, taking good care to leave those only that promise to be perfect in form. Liquid manure, mulchings, and moulding-up all favour the growth of extra fine pods, but none of these measures is often resorted to. I. M. H.

When to transplant Asparagus.—Those who raise their own plants have the advantage in that they can choose their own time for transplanting them. A few hours' exposure even to either drying winds or hot sunshine seriously cripples the roots, numerous tiny freshly-formed fibres being destroyed, and when they are obtained from a distance this disadvantage cannot well be avoided. As a consequence they rarely recover quickly from the check of removal, not a few of the plants being lost outright. Up to the present time (April 19) the weather has been most unpropitious for transplanting Asparagus, but a change seems to be imminent, and advantage in my case will be taken of a showery time for doing the necessary work of making a fresh bed of Asparagus. Previous experience has taught me that it very frequently

answers better to move Asparagus as late as the middle of May rather than do this important work a month earlier, or say before top-growth has become active. If lifted carefully and very soon after replanted, the roots being well spread out and surrounded with fine good soil, scarcely any check is given, quite long growths not flagging seriously. It is not yet too late, therefore, to form fresh beds, and advantage should also be taken of this accommodating habit of Asparagus to make good any blanks in plantations made much earlier in the spring, instead of, as too often happens, delaying this till next year.—M. H.

ONIONS.

THE Onion crop is one of the most important in the garden, and yet the most likely to fail, for if it escapes one enemy it is often overtaken by another, mildew and the maggot being the two worst. The mildew was very prevalent last year and has made the favourite vegetable scarce all through the winter, as whole beds in many gardens were completely destroyed by the scourge. We had a severe attack of it here ourselves, as it had got possession of a large breadth before it was noticed, but an immediate application of pentasulphide of calcium diluted with water stopped it at once, and we got fair-sized bulbs that have been of great use. Old as the above remedy is for mildew, it does not appear to be generally known or thought of, and I would advise all Onion growers to make note of it and be prepared with a bottle, as it is cheap enough at per quart or gallon, and may be obtained at any chemist's, the proper strength to apply it at being in the proportion of a quarter of a pint to a gallon of water, with which it mixes readily by being simply poured in. The way to put it on the Onions is by means of a syringe, passing the liquid out in as fine a spray as possible, taking the beds or rows first on one side and then on the other, so as to thoroughly damp the whole of the tops, as the sulphur only destroys the fungus where it touches. Another excellent remedy for Onion mildew is sulphide of potassium, which is also a preparation of sulphur in a solid form, and dissolves readily in water if put in and left for a short time, the proper or sufficient proportions being 1 oz. of the sulphide to a gallon of water, and its application the same. The thing is with either to be on the alert and use one or the other the moment the mildew makes its appearance, and it will be stayed at once, the night or early morning being the best time for putting it on. In some gardens or districts the maggot gives much trouble, and the way to deal with that is to well trench the ground as a preparatory measure during the winter, and leave it rough for the weather to act on it, and when it is being forked down again, or during the process of trenching, a good dressing of soot should be given and thoroughly mixed up with the soil. This will be found an excellent preventive, and is generally effective, as no insect likes soot, but should the maggot put in an appearance during early summer, then it is a good plan to sow a mixture of soot and salt over the bed, giving just enough and equal quantities of both to colour the soil, which will only amount to a thin sprinkling, and if applied immediately before a shower, all the better, as then there is no fear of injury from sun or the weather.

I have also seen most satisfactory results follow with the Onion crop after giving a mild dressing of nitrate of soda and salt, but it is important that the soda be given during a dull showery time and growth is rapid after, as its effects are immediate.

In the preparation of the ground for sowing Onions, it cannot well be made too firm after being trenched, as though the roots go down very deeply, it is necessary to have the bulbs on a hard, solid basis, without which the Onions are apt to come of a form termed "bull-necked," that is, more after the manner of Leeks. To prevent this the soil should be well trodden over and then raked level, when the drills may be drawn. A suitable distance for this to be done is a foot apart, which is quite near enough if fine bulbs are aimed at, and the

drill should be about an inch deep and the seed sown thinly and evenly therein, after which it may quickly be covered by using the back of a wooden rake. Instead of having Onions continuously in rows, some prefer to sow them in beds and have alleys between, but they generally have their rows closer, and nothing is gained. It is a well-known fact with most gardeners that Onions if left long after they are up are very difficult to thin, as when they get hold of the ground and have made free roots they will not draw, but break off, and, therefore, the thinning should be done early by pulling out the smallest and most weakly, and leaving the others at a regular distance of about 8 inches apart. The best time to go over the beds and effect the thinning, if it can be hit upon, is just before rain, as then the soil is at once settled again, and any plants disturbed start off to grow. The most suitable implement for cleaning the

be done in bulk, or numbers will rot. They must be laid thinly in some very cool, airy place till they can be roped or tied in small bunches and hung up under the rafters of some open shed, which is the best place for keeping Onions during the winter, as frost does not hurt them. S. D.

Parsley.—It may seem with many ordinary gardeners somewhat of an excess of trouble-taking to sow Parsley seed in frames so early as the end of February, and to dibble the young plants out thinly into the open ground towards the end of April. That, however, is the practice which Mr. W. Poupart adopts at Twickenham, and it may be assured only with good reason. The winter has left the breadths of old plants out in the open comparatively unharmed, for they looked recently very fresh and strong. In some frames in the

to sow seed thinly outdoors in drills early in May for the production of a good winter stock, but the rows should be fairly hard thinned with small hoes as early as can be, so that the standing plants can have full liberty to develop robust leafage for late autumn and winter gathering.—A. D.

SCARLET RUNNER BEANS.

It is seldom advisable to sow or plant these in the open air earlier than the beginning of May. They may, however, with the view of accelerating the development of the plants, and thus securing an earlier production of pods, be sown in boxes or seed-pans under glass in a gentle warmth, and be finally planted out in well-enriched soil as soon as all danger from late frosts is over. Some sow or plant in trenches prepared similarly to those intended for Celery. These trenches should not be less than 5 ft. or 6 ft. apart, and the plants require tall stakes to support them. In places, however, where ordinary stakes, such as are used for tall varieties of Peas, are difficult to obtain, poles may be substituted for them, even with advantage; they will be found to be in all respects equally suitable for the purpose, and with care will last for ten or more years. The poles should be some 8 feet long, so that when let a sufficient depth into the soil to give stability they may stand some 6 feet or 7 feet high, and the same may be strengthened and kept in position by means of a horizontal rod fastened to each pole, which should be placed at a distance of 18 inches or 2 feet apart. The plants will thus form, if desired, an archway (see illustration), an excellent screen or hedge to conceal any unsightly object; or they may be made to clothe the front of a rough wall or wooden fence of any kind, as with the assistance of a few strings they will readily adhere to them, and will at the same time furnish an abundant supply of delicious pods. Runner Beans may also, though possibly less successfully, be grown in a dwarf form—that is, without the aid of stakes of any kind; and when this is attempted it is necessary to frequently stop the strongest shoots. The surface of the soil should in such cases be well mulched with stable-yard litter, so as to prevent the pods from becoming gritty by contact with the soil. Runner Beans have an advantage over kidney Beans, inasmuch as they bear continuously to the end of the season, or until the plants are cut down by autumnal frosts. Many, too, prefer the flavour of runners to that of the dwarf sorts. The Scarlet Runner may justly be considered an ornamental as well as a useful plant; and in addition to the common variety with its scarlet flowers, there are also white-flowering sorts, as well as the variety known as the Painted Lady, or York and Lancaster, whose blooms are very pretty, and in colour scarlet and white. There are also varieties producing very large pods, such as Champion and Giant White Runners.

Removing the flowers from Potatoes.—Mr. W. B. Jeffries, in a letter to the *Morning Post* on this subject, says:—

My kitchen garden had not more than 6 inches of soil ere we were upon sand. When it came into my possession many years since my gardener was very downhearted at the prospect of growing thereon good crops of vegetables, but he succeeded in getting a better depth of soil by degrees by breaking up the subsoil a few inches deeper each year and mixing clay from a brick-yard, spread on the surface before winter and made friable by the frost in addition to the usual manurings, but even then Potatoes were very small. He tried various experiments, and at last drew out all small sapling growths when 4 inches to 5 inches long and cut off all flower heads as they appeared. This



Arch of Scarlet Runner Beans.

ground cropped with Onions is a Dutch hoe, as it can be run between the rows without going deep in and disturbing much soil, and if sharp, as it should be, it will cut through all weeds and leave them to die on the surface. Any that are in the line of the rows, or too near the bulbs to be dealt with by the hoe, must, of course, be eradicated by the hand, but this work should always be done before the weeds gain size, or the Onions will be much disturbed and checked in their growth. Towards the autumn, when growth is nearly complete, it is a good plan to go over them and gently bend over the tops, which aids the swelling of the bulbs and helps them to ripen. As soon as they are forward enough to leave the ground freely with only a slight pull, they should be drawn, beginning on one side and clearing the ground of weeds by hoeing and raking, and laying them thinly for the sun and air to act on them and complete the maturing, after which they should be stored. This must not

enclosed grounds I recently noticed splendid plants of the finest possible double curled Parsley just fit to dibble out, and now that rain has fallen, doubtless they have been transferred to the open ground. Probably there were some 20,000 plants in these frames, so that the work of transplanting out into rows 15 inches apart is of no light kind. Market growers generally keep to their own seed stocks, taking the greatest possible pains to secure the best treble curled forms, and dispose of their spare seed to the trade, who take it readily enough, because the stock is so reliable. Parsley seed can hardly ever be dear, but a poor wild coarse strain is dear at a gift, especially to a market grower. Apart from the natural good qualities found in a strain, early development of the best curled properties is much enhanced when the young plants are dibbled out, as the check to strong root-action seems to aid in the production of the best form of leafage. It is a very good plan

answered so well, that the practice has been continued for nearly forty years, and well repaid the extra attention. Producing and ripening seed is a tax upon the energies of any plant, especially so upon the Potato, which provides for its reproduction by its underground tubers. But if allowed to produce seed, and it begins to ripen, the tubers stop growing and the plants die off.

SCARCITY OF GREEN VEGETABLES.

THE severe east winds of last month put the finishing touches to the green crops in this district, as far as withering the outside leaves of Cauliflowers, Cabbage, and Spinach, but with a fortnight's bright weather new life has been infused, and those plants are now growing vigorously. We have suffered much less this year than last. Celery last year was totally destroyed, though protected, except one variety, viz., Standard-bearer. This I planted for late work, and, I am glad to say, I lifted several hundred last week and have got as many more yet to lift. Early earthing up is much to blame for Celery failing, as I find for late purposes the longer it is kept growing the harder it is. I do not earth up till late in the season, and this season have used no protection of any kind. Of course, on heavy soil in wet weather earthing up must be done whenever possible, but I feel sure there would be less loss if earthing up were deferred until late in the season. I am at one with "S. D." (p. 332) as to Ellam's being the best and hardiest Cabbage. I had no Cabbage plants at this time last year, and this season I have scarcely any losses, but I pricked off all my seedlings, thus making them sturdier and more able to withstand our variable climate. The same precaution was taken with those left in the seed beds, these being now in good condition for planting to furnish the second lot. I find it is the cutting north-east wind that plays such havoc with the plants just after a severe frost, so of late years I have taken the precaution to prick out the Cauliflower and Cabbage plants under a west wall, and have had very few losses. I for years grew Erfurt Cauliflower, but discarded it for early planting, growing Walcheren in the place of it. I like it much better, and it proves much harder with me, though it may not be quite so early. The loss of a few Cauliflowers is less annoying than a large breadth of Cabbage, as if the useful Snowball is sown in a little warmth in February or March good heads may be cut in three months from the time of sowing. I have lost all the Broccoli for early spring use, although planted in poor land and grown as sturdily as possible; these were not heeled over, and thus by trying to secure a large head or flower I lost all. Those for late use are safe. Some were heeled over; others were planted very deeply and moulded up late, drawing the soil well into the leaves. These are all right, the variety (Model) being one of the hardiest kinds grown. Some I have in a cold north border under a wall, others more in the open, and there is no doubt but that shelter from the cold blasts after frost is the one thing needful. Spinach is now rapidly recovering, but the Prickly, or so termed winter Spinach is all destroyed, whilst the round-leaved Victoria will soon furnish a few dishes. I cannot understand why the Prickly Spinach should still be recommended for winter sowing in nurserymen's catalogues; it is most misleading, as there are at least two varieties superior, viz., Victoria Round and Viroflay. To be secure against a failure, I sow a late lot in September and do not thin at all. This is now coming in, whilst the larger plants from seed sown in August are killed to the ground. Such vegetables as the Purple Sprouting Broccoli are now coming in useful; these are grown like the late Broccoli Model. Kales are furnishing plenty of material, but the hot sunshine will soon force them to seed; therefore they should now be cut hard. Coleworts, one of the most useful of winter vegetables on north borders, are still good, and the St. John's Day Cabbage is one of the best for a private garden for spring supplies. Being so short-legged, it stands the severest winter with little injury. Late Sea-kale will now be appreciated by those who have

lost their green crops, and if the advice of the calendar writers had been taken last spring and large breadths planted, these will greatly assist the gardener to tide over his difficulties till other crops come in.

G. WYTHES.

Syon House.

PROTECTION OF VEGETABLES.

WHILST almost everyone was referring to the warm summer-like weather which we were experiencing during the early days of the month, it was with anxiety, knowing what would occur if this were to be followed by a cold wave, that I regarded the outlook. Truly our forebodings have been verified. I do not think anyone was prepared for such untoward weather as we have just experienced, and even up till now (the 18th of the month) it appears likely to continue. A heavy snowstorm, which set in early on the morning of the 13th and which kept on until late in the day, was sufficient in itself to promote alarm. This was followed by 7° of frost, and more or less nightly, while in many instances no doubt a much lower temperature was recorded. The question which now arises is, What effect will this have upon our early vegetable supply, or at least that portion which is growing in the open? The seasons appear to be altering to a certain extent; the springs are later and colder; consequently the summers are shorter, and although the autumns are warmer and generally finer, yet they usher us into winter with a bound.

The gardener who has to rely upon crops which have to be grown almost solely in the open air is very heavily handicapped where a supply of early vegetables is looked for, and the question either he or those he may have to cater for will have to face is, what can be done to overcome the difficulties? It is quite evident that the aid of glass will have to be requisitioned more than it has hitherto been if the difficulties are to be surmounted; not that expensive aids will be needed, for there are often simple contrivances which may be adopted to forward crops, and which I will refer to later. Lately articles have been published in THE GARDEN on the inadvisability of being in too great a hurry sowing or planting early in the open air. If the weather be fine during the closing days of February, many are tempted to push on the sowing and planting in the open, and if the weather should turn out favourable, well and good. But as seasons are now, the ground is so cold at that early date, and if followed by such untoward weather as we have experienced during the past few seasons, the crops will be considerably later than if the sowing had taken place a month later. The ground being cold the germinating powers of the seeds are weakened, and when they do start it is with an unhealthy cast. People who recommend the sowing and planting so early in the season must either live in extremely favoured places or either work on rule-of-thumb practice and take things as they are. It is, however, more from those situated in light land districts that such advice emanates, as on cold or heavy soils cultivators are more wary and work accordingly, or provide against contingencies.

As the seasons come round, there are crops which must be forwarded if they are to be had as early as possible, and this can only be done by the aid of glass. Of the crops forwarded under glass, I may mention Peas, Beans, Carrots, Turnips, Radishes, Lettuces, and even Leeks if desired, as well as Cauliflowers both summer and autumn, also autumn Broccoli, Brussels Sprouts, &c. The aid of

glass and later sowings in the open with some crops will certainly have to be adopted more than it generally is if the difficulties of these untoward seasons are to be tided over. "S. D." (page 332), in commenting on the scarcity of green vegetables, states that if Cabbage be sown at this date under glass and grown along in a frame, they will turn in almost as soon as autumn-raised plants. Surely such a statement cannot be borne out. "S. D." must be in the habit of cutting his earliest Cabbage very late. Even in this untoward season I hope to cut good Cabbage in a month at any rate. If the note had been published in January the case might be different, but the date at which the note was published is too late by far.

For protecting and forwarding crops in the open, such as Peas, Lettuces, early Potatoes, or even French Beans later on, although at this season we must look upon the last as doubtful until a change for the better really does occur, much might be done. Cauliflowers planted in the open and unprotected from the storm will undoubtedly be in a poor plight. For such an indispensable crop as this, the well-known handlights or cloches are the best protection, although for a slight protection after planting I have often resorted to the simple mode of covering each plant with a flower-pot during the daytime, if cold winds or bright sunshine should intervene for a few days, until the plants will withstand exposure without flagging. Early Peas so far have had a very rough time of it, but although late, they are healthy. Those no doubt which have been raised in heat will be in a very sorry plight. Ours were raised in a cold Peach house, where they came along sturdily and slowly; consequently they were in not too forward a condition. Whatever protection can be afforded to crops growing in the open, or at least that portion which can be benefited by glass protection, must be light, easily movable, and also inexpensive. The best protectors for sheltering such early crops in the open I ever met with were those that used to be adopted by that veteran gardener and vegetable grower, Mr. D. Lumsden, Bloxholm Hall, Sleaford. These were merely 9-inch or 12-inch boards as the case might be, two of these being placed on edge and secured by light cross-pieces at about 12 inches apart. A groove was made along the top of each board, in which squares of glass were fixed. A few light ground vinerias are also most useful. Although termed ground vinerias, they are well adapted for protecting and forwarding vegetables.

A. Y. A.

Garden nuisances.—In the lists of those firms who provide sundries for gardeners' wants I see no trace of anything to do away with the omnipresent destroyer, the sparrow. Some time ago there was a sort of wicker trap something like a spitoon said to be a good thing. One writer in the *Field* said that he caught them day after day thus with a hen sparrow as decoy in his poultry-yard, but I have heard no more of it. A gun is a surer remedy, and if loaded with sand instead of shot it does not injure trees; this may be a wrinkle worth knowing for some gardeners, but the worst of it is we should drive the thrushes and nightingales away. The sparrow is a villainous rough; the rarer and choicer the seed, the more he delights to peck and destroy it. The sparrow is the greatest and only trouble in my garden, and he is beyond the pale of mercy. *Primula rosea* is safe only under black thread. I am happily outside the confines of slugdom; my soil is good. "Has *Campanula Allioni* the ghost of a chance," asks Mr. Ewbank, "unless specially cared for?" Yes, and more than a ghost of a chance with me, for it vanisheth not away by any means. *Soldanellas* bloom without trouble, and I know of no "secrets"

about them. A perfect rockery is a thing still to be invented. The owners of these constructions generally regard them with deep satisfaction; the visitor with interest, great interest, but rarely with satisfaction. Rockeries and glass-houses must be classed together as necessary nuisances. Backhouse's glorious rockery and such a rockery as the Nature-made one in Dr. Clowes' garden at Bowness are exceptions.—EDWD. FISON. *Allington House, Ipswich.*

ORCHARD AND FRUIT GARDEN.

FREE GROWTH OF PEACH TREES.

MUCH restricted trees are the last to arrive at a profitable state and usually the first to fail. Not only is it possible to use the knife too freely on the trees at the winter pruning, but it is equally so to over-do the summer stopping or pruning, and it is the latter part of the subject that may be dealt with at the present time with advantage. All trees under glass will now be growing freely, and many of them may easily be made or marred during the next few weeks. In the case of strong old trees, or those say which have arrived at a size to produce crops that may be reckoned by hundreds, there is little likelihood of the growth made being extra strong; in fact, much of it will very probably be of a too weakly character to please the cultivator. Freely thinning out the fruit and also the young shoots would do much towards promoting an increased vigour of those reserved, and from first to last the treatment must be of a more liberal character than is advisable or safe in the case of the more robust younger trees. Not unfrequently the exuberance of the latter is with some growers quite as difficult to contend with as the feebleness of the older trees, but if the summer stopping was less closely carried out, there would be fewer complaints of young trees refusing to produce good crops. Vigorous trees are apt to form very rank shoots, and which, if not checked at the outset, are most difficult to deal with afterwards. They usually spring from the centre of triple wood buds, and in most instances, if they were early rubbed out and one of the smaller side-buds retained, extreme grossness might have been avoided. Another way out of the difficulty consists either in early stopping extra strong shoots and laying in the best placed of the growths resulting or in reserving them to their full length, and also a portion of the secondary growths that inevitably follow. In this manner several serviceable or productive shoots may be had; whereas when the side or secondary growths are kept closely pinched out, a very stout useless "robber" only is obtained. Those coarse, much-disbudded shoots never form any fruit-buds, and, in addition, greatly weaken other parts of the tree. To make matters worse, cutting them out at the winter pruning invariably leads to the formation of other still stronger growths, and, to say the least, is a case of locking the stable after the steed is stolen.

Especially is it desirable that comparatively young trees be assisted and allowed to grow somewhat freely. Given good head-room and not unduly stopped, young trees are capable of making as much progress in one season as they used to do when the more restrictive methods were in vogue, or, say, before Mr. Simpson so ably exposed the fallacy of the system, in two, or it may be three years. There seems still to be an idea prevalent that the secondary growths will not ripen sufficiently to be reserved, but this, as far as trees in heated houses and a good many unheated structures are concerned, is a

notion that may easily be disproved by experience. It is possible to grow young trees, or newly cut-down maidens to a fruiting size in one season, and instances have come under my notice of this being done on quite a large scale, without any detriment to the future well-doing of the trees. They were planted in new houses and well-made borders, and grew so freely, that had they been much stopped, that is to say, no side shoots allowed to extend, grossness and unfruitfulness would have prevailed for several seasons, unless indeed the alternative of severe root-pruning had been resorted to. It is scarcely to be expected that young trees, whether maidens or what are known as trained trees, planted among much older trees and in only a little fresh soil, should make such rapid progress as that briefly shadowed out, but even these may grow freely if given fair play. If maidens have been cut well back, these will break strongly, and it ought to be possible to select four well-placed shoots, five being none too many in some cases, and a good number where a high rather than a spreading tree is desired. Lay these in thinly, and when they have attained a length of about 18 inches or thereabouts, laterals will most probably be pushed out. Pinch back to the first joint all but about two on each, and those reserved being duly laid in, will also grow strongly, effectually checking grossness in the primary shoots. By the end of the growing season the first-formed shoots will be 3 feet or more in length and the laterals about half as long, and all being well exposed to the full sunshine, ripening will be assured, plenty of fruit-buds being evenly distributed over the tree. Quite the strongest growths on these unrestricted trees are sometimes furnished with triple buds, that is to say, a wood-bud with a fruit-bud on each side down to their very base.

There is no necessity for or wisdom in severely pruning either strong young trees grown during the previous season from maidens or any that have been grown against open walls and introduced into the houses. All the growths may be shortened to about two-thirds of their length, though in the case of vigorous, well-established, and therefore well ripened trees I have frequently reserved shoots to their full length, laying in several side shoots during the growing season, thereby securing much good bearing wood and effectually checking undue exuberance. These comparatively long growths being trained thinly, break regularly and strongly in due course, and each may be allowed to form one or two side shoots and a leader. Some of these young growths may not display a tendency to branch, but the stronger ones usually do, and these should be treated with regard to stopping and reserving much as advised in the case of the young growths from maiden. To be constantly pulling out or pinching hard back the whole of the secondary growths is a sure way of causing the strong young shoots to push out all their back buds, till in time they are of no service either for laying the foundation of a good tree or for fruiting.

There are also times when extra strong young shoots from large or old trees are very welcome—to me, at any rate. With us, Peaches and Nectarines have a tendency to lose some of their limbs. There is no traceable disease, but the old wood simply, slowly, and surely dies, the bark, as may be expected, also going. Whenever, therefore, a strong young shoot springs from near the base of a tree, branches of which are commencing to fail, it is taken good care of, and the stronger it grows the better I am pleased. These young growths are given good room to grow and spread, some of them dividing and sub-dividing freely the

same season. Not being hard pruned, long well-furnished branches are soon prepared to take the place of those decayed or decaying. It may be thought that this practice is faulty, as being the very probable cause of the limbs dying, but it is no such thing, as those strong branches would not have been thrown out had the sap not been checked from flowing through its ordinary channels. Allowing strong young branches to develop to their full extent is beneficial rather than otherwise to old trees generally, always provided they are not permitted to rob other weaker, yet healthy branches of some part of their sustenance. W. I.

GAGES BEST FROM SUCKERS.

Nearly every orchard of Gages planted within the last dozen years has been raised from suckers, and while acres of all other worked Plums are to be seen in all our nurseries for fruit trees, hardly any Gages are grown there unless it be of different varieties such as the Early and Late Bryanstons, Brahy's Golden, Transparent, Taybank, Knight's Green Drying, &c. On inquiry, it will be found that it does not pay the growers for sale to keep a stock of Gages either worked or on their own roots, as the growers for market raise their own trees from suckers. What is more singular is the general consensus of opinion, based indeed upon years of experience, that suckers are best for Gages, and that the market growers raise the best trees for their own purposes. Another point on which almost entire unanimity of opinion prevails is that the common Green Gage has still more money in it as a market Plum than any other variety of Gage or any other Plum whatever. Hence it is the most generally grown, and is still being extended in all directions. Those readers of THE GARDEN who may have been limited to a few Gages on walls, espaliers, or in the open, as dwarf standards, bushes, or cordons, and these probably worked on other Plum roots, can have no idea of the capacity of orchard Plums on their own roots to reproduce themselves from suckers. There is little cause for alarm at this tendency, as it is easily held in check, and it would be easy to set aside odd spaces for the production and growth of suckers. I have also lately seen several orchards of Gages from suckers with straight clean stems as suckerless as the cleanest stemmed worked Gages or other Plums.

Still, this latent capacity of sucker-production by sucker-raised Gages is by no means all and wholly an evil. I lately passed through a Gage orchard of probably forty years' standing, which had been heavily sub-cropped with Gooseberries for many years. The Gages had at last begun to show signs of exhaustion. It was therefore determined to root up the Gooseberry bushes with the view of giving a heavy dressing of 40 tons of farmyard manure to the acre and keeping a clean, arable surface ever afterwards as a stimulant to the old Gage trees. The disturbance of the roots after many year's repose had brought up quite a regular crop of suckers, and it was determined to utilise the strongest of them next autumn in planting another 30 acres of Gages from the old stock. Neither is this utilisation of Gage suckers on the spot adopted chiefly or only for economy. The trees from suckers, so it is positively affirmed by those who may be said to live through growing Gages, fruit early, and the produce is heavier, more constant and of higher quality. Be that as it may, the majority of the Gages now grown in this country are on their own roots—not raised from seed which cannot be relied on to come true, but from suckers. The majority of the common small Damsons, which are still the most grown, are also on their own roots. But these are very generally raised from seed, though they cannot be relied on to come perfectly true; but this matters less among Damsons than among Gages. The Damson in its various varieties is also more or less reared from suckers. These facts suggest whether it would be worth while to try on a wider scale the effects of growing such profitable market

Plums as Rivers' Prolific, The Czar, Victoria, Orleans and others first from layers to get them on their own roots, and then from suckers like the common and best of all of the Green Gages. Thus the entire complications, arising out of mixed blood, imperfectly healed wounds at points of union, incompatibility in ratio of growth, and other incongruities might be lessened and abolished, and the tops, stems and roots act together as one plant, one life in their primary business of producing the most luscious Plums in the least time.

D. T. F.

THE WEATHER AND THE FRUIT CROPS.

AFTER the sunless summer comparatively speaking of last season it was hardly to be expected that there would be such an abundant show of bloom on the fruit trees as has proved to be the case. With such a good show, and which the warm weather experienced during the early part of the month strengthened considerably, it was hoped that our prognostications of a good fruit year would be fulfilled. Whether this will be the case remains to be proved, for we cannot now but regard the outlook with dismay. This exceptional and untoward weather which we are now experiencing cannot but act very prejudicially, for even on those trees where the fruit buds are not very forward the rising sap must be so stagnated as to check the embryo fruit. Peaches and Nectarines so far appear to be uninjured, as these were protected with a wide glass coping, the front being covered with a warm covering. The set is enormous, and it is hoped that the cold weather will not check the swelling of the fruit.

Keeping the blossom dry is a very essential detail so as to guard against injury from frost. We still hear people speak disparagingly of glass copings, but after a thorough trial I can speak strongly in their favour. Not only for protection from frost do we retain the coping over our Peach trees, but throughout the season until the fruit is gathered, and even a month after this. The idea that the copings keep off the action of the night dews, and also encourage the topmost fruit and branches, is a myth, and not borne out by facts. Apricots are a very heavy set, but it remains to be seen whether the cold wave will have any injurious effects on them. Our trees, which cover a length of 60 yards, were protected with three thicknesses of fish netting, kept from the trees with strong poles. The snow as it fell in the evening and fore part of the night did not penetrate through the net, but formed a very effective covering until the following morning, when it was melted by the sun. The snow, followed before morning by several degrees of frost, protected the trees considerably.

The cold weather, I am afraid, cannot but have a bad effect on Plums and Damsons, and also Cherries in the open. The Plums and Damsons show well, and it is hoped that the fructifying organs will not be injured. That the petals will unfold and appear healthy is no criterion that the most vital parts will be the same. Pears are dangerously forward, and those that are open must be spoiled. Apples being the last to open are not yet showing colour, but the trees by the advancing green buds are forward enough to cause apprehension. It will be interesting to watch what effect this weather will have on the caterpillars. The warm weather recently experienced must have hatched them out in swarms where the trees are affected.

A. YOUNG.

Abberley Hall, Stourport.

Peach and Nectarine trees.—These when in bloom have been very beautiful this season. Our sorts are Royal George, Alexander, Barrington, Bellegarde, and Grosse Mignonne. Of Nectarines, the following are the varieties: Violette Hâtive, Large Elruge, Lord Napier, and Pitmaston Orange. With the exception of the Pitmaston Orange, the others are pretty well set; the late brilliant weather was all in their favour. I keep the shoots away from the walls almost until the trees are coming

into bloom. I consider this one of the safeguards of the outside Peach crop, as when brought into close contact with the bricks they soon show colour. Our Apricots flowered well, and to all appearance set well. I have both them and the Peaches well protected. With 8° of frost they looked rather cold, but being dry, I do not think they took any harm. But this morning they looked more chilly in consequence of the snowstorm with 2 inches of snow on the ground.—J. MILLER, *Ruxley Lodge, April 20.*

APPLE RINGS.

WE are now purchasing in the shops evaporated Apple rings at a cost of 5d. per lb. It is very probable that, soaked in clean water for a few hours, these rings absorb one-half their weight at least of moisture, so that the real price is after all very moderate. These evaporated Apples have absolutely no waste, as they are both cored and peeled, so that it is fair to say that when ready for cooking 1 lb. is equal in weight to what would be the product of 2 lbs. of ordinary Apples. The evaporating process does not seem to have de-

Apples is indispensable to making the practice a commercial success. The drying of the rings in wire trays is simple and rapid.

We may well expect to find evaporated Apples becoming soon an important article of commerce and very largely consumed. One pound of these rings will, after being washed, then soaked in clean water for a few hours, make quite a large pie, as the pulp distends appreciably. The water in which the rings are soaked should be used with them in the pie. They also make capital puddings. Doubtless it is as needful that for this purpose we should have good sorts as for market sale, but we do not want very large fruits. Those of firm flesh and medium size are the best for the purpose

A. D.

APPLE D'ARCY SPICE.

WHEN it is remembered how many hundred varieties of Apples there are in cultivation, or at any rate of which there are authentic descriptions published, it is most surprising how few among them can lay claim to wide-spread popularity. Either they are of weakly constitution, or are too robust and not sufficiently free-bearing, more especially in a young state, or are liable to canker, or, as it happens in the great majority of cases, are not of sufficient worth to be retained in limited collections. Especially are really good late varieties scarce. A few there are that will give good returns for the trouble taken with them, but what is wanted are varieties possessing a good constitution, that is to say, sufficiently robust to succeed under a variety of circumstances, and, in addition, sure bearers, the fruit being of attractive appearance and, above all things, good to eat when ripe. All these good qualities would appear to be combined in the D'Arcy Spice, yet the cultivation of this very old variety is principally



Apple D'Arcy Spice.

confined to the south-eastern counties, the neighbourhood of Colchester being, so to speak, its head-quarters. Very early in the present century it was known and described in McIntosh's "Practical Gardener" as the Spice Apple. The fruit was said to be "middle-sized, angular, yellow; flesh firm and sugary, in eating from January to March. Tree middle-sized, great bearer." In later years the variety was designated the D'Arcy Spice, and was so called owing to its being much grown in the vicinity of Tolleshunt D'Arcy, near Colchester. Subsequently, or about forty years ago, it was distributed by an Essex nurseryman under the name of Baddow Pippin, and later still it was further dignified by the name of Spring Ribston. The latter is not inappropriate, and will very probably be retained in some districts. For instance, at the Bath bulb shows I have seen very fine dishes of the D'Arcy Spice exhibited under the name of Spring Ribston, and these much resembled and fully equalled in size the majority of the best samples of the Ribston Pippin seen earlier in the sea-

stroyed innate flavour, as when soaked and baked in tarts the pulp is fully equal in quality to what can be obtained from the best Apples at any time after Christmas. Of course, these Apple rings are yet exclusively of American production. So far as this country is concerned, we seem to have made very little progress in the direction of fruit evaporation for winter use or exportation, although the apparatus erected in the gardens of the Royal Horticultural Society at Chiswick fully demonstrated when in operation that Apples may be very successfully treated. Not, however, refuse or fallen fruits, because bruised Apples leave the evidence of the bruises in the flesh even after evaporation, and the sample is materially deteriorated. When the apparatus was tested for Apple drying last summer, it was with clean even-sized fruits. It seems very evident that only such fruits can be satisfactorily dealt with. The fruits are peeled, cored, and sliced into rings with great facility and evenly. In America, so saving of pulp are the operators, that all refuse core and rind are saved and boiled down to make jam pulp, but that is not any the more discreditable to America than is our liberal use of the Goff and other good pulping Apples for similar purposes here. Doubtless this free utilisation of the refuse of the evaporated

in rich fibrous loam, and may be fed with manure water when in full activity. The plant at Kew was grown last summer above the tank in the Victoria house, a structure which is never shaded and where a very high temperature is maintained at that season. From the time growth is finished to its re commencement little or no water is needed, a lower temperature being also advisable. Provided a strong growth is made and carefully as well as thoroughly ripened off, these plants may be confidently expected to flower.

Narcissus Barka, N. Queen of Spain, and N. Johnstoni, all collected by Mr. Barr in Spain, are suspiciously near each other. Among the Queen of Spain are many typical Johnstoni, and *vice-versa*. Surely the best way of putting it would be to say that N. Johnstoni was variable and let it include the whole. I confess to be no expert in Daffodils, but there is certainly to my eye no appreciable difference between the above mentioned. There can be no question now that this Daffodil, one of the most delightful of the later introductions, is going to stay with us. It is a robust grower, and the bulbs are certainly stronger than they were last year.—K.

Sarmienta repens.—This charming little plant is the sole representative of the genus *Sarmienta* discovered up to the present. It is a dwarf creeping plant, and in its native home is found growing on the stems of trees and on moist rocks, to which it attaches itself by roots emitted from the stems. The leaves are opposite, one-third of an inch long, bright green, and slightly toothed; from their axils the slender, almost thread-like scapes are produced. Each scape carries one pendent blossom. The colour is a bright scarlet. Except that it is much smaller, this plant, both in the shape of its leaves and in the colour of its flowers, bears a great resemblance to *Mitraria coccinea*. Both are natives of Chili, and belong to the shrubby section of Gesneraceæ. The *Sarmienta*, being an epiphyte, may be best cultivated under much the same conditions as the cool *Odontoglossums*. It should be grown in a basket or raft of teak, using a compost of peat and Sphagnum, and keeping it moist at all seasons. It was introduced to Great Britain just thirty years ago. Commencing to flower now, it will continue through the summer months.

Oncidium concolor.—For many years after the first introduction of this Orchid, which occurred in 1837, it remained one of the rarest of *Oncidiums*. Now, however, it has become plentiful, no collection of cool Orchids should be without it, for it is undoubtedly one of the handsomest as well as most graceful of that section. Yellow is perhaps the commonest colour met with in *Oncidiums*, but usually it occurs in combination with red or brown—rarely in the perfectly pure shade that is seen in *O. concolor*, whose flowers are of a clear canary-yellow. The pseudo-bulbs are $1\frac{1}{2}$ inches long, oval, bearing a pair of strap-shaped leaves of a bright green colour. The flowers, measuring 2 inches in vertical diameter, are borne on a pendent scape about a foot long and number about a score. The main feature is the lip, which is $1\frac{1}{2}$ inches across, flat and spreading. The beauty of this Orchid is best displayed when the plants are suspended so that the drooping racemes may be on a level with the eye. It should be grown in a basket or on a raft with fibrous peat and Sphagnum about the roots. It commences to flower in March and April, continuing in perfect beauty for several weeks.—B.

Magnolia stellata.—This plant is now at its best in the open air, and proves to be one of the most attractive of spring-flowering shrubs. Although the plants at present in cultivation are certainly small, the species ultimately attains the dimensions of a small tree, having a similar habit to *M. Yulan*, the species whose numerous white flowers studded over its leafless branches make such a conspicuous and beautiful feature in the garden at this season. *M. stellata* is likewise a deciduous plant, the leaves appearing after the flowers are past. Each blossom is 3 inches in diameter, pure white at first, but acquiring a rosy tinge with age, and sweetly scented. The petals

number about fifteen, and are narrowly oblong, encircling a cluster of bright yellow stamens. This *Magnolia* has long been cultivated by the Japanese (of whose country it is a native), and it was first noticed by Oldham in 1862 in some gardens near the town of Nagasaki, in Southern Japan. A small bed of it not far from the main entrance at Kew is now very pretty. It may be used indoors as a pot plant for flowering in February; it should be placed outside as soon as there is no fear of its tender leaves being injured by frost, and allowed to remain there all the summer, giving it a place in the cool greenhouse after the frosts set in. Another name by which it is known is *Magnolia Halleana*, after an American gentleman, who introduced it independently from Japan to the United States.

Saxifraga calyciflora, or *S. media*, as it is also called, is a rare and beautiful alpine, not at all difficult to manage in the open rockery. It is very dwarf, with dense rosettes of broad lime-crested leaves, from the centre of which it throws up good-sized spikes of claret-purple flowers. When in full bloom it is very effective, and as its chief requirement is loam and old mortar rubbish, it can be easily managed. It ripens seed freely, and should not be so rare as it appears to be. This species is one of the parents of the now well-known *S. luteo-purpurea*, grown in many gardens under the erroneous names of *S. Frederici Augusti* and *S. Malvi*, both of which names belong to totally different plants. *S. calyciflora* is well worth noting. It is just coming into flower now.—K.

SOCIETIES AND EXHIBITIONS.

ROYAL BOTANIC SOCIETY.

APRIL 27.

COMPARED with the first exhibition in March this was not such an extensive display, but the quality of the products in most of the classes made up for any deficiency in this respect. The chief features were the remarkably fine pot Roses, also cut blooms of the same, and large collections of Daffodils, with other spring flowers. The weather, fortunately, held up fine enough to ensure a good company up to 4 o'clock, when rain began to fall somewhat freely.

As before stated, the Roses in pots were very good, particularly the first prize collection from Messrs. Paul and Son, Cheshunt, who staged grand plants of *La France* (bearing very fine blooms), *Celine Forestier* (fresh and beautiful), *Violette Bouyer* (an extra fine plant), and good examples of *Avocat Du Vivier*, *Alphonse Souperet*, and *Marquise de Castellane*. Mr. Rumsey, Waltham Cross, came in an excellent second, one of his finest plants being a well-bloomed *Magna Charta*. Azaleas were not numerous, but two good half dozens were shown, Mr. Eason, Hope Cottage, Highgate, being first in the amateurs' class. His best plants were *Magnet* (a bright pink), *Roi d'Hollande*, and *Charmer*. The only fault to be found with this exhibit was the far too formal mode of training. Mr. Scott, The Holme, Regent's Park, came in a good second, *Dame Melanie* being one of his best. The last-named exhibitor was first for both *Spiræas* and *Dielytras* in dozens of each, showing well-flowered specimens in each instance, the *Spiræas* extra fine; Mr. Morle, Regent Street Floral Depot, being second for these. Messrs. Paul and Son were first with a finely-flowered dozen of their superior strain of *Amaryllis*, the varieties good, the colours bright, and the growth all that could be desired, Mr. Douglas, Great Gearies, Ilford, being a close second with fine blooms, but not such good variety. *Primula Sieboldi* was well shown by the last-named exhibitor, who was first for a dozen freely-flowered examples, the varieties *laciniata*, *cœrulea*, and *Messina* being the most noteworthy. Mr. Douglas was also the only exhibitor of *Primulas* (hardy kinds) and of *Polyanthus*, showing in the former class *P. Nelsoni*, *P. japonica alba*, *P. decora*, and varieties of *P. Sieboldi*, &c., the *Polyanthus* being chiefly large-flowered kinds. Mr. Douglas

was also first for twelve alpine *Auriculas*, with a good assortment in capital condition; one of the finest was *Nellie Hibberd* (a dark edged seedling); Tennyson and Miss Taplin were also noteworthy. Mr. Charles Turner, Slough, came in a good second, two of his finest being *Beacon* and *H. E. Milner*. Mr. Douglas had the best collection of twelve *Auriculas* (show), but was disqualified through an unfortunate oversight in staging two plants of Rev. F. D. Horner, both in good form, other excellent kinds being *Abbé Lizst*, Mrs. Potts, and *Fanny Glass* (an extra fine dark kind). In this class Mr. Sanders, Bookham Lodge, Cobham, was placed first, three of his best being *Frank Simonite*, *Black Bess*, and *Dr. Kidd*, Mr. Turner being again second. The first prize for *Cinerarias* was taken by Messrs. J. James and Son, Farnham Royal, with plants of their fine strain, very dwarf, profusely flowered, and not formally tied, Mr. Douglas being a very good second. Only one collection of tuberous *Begonias* was staged; these came from Messrs. Laing and Sons, Forest Hill; the majority of these were new kinds of doubles raised by the firm, several of which were the finest yet seen in their respective colours. *Princess May*, with flowers of the purest white, very large and full, evidently a remarkably fine variety; Mrs. Regnart, a lemon-yellow, *Princess Christian*, a pale primrose, *Baroness Burdett Coutts*, rose colour, and Mrs. Coomber, with flowers of a pale buff, edged with bright pink as in a *Picotée*, were all noteworthy improvements. Mr. Morle, Regent Street, was, first for twelve pots of *Mignonette*, the plants very dwarf and sturdy with huge heads of flowers, the kind partaking much of the *Machet* type. Mr. Stansell, Wood Lane, Shepherd's Bush was second with similar plants, but hardly so good. For a collection of alpine, Messrs. Paul and Son were the only exhibitors; these consisted of a good assortment, having regard to the late spring. The best were *Aubrietia tauricola*, *A. Leichtlini*, *Gentiana acaulis*, *G. verna*, *Primula Peyretschii*, *P. rosea*, *P. nivalis*, *Bellidistrum Micheli*, and the alpine *Daisy*. The same firm were also first and the only exhibitors of hardy herbaceous plants in flower, showing the following good things: *Doronicum plantagineum excelsum*, *Muscari armeniacum*, *Tulipa sylvestris*, *Iris azurea* (dwarf, beautiful pale blue), *Adonis vernalis*, *Orobus vernus*, and *Fritillaria Meleagris*.

Messrs. Laing and Son had an excellent display of dwarf flowering and fine-foliaged plants, consisting of *Erica Cavendishi*, *Spenceriana*, *ventricosa*, *coccinea minor*, *Spiræa astilboidea*, *Cannas*, *Azaleas*, *Rhododendron Williamsi*, with pure white globular trusses; *Clivia Lady Wolverton*, a superior bright-coloured kind; *Boronia heterophylla*; *Anthurium atro-sanguineum*; an extra dark form of *A. Andreanum*, with a few good Orchids and such foliage plants as the newer *Caladiums*, *Croton Reidi*, a promising decorative kind with large foliage of great substance, and the pretty, dwarf *Saxifraga sarmentosa tricolor* (silver medal). Messrs. Barr and Son had a very large display of Daffodils, containing many choice sorts and all in the best condition. Amongst these, mention should be made of *Queen of Spain*, a beautiful variety; fine forms of *incomparabilis*, as *Beauty*, C. J. Backhouse, *Gloria Mundi* (extra fine), and *King of the Netherlands* (distinctly good); of *Leeds*, as *Beatrice*, *Katherine Spurrell*, Mrs. J. B. M. Camm, *Duchess of Westminster* and Mrs. Langtry; of *Burbidge*, as *Ellen Barr* (a delicately pure white), *Falstaff*; of *bicolor*, as *Dean Herbert*, *Emperor* (extra), *grandis* and *M. J. Berkeley*; also of *Barri conspicuus*, *Nelsoni major*, *Maria M. de Graaff*, and the small, but most interesting *triandrus albus*. This was the finest collection yet staged this year by Messrs. Barr (silver medal). Messrs. Paul and Son had an additional collection of finely-grown pot Roses, the best being *Perfection de Montplaisir* (a beautiful yellow), *Margaret Dickson* (new 1891, a splendid pale blush colour), *Gustave Piganeau*, *Frangois Levet*, *Catherine Souperet*, *Marchioness of Dufferin*, and *Bourbon Mrs. Paul*, which is proving a splendid pot Rose with a vigorous constitution (silver medal). Mr. Ware, Tottenham, had a large and varied collection of early spring plants and bulbs,

amongst which were several well-grown clusters of *Cypripediums*, as *C. Calceolus*, *C. parviflorum*, *C. pubescens*, *C. arietinum*, *Orchis papilionacea* and *O. longicornu*, *Lilium Thompsonianum*, choice kinds; of *Primula Sieboldi*, as *Magenta Queen*, *General Gordon*, *Erythronium Smithi* (a beautiful light kind), *Genista Andreana* (in good condition), *Arnebia echioides* (the Prophet Flower), *Tulipa florentina*, and the choicer of the *Daffodils* (silver medal). Messrs. Jas. Carter and Co. sent a large collection of well-grown plants of *Cinerarias* of their well-known strains, the plants dwarf and bushy, as well as full of flower (silver medal). The same firm had a variety of *Cacti* in small pots, illustrating the best kinds for cultivation in a limited space (bronze medal). Mr. Rumsey, Waltham Cross, sent *Roses*, both plants in flower and cut blooms. Amongst these were good plants of *Ulrich Brunner* and Mrs. John Laing, with the new light variety of *La France* called *Augustine Guinoisseau*, the flowers rather larger, but looser than in that well-known kind. Of the cut blooms the best were those of *The Bride*, *Duchesse de Vallombrosa*, *Reine Marie Henriette*, *Marie Baumann*, and *Niphetos* (silver medal). Mr. Walker, Thame, Oxon, sent a lot of finely coloured blooms of *Maréchal Niel*, of which he showed two boxes, and one of grand flowers of *Niphetos*, with a mixed box, amongst which was the old, but useful *Lamarque* (silver medal). Messrs. James and Son showed an assortment of their choice strain of *Cinerarias* in the finest condition (silver medal). Mr. Turner had several profusely-flowered small plants of the newer *Azaleas*, as *Princess Clementine* and *Vervaeneana* (silver medal). From Messrs. Veitch and Sons came several of their hybrid *Streptocarpus*, showing a still further advance, also plants of their *Amaryllids*, two of the finest being *Crimson King*, a grand dark self-coloured seedling, and *Triton*, with dark crimson veins on a light ground; *Tillandsia Massangeana superba* and *T. Moensi*, two fine forms of these beautifully marked plants, the former with the darker shades predominating, the latter with much lighter shades, the foliage much recurved; *Aglaionema costatum* (Malaya), a very promising dwarf decorative plant with silvery venations; their new *Grevillea robusta* elegantissima, and *Rhododendron balsamiflorum roseum*, a choice double kind. From Sir W. Marriott, Down House, Blandford, came *Cattleya Skinneri alba var. oculata*, its distinctive feature being the purplish blotch upon the base of the lip; it is a lovely variety of this fine old *Orchid*. A full prize list will be found in our advertising columns.

PUBLIC GARDENS.

An open space threatened.—Amongst the inhabitants of the parish of St. Mary, Islington considerable feeling has been aroused by an announcement of the forthcoming sale by auction, for building, of the open space which is situated between Colebrook Row and Duncan Terrace. The land, it is stated in a memorial addressed to the Vestry,

Forms the extremity of a belt of greensward, one-third of a mile long, under which the New River flows, and has been an open space from time immemorial. The inhabitants of these two terraces facing this greensward in question, and of the neighbourhood generally, view with alarm the destruction of this picturesque part of London, and, believing that the attempt to sell for building is an illegal exercise of a doubtful right, respectfully, but urgently, call upon the Vestry to adopt such prompt measures as may prevent the execution of an act so prejudicial to the health of the public and detrimental to the property of the neighbourhood.

The memorial was formally presented to the Vestry, and eventually a sub-committee was appointed to take the steps necessary to prevent the owner—or rather supposed owner—from carrying out his intentions.

Another open space for Islington.—The Vestry received a report from the churchwardens, submitting a communication from the vicar, intimating that he (the vicar) is now prepared to

consent to the necessary steps being taken to transfer the Chapel-of-Base grounds to the Vestry under the Open Spaces Act, 1881. The committee submitted a plan for the laying out of the grounds at an estimated cost of £600. They recommended that the plan and estimate be adopted, that an agreement be prepared for execution by the vicar and the Vestry for handing over the control to the Vestry; that application be then made to the Bishop of London for a faculty authorising the Vestry to make the necessary alterations, and take over the control of the grounds; that the churchwardens be authorised to lay out the grounds in accordance with the plans and estimate; and that the London County Council be asked to defray the expense, or such proportion of it as that body may deem advisable, the remainder in the last case to be paid out of the general district rate. The resolution after some discussion was adopted.

Proposed public park for Ipswich.—The ratepayers of Ipswich have, by a majority of 1326, rejected the proposal to purchase Christchurch Park in that town for the purposes of a public park. Mr. Fonnereau, the owner, originally fixed the purchase money for the park, which consists of 75 acres, and includes a fine old mansion, at which Queen Elizabeth was entertained in 1579, at £50,000, but he had since agreed to add other properties to the park, and to reduce the price to £42,000, "in consideration of the purchase being for a public purpose, and there being no present intention on the part of the Corporation of using the park or any part thereof for building." Christchurch Park is situated almost within the town, and is a beautiful undulating enclosure. Through the kindness of the owner it has long been available for fêtes and flower shows. The Mayor of Ipswich (Mr. D. Ford Goddard) offered to give £1000 towards the purchase money provided nine others would give a similar sum, or, if that was not done, he offered to give £500 if nine others would give a similar amount.

Eltham Park.—We are astonished to hear that another step has been taken to deprive the people of London of the splendid heritage which waits for them in Eltham Park. We gather from a local paper that the Woods and Forests Commissioners are doing their best to assure the Eltham Golfing Association absolute possession of the park. Golf-links of eighteen holes have already been laid down, and a provisional agreement has been entered into with "the owner of the property," giving the association the advantage of acquiring the whole of the estate on very "favourable terms" on or before May 20. Considering that the "owner" is the nation, and that a city-province of 5,000,000 is interested in keeping open one of the finest recreation grounds that London can boast, there ought to be a reasonable prospect of stopping this social iniquity. The scandal is all the graver, inasmuch as the Council is doing its best to acquire the land. Its surveyor has already gone over it and fixed a price which we have no doubt the Council would be willing to pay. The least, therefore, that the Woods and Forests Commissioners can do is to stop their extraordinary negotiations with private speculators until the Council's valuer has made his report.

Brockwell Park.—A meeting of the committee formed some years since to secure the acquisition of Brockwell Park, Herne Hill, as an open space for the people—which object has been now attained—was held lately at the St. Matthew's National Schools, Church Road, Brixton. It appeared from a statement submitted to the meeting that the subscriptions received by the committee reached about £3650. The whole of the money raised by the committee (with the exception of the sum (£915 19s.) incurred for expenses by the Raleigh Park Committee, the obligation to defray which was assumed by the general committee, was expended in accordance with the contract for the purchase of the property. The following sums were obtained by the exertions of the committee and handed over to the London County Council to defray the cost of the purchase of the park:

London County Council, £61,000; Charity Commissioners, £25,000; Lambeth Vestry, £20,000; Camberwell Vestry, £6000; Newington Vestry, £5000; Mr. J. J. B. Blackburn, £2000; and the Ecclesiastical Commissioners, £500, making a total of £119,500. The formal opening of the park took place on Whit-Monday.

Flowers in the hospital.—Last week about 5000 *Daffodils* were sent by the Earl of Annesley from the park at Castlewellan to the North Dublin Flower Mission at St. George's Hall, Temple Street, for distribution among the hospitals on the north side of the city. We are sure that if the existence of this excellent institution were more widely known, many who have the means would find pleasure in following Lord Annesley's kind example. All communications should be made to Miss Mahaffy, 38, North Great George's Street, Dublin, who will be happy to give any information desired.

Beetles in frame.—In reply to E. Davenport, the beetles sent belong to the genus *Aphodius*; they are nearly allied to the common cockchafer. They live in manure, and it was no doubt the manure of your hotbed which attracted them. They will not attack your plants in any way. These beetles and other species belonging to the same genus fly remarkably well and appear to be possessed with a very keen sense of smell. They may often be seen flying through the air and settling on the droppings of some animal.—G. S. S.

Edge Hall Gardens.—As my gardener and I have been very liable of late to interruption from persons who have come, without notice, at all hours of the day, under the impression that my garden is always open to view, may I say that the grounds here are small, and as they lie close round the house, are strictly private. But I am always willing to give leave to see them to those who take an interest in hardy plants and who apply in writing beforehand, and come at such a time as I am able to appoint.—C. WOLLEY DOD, *Edge Hall*.

Artificial colouring of natural flowers.—The ugliest thing we have seen for some time is a horrible metallic-green *Carnation*. The effect is produced by watering the plant with some chemical solution. It is not, however, in the least interesting to know how it is done, because it is an odious fashion which, we hope, will have a very short time. But it is rather strange that the flower selected for this artificial profanation of colour is the flower which, perhaps, is the most beautiful of all in colour, the *Carnation*, with its rich and delightful colours, especially in the self kinds. If the florists want fresh colour in the *Carnation*, they should ask the growers to produce some lovely buff, maroon, dark velvety crimson, white, peach colour and other beautiful hues. Surely such an unnatural distortion hardly requires condemnation. All such dyeing should be left to the artificial florist, who is beyond our control.—*Field*.

Lindsæa trapeziformis.—J. Howard sends me a specimen of this plant and asks how to grow it. It is an *Adiantum*-looking plant, having a creeping rhizome, but the stems are not polished. The soil for this Fern should consist of turfy loam and fibrous peat made sandy. It likes an abundance of water and also a nice moist atmosphere, the temperature never falling below 60°. *Lindsæa* naturally affect stony soil. It is a genus which we have not been as yet successful with.—W. H. G.

Names of plants.—*Kirk*.—*Lycaste aromatica*.—*J. Crook*.—*Phymatodes peltidea*.—*O. O.*—*Lycaste Harrisonie*.—*J. Meechin*.—1, *Dendrobium primulium*; 2, *Vanda suavis*; 3, *Lycaste cruenta*.—*C. H. B.*—1, *Correa cardinalis*; 2, *Polygala oppositifolia*; 3, *Eutaxia myrtifolia*.—*H. J.*—*Sonerila margaritacea*.—*J. Burton*.—1, *Cattleya Mendeli* (poor form); 2, *Burlingtonia candida*; 3, *Ada aurantiaca*.—*H. Howard*.—1, *Ochna multiflora*; 2, one of the forms of *Anthurium Scherzerianum* *Rothschildianum*; 3, *Adiantum versailleense*; 4, *Gleichenia dicarpa*; 5, *Epiphyllum Gartneri*.—*E. B.*—Yes; *Bird Cherry*.—*Henry Rae*.—*Comtesse de Nadaillac*.—*J. H.*, *Norwich*.—*Cœlogyne flaccida*.

WOODS AND FORESTS.

HARD-WOODED TREES FOR ECONOMIC PLANTING.

MORE and more every day does the fact come home to me, that in the majority of cases at least a hap-hazard system of planting is too often engaged in. In not a few cases the wrong class of trees is used in the formation of our woods and plantations, trees the timber of which is, comparatively speaking, valueless taking the place of others that would do equally well if not better on the same kind of soil, and that would in the end be of great economic value.

How often on our best soils of Southern England, and the case applies to Scotland as well, do we see such trees as the Birch, Alder, Beech, &c., occupying positions where the Oak, Sycamore, and Larch would do equally well, and give a far more handsome return in the way of value of thinnings and price per foot for the timber when fully developed. The argument that England is a residential country and becoming more so year by year, and therefore that ornamental, not profitable, woods should be of first consideration, is well worthy of serious attention; but at the same time I always maintain that a wood composed of valuable timber-producing trees is quite as ornamental in its own way as one planted with a different class of trees simply for ornament. For instance, what tree that does well in this country can compare in outline or depth of foliage tint with either the Sycamore, the Oak, or the Larch, and yet in forming the so-called ornamental woods these very trees are neglected? A great deal has yet to be learnt as to the trees best suited for particular kinds of soil, and when this is learnt, we will have far less of the hap-hazard planting, and consequently badly grown and unhealthy trees that grace or otherwise too many of our parks and woodlands. Anyone can work on the safe, but by no means practical footing of planting a few of everything, and some are sure to succeed on any class of soil. To say the least of such a method, it is expensive and productive of the very worst results, and has done more to lower the art of forestry than anything else I know. Landed proprietors who have had hillsides planted in this bungling way, and who know no better themselves, run away with the idea that they need not spend their capital in any more planting, for previous experience has taught them that trees, unless a very few, will not grow on their exposed or other waste grounds; whereas, the fact is that trees unsuitable for the soil, and perhaps site too, had been ignorantly planted. This is no highly-coloured painting of how planting is frequently engaged in. I saw the other day a whole wood of Larch growing on gravelly soil where not a Larch should have been planted, Oaks on poor, thin, pan soil that was only fitted for Scotch Fir and Birch, and a big wood of Oaks in a damp, low-lying valley where Willows and Alders would have grown to perfection.

The worst is perhaps not that the trees die out, but that the owner runs away with the idea that such classes of soil are unsuitable as forest land, and consequently planting is put a stop to, and the labour of the district suffers in consequence. It is always wise policy before allowing a single tree to be planted to make sure that only such as are suitable for the par-

ticular class of soil be used. With the present agricultural depression, landowners cannot, in many cases at any rate, afford to plant simply for ornament, and all the more so, as it is conclusively proved that trees, valuable in an economic sense, if planted on the right class of soil are equally ornamental with others of a less valuable kind. I maintain that it is unwise in the extreme to plant Birch and Beech where Sycamore and Oak will grow, as also Scotch and Spruce Firs when the Larch would thrive equally well.

It is my intention to point out and classify as nearly as I can in their order of value in an economic sense the various kinds of hard-wooded trees that succeed well in this country, giving at the same time a few hints as to the soils best suited for their speedy growth and development.

THE OAK, when grown in suitable soils and at not too great an altitude, is one of the most profitable of English forest trees. It is perfectly hardy, of unusually free growth, not subject to disease, and as an ornamental tree can certainly hold its own with any other species of my acquaintance. Then as to the value of the timber it produces, it is second to no other, that of large size and clean fetching as much as 2s. 6d. per foot, and that of ordinary quality from 1s. 6d. to 2s. per foot. The bark, too, is valuable, though not to the same extent that it was half a century ago, that of good quality and well dried selling readily enough at from £5 to £6 per ton. A. D. W.

(To be continued.)

Elm (Scotch) is difficult to grow to any length of stem, from its spreading habit, and should therefore not be planted too far apart. In moderate soils of a dry nature and a medium exposure, a distance apart of 12 feet to 16 feet, and filled in with nurses from 3 feet to 4 feet, will be suitable. Elm (English) grows more upright than the foregoing variety. Its branches are of less spread, and when planted in good soil and a sheltered situation it grows to very large dimensions. From its fast growth, it should not be planted too close; in favourable situations, 18 feet to 20 feet, and filled in with nurses from 4 feet to 5 feet asunder.

Oak, when well grown, is the most valuable of all our hardwood trees. Although it may be grown profitably as coppice wood on inferior soils, it should never be planted with the view of growing good heavy timber, except in good rich soils and at low elevations. In such situations the Oak may be planted at 15 feet to 20 feet apart with nurses 4 feet to 5 feet apart. The Oak is longer in arriving at maturity than most timber trees, and when of large size is most valuable, and should, therefore, never be cut down before its wood is well matured and hearted, which will be from 100 to 120 years in good soil.

Elms dying on rockery (*Mr. Wilson*).—The cause is not far to seek, particularly as you say that the soil has been piled up around the stems for nearly 2 feet. No surer method of killing out any but the most recuperative specimens could have been taken in hand, and if you want to save even the living remnants, have all the soil down to the original ground level taken away. Prune out all the dead wood and tops you speak about, and probably, if matters have not gone too far, you may yet save some of the trees, or at least parts of them. You might, if they show no signs of starting into growth in a fortnight or so, pollard the trees, that is, cut off all the branches or shorten them back to a distance from the stem of 3 feet or so, and head over the stems at, say, 18 feet from the ground. If there is any life in them it will soon show itself, and the pollarding will greatly increase growth and strengthen the whole specimen. If, as you say, it will be unsightly on your fernery to mound up the soil around the trees, make first of all a neat and irregular circular dyke of stones at,

say, 3 feet from the base of each tree, which may be planted with creeping plants or Ferns, and which will prevent the soil from falling down and around the stem. On railway embankments hundreds of trees have been killed out in the same way as yours, but in such cases the specimens were not particularly wanted either for appearance or use, and so they were left to take their chance. Prune off the dead, loose bark you speak about, and paint the scar with tar, which will not only look better, but prevent the ingress of water.—A. D. W.

The Birch, when standing free, has often a regular and very graceful outline. The points are principally composed of small twigs of an uniform thickness, either upright or weeping, generally showing a somewhat netted appearance. The surface of the stem is well known by its white-coloured bark.

The Horse Chestnut generally shows a regular outline, composed of numerous sturdy branches, the lower ones drooping. The branches are by no means crowded; a foot or two of each of the points is observed to turn upwards. They are strong, of an uniform thickness, and somewhat open and regular all over the tree. The bark is of a greenish grey colour and partially roughened.

The Beech tree has generally a well-developed and regular outline, the main branches tapering gradually from the stem to the points. The points, for the most part, proceed at right angles from the branches, and have an undulating appearance. The side spray is short, and generally turns upwards. The extremities of the branches, for about 3 feet or 4 feet all over the tree, show an uniform lightness. The bark of the tree is very smooth, and generally of a grey or leaden colour.

Greek forests.—In ancient times Greece possessed about seven and a half millions of acres of dense forest, and timber was fairly abundant until fifty years ago. Many forests have now disappeared, and the result is seen both in the scarcity of the water supply and in various injurious climatic effects. The Austro-Hungarian Consul at Athens—while calling attention to these facts in a recent report, of which some account is given in the *Board of Trade Journal* for April—points out that even at the present day Greece possesses about two millions of acres of forest land. The quantities (in cubic metres) of timber and forest produce obtained in 1890, compared with 1889, were: building wood, 59,948 and 48,986; timber for ship-building, 2606 and 1640; for tools and machinery, 4146 and 2940; lignite, 509,895 metric centners, compared with 466,953; asbestos, 491,722 metric centners, compared with 490,179; and tanners' tanning materials, 20,003 metric centners, compared with 30,089 in 1889. Notwithstanding this considerable production, Greece will have to import large quantities of timber in the near future, so as to meet the demand arising from the revival of the building trades now affecting both the rural and urban districts of the peninsula.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols., price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

CHRYSANTHEMUMS.

NEW HAIRY CHRYSANTHEMUMS.

In a leading article reviewing the principal events in the development of the Chrysanthemum, published several seasons ago in the *Garden and Forest*, the writer observes:—

No one can prophesy in what direction the next marked improvement in the Chrysanthemum may be looked for; but, judging from the past, striking variations from the forms we are now familiar with may be expected. Those who studiously note the development of new seedlings are quick to mark the appearance of slight peculiarities, for these may be the forerunners of distinct types. For some years the appearance of hair-like growths from the under side of an occasional floret has been observed, but they were never sufficiently numerous to give any character to the flower.

Reference is then made to the at that time newly-introduced novelty, Mrs. Alpheus Hardy, and it is worthy of our attention for a few moments to observe how remarkable is the pliability of the Chrysanthemum to assume new departures when once a start is made and public interest excited in any variation from an established form. A few years ago there was no such section as the Japanese Anemone-flowered Chrysanthemum, and had it not been for the successful cultivation of Fabian de Mediana, it is problematical whether the few varieties possessing the characteristics of the Japanese Anemone would ever have been officially recognised and grouped into a distinct section. When the National Chrysanthemum Society's first catalogue was published in 1884, such Japanese Anemones as were then known were grouped together with those of the older form which may appropriately be designated Chinese Anemone-flowered varieties, but subsequently, classes in the schedule were opened for them, and as a result the encouragement given in that way has brought forth a number of new flowers that now form an important and increasing section. In like manner summer-flowering Chrysanthemums were known for a long time previous to the early flowering exhibitions of the National Chrysanthemum Society being held, but it was not until these exhibitions were inaugurated that the early section made any distinct advance or showed signs of exceptional development. And so it seems more than probable that we are now on the threshold of an entrance into a new department of Chrysanthemum cultivation. Hairy varieties certainly promise to be the next achievement of the raisers. If the demand for them be great, seedlings possessing this peculiarity will sooner or later be forthcoming to any extent desired. All through the history of the popular autumn flower it is observable that whatever demand has been made, the raiser either at home or abroad has been quite equal to it. There is not the slightest doubt but that the hairy Chrysanthemums are almost as great a novelty in Japan as here. They seem to be quite a modern invention of the ingenious Japanese florists, for there is no record of any of them having been produced by European or American cultivators. In corroboration of this, it is only needful to say that when Mrs. Alpheus Hardy was first prominently brought before the public, and a capital illustration of it given in the *Garden and Forest*

for February 29, 1888, a Japanese botanist of the name of Miyabe, resident at Cambridge, Massachusetts, U.S.A., pronounced it to be a distinct departure from any with which he was acquainted. In the account of its introduction into America, as set forth in "The Golden Flower," a sumptuous art volume already reviewed in these columns, it is stated that Mr. Neesima, the Japanese gentleman who sent the collection containing Mrs. Alpheus Hardy to America, described the varieties, but to two of them applied the term "unknown." Mrs. Alpheus Hardy was one of the two, and no doubt as soon as the excitement attendant upon its advent in America became known in Japan, the plant dealers and representatives of the great American nurserymen lost no time in ransacking every available nook and corner for others of a like nature. Indeed, it so happened that in one consignment from Japan that was afterwards made, Mrs. Alpheus Hardy again turned up. This white hairy floral wonder was, however, not long in being followed by a rival in the shape of Louis Bœhmer, and this in many respects may prove to be a more fortunate importation than its predecessor. Efforts have been made by transatlantic florists to raise a new race by seeding these flowers, but hitherto without success. The tendency to hairiness does not seem to be inherent, for out of thirty seedling Chrysanthemums raised from Mrs. Alpheus Hardy by an American firm a few seasons ago, not one of the progeny showed the remotest sign of the desired peculiarity.

Of course, American florists were not alone in their endeavours. English growers soon began to be keener sighted than before, and some of our old-fashioned favourites were discovered to be similarly endowed, although to a less extent. The only names worth recording in connection with the subject are Charles Gibson, Cullingfordi, and a bloom of *Refulgens* submitted to the National Chrysanthemum Society's floral committee last autumn, which was particularly marked with the hairy growths. In a former note on this subject (Nov. 28, 1891) I referred to a catalogue received from Japan in which Chrysanthemums were offered for sale, and mentioned that only three varieties of the hairy sort were enumerated in it, showing that the number in commerce there was very small. Later information, however, assures us that we shall next season have three more imported sorts to add to the ostrich plume or hairy section. W. A. Manda, a deep yellow; H. Ballantine, a bronzy-yellow; and Miss Annie Manda, a sweet-scented white flower, all belonging to this group, are announced for distribution this spring by the American firm of Pitcher and Manda; while from the Continent we may receive a fourth novelty named *Enfant des Deux Mondes*, the colour of which is said to be light yellow as the buds open, passing as the blooms expand to a pearly white. Presuming the last to be distinct from the original Mrs. Alpheus Hardy, we have thus five new flowers of this type offered to the public within a year, and whether wanted or not there will in all probability be more to follow for a time.

Having just received a new Chrysanthemum catalogue from Japan, I was curious to see the result of the ostrich plume hubbub, and sure enough the three varieties have now swollen into six. The Japanese are not likely to allow the Western florists to distance them in their own particular field, and the Chrysanthemum is certainly that. It may be interesting to quote the varieties as catalogued, because no doubt they will reach us before long *via* America, but with other names. The following are those mentioned in this Japanese list:—

KI-KIUBI.—Canary-yellow, large flower, 7 inches to 8 inches across; incurved.

MURASAKI-KIUBI (Louis Bœhmer).—Purple, hairy flower; incurved.

SHIRO-KIUBI.—White, hairy.

KABA-KIUBI.—Reddish yellow, hairy.

YEZO-AZAMI.—Yellow, tubular, long petals, hairy inside, at the tips deep carmine.

MOMO-IRO-KIUBI.—Pink hairy kind.

The first, third, and fourth of the above-named Japanese flowers are probably with us under the names of H. Ballantine, Mrs. Alpheus Hardy, and W. A. Manda, although there are no certain means of identification open to us through mere verbal description. There are in that case at least two of these new Japanese hairy varieties due to us, and it is only reasonable to contemplate their early arrival here by way of the United States in the course of one or two seasons. From a purely florist's point of view it is doubtful if such a section as Ostrich Plume Chrysanthemums be wanted. But, on the other hand, the Chrysanthemum has during the past thirty years continually outraged all the canons of good taste and the laws of properties as laid down by the old school of florists, who, by their skill and selection, evolved a standard of perfection out of the rough materials originally brought from China, that the latest departure may ultimately find a new generation of cultivators to look upon these protean hairy sorts as another means of giving to the Chrysanthemum an additional impetus to its cultivation. Whatever may be the opinion of the select few, it is an assured fact that the decline of the famous autumn flower is far from being at hand so long as new surprises are created by the intelligence of the raisers and the enterprise of importers. CHRYSTANTH.

DR. FOSTER ON BULBOUS IRISES.

A LECTURE such as that given by Dr. Foster at the Drill Hall last Tuesday is exactly what is wanted. Dr. Foster is the authority on Irises of all kinds, yet he took the pains to place before his audience only such information as could be readily grasped even by beginners, and although only the bulbous and Juno sections were included in the lecture, it was from beginning to end highly interesting and instructive. The want of living specimens to illustrate the lecture told against it somewhat, but this deficiency was in a measure compensated for by the excellent coloured drawings kindly lent from the Royal Gardens, Kew, for the occasion, and which were a source of much interest to the Fellows after the lecture, many of whom inspected them at their leisure. *Iris sisyrinchium* was the first species noticed. It has perhaps a wider distribution than any known bulbous *Iris*. It is found all over Europe, in Persia, and even, we believe, in some parts of Asia. It was known to Parkinson, and although by no means a beautiful *Iris*, it has been in cultivation since that time. One characteristic of this species is the shaggy coat round the bulb; the flowers are small, variable in colour, opening at mid-day and closing in the afternoon, fragrant, but very fugacious. It is not easily cultivated; it requires a very hot summer to ripen the bulbs, and in most places they should be lifted and dried, planting again in late autumn. *Iris reticulata* has a netted coat, with square Grass-like leaves and fragrant violet and golden flowers. This is generally spoken of as the type, but Dr. Foster never found it amongst imported bulbs, and thinks it must have a restricted distribution. I. Krelagei Dr. Foster looks upon as the type. The flowers are purple instead of violet, and not fragrant. It is very abundant in the Caucasus. Seedlings raised from *I. reticulata*, curiously enough, produced mostly *I. Krelagei*. There are several varieties in the trade, notably those raised by Mr. Nelson, some, such as *cœrulea* and *purpurea*, introduced by Herr Max Leichtlin; *cyarea*, and *sophenensis*, all interesting and beauti-

ful. *I. Histrio*, a charming *Iris* from Palestine, is somewhat similar to *I. Krelagei* in habit. It is not uniform in colour, but marked in various ways, faintly fragrant, and may be regarded as a good variety of *I. reticulata*. Another form growing in Central Asia is *I. histrioides*, which flowers before the leaves appear. The flowers are very handsome, pale blue, spotted and veined. The plant is perfectly hardy, and a really desirable one for rockeries. *I. Vartani* is distinct, but not showy. It flowers in October and November, and is a native of Nazareth. *I. Danfordiae*, distributed as *I. Bornmülleri*, with small golden-yellow flowers, is very interesting and pretty in spring. *I. Bakeriana*, the leaves of which are six to eight-sided instead of four, as in *I. reticulata*, is very distinct. The flowers are deep rich violet, with golden-yellow markings, very fragrant, and highly desirable. These bulbous *Irises* are subject to a fungus that has so far defied the cultivator, and the only way to make headway against it is to lift and store the bulbs annually.

I. Kolpakowskyana belongs to another group; the flowers are very variable and beautifully marked. It is difficult to cultivate, as is *I. Winkleri* from Turkestan. *I. Xiphion* and *I. xiphoides* received a good deal of attention, and the fact that *I. xiphoides*, the English *Iris*, does best in damp situations will be pleasant news to a great many. *I. Thunderbolt*, known to Parkinson, and bearing dusky-coloured flowers, is said to be a hybrid between *I. xiphoides* and *I. filifolia*. *I. xiphoides* is said to have received the name of English *Iris* from the fact that quantities were introduced from the Pyrenees to Bristol, and from thence to Holland and other parts of the Continent. *I. Fontanesi* is a strong variety of *Xiphion*, as is also *I. serotina*. *I. Boissieri* is a very beautiful and useful species. It requires a dry sunny spot and lifting to ripen. *I. filifolia* is the dark purple or violet-flowered plant figured and described in the *Botanical Magazine* as *I. tingitana*. The latter is an entirely different plant, with large, pale lilac flowers, and, from a garden point of view, not so desirable. *I. tuberosa* is a tuberous-rooted species of little merit. The Juno group, which includes *I. caucasica*, *orchoides*, *sindjarensis*, *Fosteriana*, *alata*, and others, was also treated on at length. These are comparatively easily managed, and with a little care may be grown as readily in the open air as the German *Iris*.

Books.

THE EXHIBITOR'S HANDBOOK.*

THIS work comprises within its pages much useful information for cultivators of all classes, whether for exhibition or home uses only. The remarks upon the culture of fruits are excellent; that upon Grapes is a compendium of Vine culture in a small compass. It is also pleasing to see that the quality of fruits is not sacrificed to mere size and appearance only. This is as it should be, for size has often carried too much weight upon the exhibition table; whereas it would not do so in the dining room. The selection of varieties in the case of both hothouse and hardy fruits is good. Melons are divided, as they should be, into three classes, when any division is ever attempted at all. It has been an anomaly long enough to see white-fleshed kinds shown in the green-fleshed classes, to which they no more belong than to the scarlet section. In the notes upon Peach culture it is stated that the crop is precarious out of doors. This is not my experience, as with me a failure is the exception; but, written from a northern standpoint, the authors may have reason for their statement. The culture of Oranges is entered into, also that of Musas (Bananas) and Pine-apples, and that sufficiently for anyone with the least knowledge of those fruits to be able to grow them successfully. Plant culture is given in detail, embracing not only those

subjects which one sees shown frequently, but other things which would likewise add to the interest of exhibitions if they were included therein. For instance, the culture of the old *Pleromaelegans* is given, also that of *Crinum* and the Indian section of *Rhododendrons*, which, by-the-by, are classed together as greenhouse plants; whereas, the Java hybrids (of which the Princess Royal may be quoted as an instance) should receive an intermediate treatment to fully develop the splendour of these fine subjects. The notes upon culture, on the whole, are very practical, particularly the selection of soils and the notes on potting, which, in the case of exhibition plants, must necessarily be performed in the best possible manner. In the case of training, which has to be done in a more formal fashion when dealing with specimen exhibition plants, there are some sensible remarks, the free use of sticks being discountenanced. Orchids are dwelt upon in a practical way; *bona fide* specimens are encouraged rather than the bedding-out process. Ferns and Palms have articles to themselves; in the case of the former, the *Filices* are fully treated upon, also Tree Ferns, whilst of kinds not now so much seen, the *Gleichenias* are dealt with in a practical manner. Small plants, particularly such as are useful for the dinner-table, are dwelt upon, the selection of stove and greenhouse kinds being good. It is hardly necessary, however, to advise the culture of conifers in pots for this purpose; as far as exhibiting is concerned, they would not stand the remotest chance in competition. One height is advocated, but various heights are far more practical. There is also an excellent feature in the book, inasmuch as plants, fruits and cut flowers are noticed, and that quite sufficiently of those things which are well suited to amateurs and other small growers. The remarks upon cut flower arrangements have much to recommend them, and if acted upon in the future more than in the past, some better displays should be the result. The recommendation of one particular stand or epergne with side branches and baskets is not the very best for dinner-table decoration; it causes too much obstruction in the line of vision, even when carefully filled. Wiring of Orchids for exhibition in a cut state is advised; with this also I cannot agree. The hideous paper collars for Carnations, on the other hand, are not recommended; this is as it should be, for anything more unsightly could not be devised to add to, as some imagine, but really to detract from the beauty of the flowers.

Annuals do not escape the notice of the authors, nor do the hardy herbaceous plants, whilst Pansies and Violas receive special notice. Flowers usually embraced under the heading of "Florists' Flowers" have a good share of attention; so also do forced plants and bulbs for spring shows. Some very sensible remarks are made upon judging, with guides both for judges and exhibitors. The decimal system is advised in pointing, but if a large number of classes are allotted to one set of judges, it would then, even with its simplicity to those acquainted with it, be still rather complex. Test examinations for gardeners are entered upon; this in the south has been advocated for some years, and in my own case I have found its extreme usefulness. There is a chapter upon "Manures and their Application." This contains most instructive information, which, if properly adopted, cannot fail to be of essential service to all who aim at a high standard of culture, whether for the exhibition table or home use. The work taken throughout has been carefully compiled, and is written in a style which cannot fail to be understood.

(CRITIC.

Narcissi on Grass.—Beautiful as these are in large patches in borders, beds, &c., they are infinitely more beautiful when seen growing on the Grass. In this neighbourhood many of the fields are a mass of bloom with the common Lent Lily. We have it growing in the Grass in the pleasure-grounds here. Many other kinds, such as *incomparabilis* and *i. flore-pleno*, the Pheasant-eyed, and double white, thrive equally well. It is a pity more of this type of gardening is not seen.—DORSET.

MARKET GARDEN NOTES.

OUTDOOR operations are well advanced for the time of year, as a long protracted spell of dry cold weather has enabled cultivators to get the soil in excellent condition for seed-sowing and planting.

ASPARAGUS.—The forming of new beds is now nearly completed. The majority of cultivators adopt the plan of setting out one-year-old plants just as they are starting into active growth. This, of course, applies principally to those who raise their own plants, for when in active growth they require considerable care to prevent the young tops being broken and the roots drying up. In this locality Asparagus grows well in the natural soil without any special preparation; well established beds are now yielding fine grass. Few crops repay good culture better.

BEANS.—Runner and kidney Beans are now being sown in quantity. The only drawback in getting extra early crops of these in the open air is the late spring frosts and cold winds, so that where the situation is quite open, it is found on an average of seasons that seedlings raised about the 1st of May will yield quite as early and much more abundant crops than those raised in the middle of April. If the young plants get crippled in the early stages of growth, it takes a long spell of warm weather to get them into health again. The Champion Runner and Ne Plus Ultra find most favour, and amongst dwarfs Canadian Wonder is most largely grown.

BROCCOLI.—This is now being sent to market in quantity, but, as a rule, the heads do not run large and prices rule low. Unlike many other crops, Broccoli must be sent to market as soon as it is fit, for if kept back the heads soon get discoloured and still smaller prices are realised. Broccoli is now being sown, so as to have plenty of plants ready in July.

CABBAGES.—The earliest crops are now being sent to market, and nice hearted stuff realises good prices; in fact, the earliest crops almost invariably sell well, even when other green crops are a drug in the market. Successional crops are being put out, and seed of all the early kinds sown.

CALIFLOWER plants that have had the protection of hand-glasses are now growing rapidly, and successional crops are being put out in deep drills. Young plants raised under glass are being pricked out, and seed of both early and autumn varieties sown in quantity.

CUCUMBERS are being planted out in hotbeds, which are utilised until the plants require all the space for forwarding Tomatoes, ridge Cucumbers, Vegetable Marrows, &c.

POTATOES are being planted very extensively. The majority of growers grow early or midseason sorts. The plan is to plant early and clear the crop as early as possible, so as to make room for winter crops of some kind. White Beauty of Hebron has nearly superseded the Pink Beauty. Late varieties are brought into this locality from Scotland.

FRUIT GARDENS AND ORCHARDS now present a very beautiful appearance. Fortunately, the blooming is very late, as the weather keeps remarkably cold and dry. Some of the earliest blossoms on Plum trees and Pears were killed, but, as a rule, there is still a good chance for the fruit crop, as Apples have not yet expanded and the buds look strong. Bush fruits look extremely well, Gooseberry and Currant bushes being well laden with fruit, and the foliage is now sufficiently advanced to protect the fruit. Amongst the most conspicuous trees for bloom in many of the market gardens here are the Morello Cherries, planted as half-standards and allowed to grow quite naturally. The crops they bear are enormous, and as the trees assume a pendulous habit of growth, they are easily protected by nets from birds, and the Cherries invariably sell well. Strawberry beds look very promising. They have nearly all been cleaned over and given a dressing of stable litter. A good soaking rain is now much needed, as the soil is getting very dry.

SPRING FLOWERS, such as Wallflowers, are now very plentiful and cheap, and the markets are well stocked with Pansies, Pinks, Anemones, &c.

Gosport.

JAMES GROOM.

* "The Exhibitor's Handbook." By Messrs. W. H. Hamson and Dunn. Edinburgh: W. Blackwood & Sons.

ORCHIDS.

CŒLOGYNE CRISTATA.

This plant is now too well known to need any description. It is a magnificent Orchid for winter blooming. It should be grown in a cool stove, and in autumn placed in a little warmth to finish up the bulbs and induce them to push out their racemes of flower. There are now numerous varieties of this species which differ more or less in the breadth of the sepals and petals, that known as the Chatsworth variety, sometimes called maxima, being the best. In the variety Lemoniana the flowers are broad, as in the Chatsworth variety, but the lip, instead of being broadly stained with yellow or orange-yellow, is of a faint pale yellow, while in the variety alba they are of the purest white without a single spot. It is found growing in

plant, the flowers of which, however, have not the pleasant fragrance of those of *D. glumaceum*. It is a species which I have not seen for upwards of twenty years. At that time I had a large plant of it which had been received from the Messrs. Loddiges' nursery. It was said to have been received from the Philippines through Hugh Cuming in company with *D. glumaceum*, and was named by Lindley *D. latifolium*. — W. H. G.

Dendrobium barbatulum. — "G. O., Durham," sends this plant for a name. It is often confounded with *D. ptychianum*, which is a Moulmein species. Although very near, they are classed in different sections of the genus. One of the surest means of distinguishing this plant when not in flower is by the swollen bulbs at the base, which taper upwards. The Burmese plant is figured in the *Botanical Magazine*, t. 5444, under the name of *D. barbatulum*. The plant in question has a terminal raceme of pure white flowers, saving the small erect side lobes of the lip, which are stained with yellowish green and lined with brown; the

and lined at the base with the same colour; lip broad, white, with a few brown spots below the crest, which is yellow. It is a very handsome flower, rounder and fuller than that of the ordinary *Ruckerianum*, but still, I think, only a form of that plant. — W. H. G.

CATTLEYA WARNERI.

WHILE we are told of the glorious Cattleyas of the labiata section that have been introduced during the last two or three years, growers of the present day quite forget some of the old varieties such as *Cattleya Warneri*. This, imported by Messrs. Low and Co., of Clapton, flowered for the first time in England with Mr. Robert Warner, of Chelmsford, after whom it is named. For some few years afterwards grand examples might have been seen in private collections, but latterly all love for this fine and distinct form appears to have died out, and one seldom sees even a small plant. I am told by many growers that it is a very shy bloomer, but in days gone by I used to find it quite a free grower and a free flowerer. I was relating this to Mr. Hardy, of Timperley, last year, and it caused quite a laugh, and his gardener, Mr. Holmes, at once took me and showed me some three or four plants all throwing up their flowers. I have seen specimens bearing twenty fine blooms at the same time, and as a summer flowerer it has no equal. The plant is a bold grower, having stout pseudo-bulbs, which are surmounted by a flat, thick, and fleshy deep green leaf, which has a peculiar twist near the point; indeed, this twist appears to be quite a varietal distinction of the form *Warneri*. The scapes bear from three to five flowers, each measuring some 6 inches to 8 inches across. In good varieties the sepals and petals



Cœlogyne cristata. Engraved for THE GARDEN from a photograph sent by Captain H. Powys Greenwood, Harnham Cliff, Salisbury.

Northern India at an elevation of from 5000 to 8000 feet.

Captain H. Powys Greenwood, Harnham Cliff, Salisbury, who kindly sent us the photo from which the annexed engraving was prepared, sends us the following note:—

I enclose a photograph of a plant of *Cœlogyne cristata* which is blooming remarkably well with me this year. The plant I purchased for a few shillings last Christmas year. It had then four flower-spikes, which in due course flowered. Last summer it produced eighteen strong new growths, and has at the present time twenty-one flower-spikes, several of them having six blooms. I send you this account, as it seems to me to show what growth this plant will make in a single season if it likes its situation.

Dendrobium latifolium. — "H. J. H." sends a spike of bloom of what I take to be this plant. It is near to *D. glumaceum* in habit, but much stronger, the bulbs being nearly 2 inches long, bearing five to seven-nerved leaves, which are some 15 inches to 18 inches long, and 2 inches and upwards broad. The spike is long, bearing a dense raceme upwards of 6 inches in length. The flowers are of the same shape as those of *D. glumaceum*, but larger, the sepals and petals pure white, the lip yellowish-green. This is a very bold and handsome

middle lobe is pure white. It is a somewhat delicate plant, and should be grown upon a block of wood with a little Moss about its roots, and be well sprinkled with water during the summer season, but less in winter. — W. H. G.

Cattleya amethystoglossa. — G. Baker sends me a flower for an opinion. It is an extremely beautiful form, measuring some $3\frac{1}{2}$ inches over; the petals, slightly broader than the sepals, are creamy white, tinged with rosy mauve and spotted profusely with rich rosy purple near the margins; lip three-lobed, the sides white, the recurved tips rosy violet, the middle lobe deep rosy violet. When thoroughly established it will be a magnificent variety. My friend says it is very tall growing, and has been sent to him from the neighbourhood of Bahia; this should indicate that it requires strong heat. If treated like the Cattleyas it will soon grow apace. It should be taken care of, for although now far more common than it was it is rarely seen. — W.

Odontoglossum Ruckerianum (*J. Ramsbottom*). — Your flower is certainly a natural hybrid, and it comes nearest to a form of the plant known by the above name. The bloom measures nearly 4 inches across the petals, which are broader than usual, thus making a rounder flower. The colour is white, suffused with rosy-purple, especially near the margins, the sepals sparingly spotted with bright brown, the petals more profusely spotted

are soft rose colour, tinged with a purple shade, the side lobes of the lip being of a deep rosy lilac; the front lobe very large, some 2 inches long, beautifully frilled, and nearly covered with a rich velvety rosy crimson; at the base it is creamy white, the throat rich golden yellow, which runs out on to the white in gold threads. In ordinary forms the colours are not so intense, but it is a very beautiful *Cattleya* in whatever variety it is seen. It is a native of Southern Brazil, and I should think it would be worth the while of some importer to get a lot of this fine plant over again. It comes from a warm district, and it should, therefore, be kept at the warmest end of the *Cattleya* house. It requires a good amount of heat, especially when growing, and after growth is completed it may be moved to a somewhat cooler position to rest. During the resting period care must be taken that the thermometer does not fall below 58° and that the plants do not shrivel. A very little water will prevent this and carry them safely through the winter. During the summer keep the plants fairly moist at the root and the house well damped down, but do not syringe overhead. This *Cattleya* should be potted in good brown peat fibre and a small portion of chopped Sphagnum Moss, and during

potting some medium-sized nodules of charcoal should be inserted in order to keep the whole open and sweet. Treated as recommended above I have grown this grand *Cattleya* well, and have never had to complain of its being a shy bloomer. —Wm. Hugh Gower.

Cattleya intermedia.—Mr. Redwood sends me a flower of this for a name. I am much obliged to the sender for giving me such a good description of the plant, as thus it is far more easily recognised. The flower of this species is much smaller than those received from Mr. Cypher, of Stroud.—W. H. G.

—G. Cypher also sends me a series of different colours of this plant, which he says "shows this is a good old *Cattleya*, not by any means to be despised." In this he is quite right, for it is a beautiful kind, and a nice specimen enables one to cut and come again without the flowers being missed. It appears to have a wide distribution in Brazil, mostly in the warmer districts. It has been pushed aside too much for members of the labiata group, which have larger and more showy flowers. I am glad to find this plant is appreciated in the garden of Sir J. E. Dorrington, Bart., M.P., of Stroud.—W.

Masdevallia xanthocorys (Carl)—This is the name of your flower. It is considered a form of *M. Shuttleworthii*, which, I think, is one of the prettiest of all. It is now about ten years since this variety first appeared in the Burford Lodge collection, and, although very pretty, it lacks the charm of the typical plant. The flower now before me is somewhat smaller than that of *M. Shuttleworthii*; the upper sepal of a soft yellow colour, with narrow lines of reddish dots; the lower sepals are paler yellow, sparingly dotted with rosy-pink. The plant grows freely in the same temperature as the *Odontoglossums*, but I am of opinion it likes more shade than those plants.—W.

Cypripedium albo-purpureum.—H. Bucks sends me a fine flower of this hybrid, which was raised by Mr. Seden between *C. Schlimi* and *C. Dominianum*. It is of vigorous growth and flowers freely. Its flowers are very beautiful, the blooms being large, the dorsal sepal white tinged with pink. The lower sepal is smaller, but of the same colour, petals nearly 5 inches long, twisted, white, suffused with rosy pink. The pouch is of good size, rosy carmine, veined with reddish-crimson. This plant was figured in *THE GARDEN*, Vol. XXI., p. 332. I cannot imagine why it is so seldom seen in collections.—W. H. G.

Cattleya gloriosa.—"W. A. G." sends a flower of this variety of the labiata group, but I cannot express an opinion upon it, as the flower has lost its colour so much. It looks very like some of the forms of *C. Warocqueana* which flowered in the neighbourhood of London last autumn. With respect to the time of flowering, I take no notice of this until the plants have been established two or three years. *C. Lawrenceana* shows this very plainly. When first I saw this plant it was blooming in June, but in the same garden this year and treated quite the same the flowers were all over by the end of March.—G.

Selenipedium caudatum.—This will also be recognised as *Cypripedium caudatum*, as under this name it is generally known, although now classed under a different group by botanists. This is a most remarkable Orchid, and it always attracts the notice of visitors on account of its long tail-like petals. The length these latter grow to varies to a certain extent. I have had them 37 inches in length. To grow this *Selenipedium* well it requires somewhat different treatment to *Cypripediums*—at least, in the composition of the soil. At one time it was a common occurrence to see the ends of the leaves dying away, owing to the plants being potted in the ordinary peat and Sphagnum compost and also in being kept too dry. I believe that this plant is found growing naturally in very moist soil or along the edge of a ditch, where the roots are constantly submerged in water. I have also seen it recommended that this Orchid be grown in the cool house or the cool end of the *Cattleya*

house, but I find it succeeds best in a structure where the temperature does not fall below 60° as a minimum during the winter. The foliage of the plant under this treatment retains a beautiful green colour. This is not the only advantage, for the plant both grows and flowers freely. I have three plants, each in a 9-inch pot, and this season each plant has produced three spikes with three flowers on each. Considering that three years ago they were single growths in 3-inch pots, it is evident that the plants like their treatment. The material for rooting in should consist of three parts fibrous loam, one of peat, and the same of Sphagnum, with pieces of charcoal. The pots should be half-filled with drainage, and the plants not elevated, as this is against their well-doing. At no time should they be kept dry, and during the growing season, and also whilst the spikes are being pushed up, they will take a good supply of water.—A. W.

Dendrobium Cambridgeanum.—Mr. G. Thompson sends a fine strong growth of this beautiful and showy species full of its bright and telling flowers. It is, perhaps, more correctly known as *D. ochreatum*. It produces its flowers in pairs from the unfinished growths with the leaves still green upon them, and thus they are a great ornament to the plant when in flower. The shoot now before me is some 10 inches in length and it is carrying thirteen flowers, mostly in pairs. Each of the flowers measures 2½ inches across, the sepals and petals being thick and fleshy and of a rich deep golden-yellow; lip of the same colour, stained at the base with a large deep purplish black blotch. This plant is one of the many fine things sent home from Northern India to Chatsworth, where it flowered for the first time some fifty-four or fifty-five years ago. In my younger days I grew it in quantity, but I have not seen a plant for the last ten or fifteen years. I hope it will again come into favour. It thrives best on a block of wood, but some grow it in a hanging basket. Care, however, should be taken in the latter case not to overload the roots, for I think that species and many others simply die from this very reason.—W. H. G.

Lælia elegans mirabilis.—This is an exceptionally fine form of this plant recently imported by Mr. Sander, of St. Albans. It is a light form, of course, for I do not think I have ever seen a dark form so early in the season. The sepals and petals are white, faintly shaded with flesh colour near the margins; the flower measures upwards of 7 inches across the petals; the side lobes of the lip are white on the outside, with just a tinge of flesh colour, but the recurved tips have a decided tinge of flesh; the middle lobe is broad, flat, and bold, very richly coloured, nearly all the front portion being of a deep rich amethystine-purple, the throat being pure white.—W. H. G.

SHORT NOTES.—ORCHIDS.

Odontoglossum Cervantesi decurum.—"C. S." sends me a flower of this variety, saying he has had several to see it, and they have declared it to be an exceptionally fine variety. I cannot agree with this. The plant appears to be a very good variety, but nothing exceptional.—W.

Epistendrum aurantiacum (R. Brown).—The flower sent is an unusually fine form of this plant. In the flower sent the sepals and petals are unusually wide spread, and they measure nearly 2 inches across; half that size is more usual with the bloom scarcely open. The flowers are of a deep orange-red colour, and it is really a variety worth growing.—W. H. G.

Dendrobium Farmeri aureo-flavum.—Thos. Johnston sends a flower of what appears to me to be this plant. This plant was first found by the Rev. C. Parish and sent home by him, saying it was a chrysotoxum flower upon a *Farmeri* growth. It is a very pretty and distinct kind, but I have never seen it producing such dense racemes as the typical plant.—W.

Cypripedium leucorrhodum.—"T. W. B." sends me a flower of this hybrid for an opinion. It is one of the very best which I have seen. It is the

result of a cross between *C. Roezli* and *C. Schlimi albiflorum*. The flower is of good size, the sepals and petals pure ivory-white, slightly flushed with rose; the lip of the same colour, suffused with pale pink. Altogether it is a charming flower.—G.

Cypripedium Harrisianum atro-purpureum.—I have received a flower with this name from P. J. Kavanaugh, asking if it is true. The flower is beautifully coloured, with a very glossy surface, and the bloom is unusually large. I should have called it the variety *superbum*, which it much resembles. I do not think the purple in the front of the lip is deep enough to be the form known as *atro-purpureum*.—W.

Odontoglossum Murrellianum.—This, I think, is the name of the flower sent me by "H. H." The sepals and petals are white, suffused with soft rosy mauve. The plant was named by Reichenbach after Mr. Murrell when gardener to the late Mr. Hume, of Winterton, near Yarmouth. This plant I have only seen once before. It is a supposed hybrid between *O. navium* and *O. Pescatorei*, and consequently will thrive well in a low temperature.—W. H. G.

Cattleya Lawrenceana rosea.—"H. W." sends a flower for a name. It is a very good form of this variety. The flowers of *C. Lawrenceana* do not differ much in respect to colour, but in this form, which is larger than in the typical plant, the colour is of a soft rosy purple, streaked somewhat with white. The lip is of the same colour with a white throat. It appears that the varieties of this plant also flower early, as in the case of the typical plant.—W. H. G.

Sarcanthus erinaceus (W. Watson).—This is undoubtedly your plant, and by your description of its being a slow grower, I am reminded that over thirty years ago I had this plant in the Kingston collection under the name of *Aerides rubrum*. It is a close, compact little plant and a very free bloomer, but its flowers are too small to interest the majority of growers now a-days, who prefer those some 6 inches or 8 inches across. The plant is a native of Burmah. Its name applies to its very hairy flower-stem.—W.

KITCHEN GARDEN.

LATE PEAS.

At this season of the year it is necessary to make arrangements for the supply of late Peas. As the term late may be somewhat misleading, I may state that I refer to those which are to succeed the general crop and to give a supply till cut down by severe weather. In some gardens, especially in wet, damp positions or on heavy clay, it is difficult to get late Peas, as the pods do not fill well, the haulm being attacked with mildew. In such places special preparation of the ground is necessary, and at no time of the year can this work better be taken in hand than in the early spring months. Mildew is equally troublesome on thin light soils, as, owing to the roots often suffering from drought in the months of August and September, a collapse takes place. I do not attach so much importance to the variety as to the preparation of the soil or trench. Though such kinds as *Ne Plus Ultra* are difficult to beat for the latest crop, there are others more useful on account of their taking up less room and not requiring such tall stakes. Of late years considerable attention has been paid to the raising of new Peas, and though we have not gained much as regards earliness, there is considerable improvement in the character of the early Peas, as there is more of the Marrow character in them than was the case years ago. This is a decided gain, as the small white-seeded varieties were soon over. Varieties with the Marrow blood in them are more lasting, yield better, and come in nearly as soon as the white-seeded varieties. The only difficulty is they are not so suitable for heavy, wet land as the early white kinds, as

Marrow Peas do not germinate so readily as round white ones, and when sown too soon in cold wet soil they often decay. I have named the early varieties in this note on late Peas for several reasons, the most important one being that they are often recommended for late sowing. I have tried them, but they possess less value than some of the later and dwarfier sorts. The first earlies are invaluable, and I can strongly recommend them for sowing in June or July for the late supply, as they take up little room and are more readily protected than taller kinds. For sowing for a late crop that is to give a supply through September and October, one of the best Peas lately introduced is Success. This I tried last season, and as the autumn was very wet, I was much pleased with the result, as I had good Peas till the end of October and they suffered little from mildew. The advantage of growing a Pea 3 feet or 4 feet high is seen in the space occupied, the convenience of using shorter stakes, and the smaller amount of moisture required. I used a 3-foot Pea called Sturdy for some years for late cropping, and I do not think it can be beaten. It is not everyone, however, who can give the time and space to grow such late Peas. When grown so late they do not give a large return; still, a good dish of Peas in a country house during the month of November is much appreciated.

In the culture of late Peas, as I have previously stated, special care is needed, and here the gardener with plenty of manure has an advantage. As far as I have been able to judge, the one thing needful for late Peas is plenty of good decayed manure to give the haulm the necessary support when a spell of dry weather sets in. In cold, wet positions the need of a liberal supply of manure is equally necessary, as often when tall Peas are grown and in rows rather close together, the tops in a wet season are scarcely ever dry, and the cool, moist weather causing an abundant haulm, the roots cannot supply the amount of nourishment required. The early crops do not suffer so badly, because the sun is less powerful and the earth not dried up so readily. In dry, light soils the value of manure is more necessary, so that at this season to get good results from late sown Peas trenches similar to those for Celery should be employed. I advise that they be wider than when a single row of Celery is planted. I like a 15-inch trench, as this allows of a good amount of manure. The manure should always be thoroughly decayed, and on light soils I have used cow manure to advantage, as it is cool and retains the moisture. From 4 inches to 6 inches of manure is none too much. The manure should be dug in, the Peas sown on the top of the soil, and some of the soil thrown out used to cover the seed; this will reduce the depth of the trench. A deep trench is not wanted, only sufficient to retain the moisture. Tall Peas may be topped at 3 feet or 4 feet, so that tall stakes are not necessary. If possible allow plenty of space when sowing between the rows, as the ground can be cropped with other vegetables, such as Cauliflowers or rows of late Celery; this latter when allowed room does well, as the Peas give a slight shade when the Celery is first planted, and the space between the rows gets thoroughly cultivated by deep digging and manuring.

The value of frequently giving a good supply of moisture to late Peas is soon seen by the vigour of the haulm. This is required in quantity in August, and even later if September is hot and dry. Those who can flood the rows with a hose will find it the best system, and it

is none too often to soak the trenches twice a week in dry seasons, it being a good plan where there is a plentiful supply of moisture to allow the water to run slowly, changing the position of the hose occasionally. It is of little benefit to apply large volumes of water at long intervals, as once a check by drought is given mildew soon attacks the Peas. In wet land less moisture is needed, but feeding is equally necessary for late crops. It is also a good plan to mulch the space outside the sticks and as close to the roots as possible with litter or manure, so as to retain the moisture in the soil. This is more necessary on gravelly soils; a mulch about 3 inches deep will save watering. Thin sowing is also necessary to allow a robust growth; also a good position on an open quarter not shaded by trees. The Peas should be earthed up and staked before the growth is far advanced, as growth is very rapid as soon as the roots reach the manure in the trenches. G. WYTHES.

Hybrid winter greens.—As evidence of the remarkable fecundity of the Brassica family in the production of diverse varieties under certain conditions, I may mention that the delicious hardy curled winter green referred to recently in THE GARDEN by "R. D." is the product of a chance cross between a white Broccoli and something else, possibly Brussels Sprouts. I saved a single fine late white Broccoli at Bedford some four or five years ago, planted so far as was possible remote from anything else, the only other member of the Brassica family allowed to bloom being Brussels Sprouts, and these at considerable distance. The product was of a very hybrid character, the pollen from the sprouts wafted so far on the air having quite overcome that of the Broccoli, even though protected to some extent with a thin covering of tiffany. The green which has been referred to, certainly a very delicious dwarf, compact, and hardy variety, remarkably productive of sprouts after the solid heads have been cut, is the second generation from that Broccoli product. A third selection will now no doubt set it in character fully. When, as during the past two or three winters, we have seen winter greens of all kinds so terribly injured by frosts and biting winds, any hardy variety which seems impervious to frost cannot be too highly estimated. I refer to the matter, however, as proving an excellent illustration of the great difficulty found in keeping true the seed stocks from one or two plants of any variety of the Brassica family, whilst in the case of a large breadth if simple precautions are taken there is, happily, no difficulty in securing true stocks with absolute confidence.—A. D.

Outdoor Mushrooms.—Those of our market growers round London who make Mushroom culture a speciality, do so chiefly through immense lengths of ridge-shaped beds outdoors. Some make them up beneath trees; others in open areas. Mr. Warren, who is one of the most extensive growers of Mushrooms about London, has about half a mile of beds all out in the open. Practically about 2 acres of ground are thus occupied. The beds are made up from October onward through the winter, and gathering begins early in January, and concludes about midsummer. The first gathering, early in January, consisted of 91 lbs., and the other day when I called at Isleworth, the output for the day was over 660 lbs. The Mushrooms are gathered about three times a week when the beds come fully into bearing. If there be much ability needed to grow Mushrooms in a small way in properly heated houses, certainly there should be much more room for it in outdoor culture in a large way. The beds when made up are 40 inches wide at the base and about the same height, narrowing at the top to 20 inches. They are spawned by breaking cakes into five pieces and putting these into the sides of the beds about 6 inches apart. They are then soiled over with a thickness of about 1 inch of meadow loam. Of course, occasional waterings have to be given. The beds

are all covered up closely with about 15 inches of straw litter, well and carefully laid on. Spawning is, of course, comparatively slow, and the first Mushrooms are gathered in about three months. The produce of so large an area of beds is, of course, an enormous one during the season. The material of the beds and litter are later on employed to mulch or top-dress Strawberry breadths and fruit trees.—A. D.

NOTES ON OPEN-AIR TOMATOES.

ALTHOUGH possibly the experiences of last season will have a somewhat deterrent effect upon the extended cultivation of Tomatoes in the open air, it is hoped that their cultivation will not be given up even by those who were the least successful. I should not like to depend solely upon open-air Tomatoes, that is, where a supply has to be maintained regularly, but by a rational mode of treatment there is no reason why Tomatoes in the open air should not be procured as good as ever they were. To a certain extent we are dependent upon climatic influences, for without a genial growing time the results are not very encouraging. Occasionally one sees fine crops of Tomatoes growing in the open air trained up sticks, and regularly as the season comes round we find growers still ready to risk the plants in the open with the expectation that a good season will follow. For the large growers for market these notes are not intended, for I should not like to recommend the open-air cultivation of Tomatoes from a remunerative point of view.

In private gardens the case is different, for what plants are grown in these can have the closest attention from start to finish. Where a large number of plants has to be prepared, attention cannot be bestowed upon them as regards potting off and growing them on to a good size preparatory to planting in the open; consequently the plants which are put out are very apt to be weakly in habit or not very forward. When this latter is the case the best of the season is passed before the fruits have a chance of ripening. Plants to succeed well must be comparatively speaking of a firm and woody habit, as it is such that are likely to ward off attacks of disease the longest.

In the cultivation of Tomatoes in the open air there are two extremes to guard against, viz., the starvation treatment on the one hand, and over-feeding on the other. In over-fed plants stems and leaves are certainly large, but so devoid of stamina as to easily fall a prey to disease, while the fruits do not set freely. The soil the plants are being prepared in must not be over-rich upon any account, neither must the stations nor borders for planting. These latter are very often too loose and rich; consequently the plants ramble away and make a soft, immature growth. Some of the best crops of Tomatoes I have ever seen were produced from plants growing in large pots and boxes, half plunged, against a sunny south wall. This system can be strongly recommended, but there must be no lack of attention in watering and feeding, especially if a dry time should ensue. I have seen plants even when growing in the open up against south walls, where the root room was not restricted, suffer to such an extent from the want of moisture at the roots, as to cause the foliage to curl up and have a decided bluish cast. Narrow borders raised above the surface can be highly recommended, as by this method the roots are in a warmer medium, and, being partially confined, they do not ramble away, but make a firm and fruitful growth. A stout plank placed on edge about 18 inches from the wall will be sufficient space,

but it must be remembered that the root-run being curtailed, feeding and watering must not be neglected.

Again, the soil provided for the plants to root in is often too rich. Some fertile loam or even ordinary soil, with a fifth of pulverised horse manure rubbed through a sieve, with a fair proportion of wood ashes, will form a root-run capable of supporting the plants until the fruit is well advanced. If I knew that the soil was not of a fertile nature, a little superphosphate and kainit as a source for potash would be added, and with the certainty of the plants making a satisfactory growth. We must first promote a firm growth, then feed after the plants need support, this being according to the nature of the season, soil, and extent of root-run.

The plants from the earliest stage must be kept growing in a fairly warm and airy structure, and be repotted into 7-inch pots as they become ready. Any neglect in potting on the plants is prejudicial to them. Exposing the plants or hardening them off too early preparatory to planting out is a poor method to adopt. The middle of May will be quite time enough to commence inuring the plants to cooler treatment by removing them to an airy pit, and by the end of the month the plants may be fully exposed during the daytime at any rate. After this date it will depend upon the season whether they may be set out or not, but about the first week in June, or even a week later, there need be but little fear in trusting them in the open, as after planting, a slight protection may be afforded for a few nights. I am much in favour of confining the plants to single stems, although I see no good reason why two or even three stems should not be encouraged from each plant, the main point being to keep all lateral shoots rubbed out as soon as perceived. I have certainly seen and also grown good plants fan-shaped, but it depends largely upon the season whether this form may be encouraged. During a favourable time it is very easy to allow a few lateral shoots to form, so as to extend the growth of the plants if needed, these being topped after a bunch or two of fruit has set. Tomatoes are essentially sun-loving plants, and they must be so grown that almost every gleam of sunshine can reach them. A. Y. A.

TREES AND SHRUBS.

PLANTING CLIMBERS IN MIXTURE.

THE utility and interest of planting climbers in mixture are not as often taken advantage of as might be the case. The gable ends of my cottage are fully garnished with Virginian Creeper, Aristolochias, Jessamines, Clematis, Honeysuckles, Ivies, Tea Roses, notably Reine d'Or and Gloire de Dijon, grown and trained in delightful mixture; while a massive chimney clothed with broad green Ivy (Rægneriana) as a groundwork, Aristolochia Sipho, the chaste Clematis Standishii, white Jessamine, Lonicera aureo-reticulata, Virginian Creeper, and Rose Rêve d'Or have thoroughly covered to the very top, and compete with each other as to which can produce the greatest charm, while the lower part of the cottage wall all around is furnished with still greater and additional variety. Berberis Darwini has attained the height of 15 feet or more, and I hope to see it yet gain the top. Escallonia macrantha, Clematises of the Jackmanni type, semi-climbing Roses of the La France type, Jasminum nudiflorum, Chimonanthus fragrans, Ceanothus puniceus, Aloysia citridora (Lemon plant), together with broad vigorous patches of Tropæolum speciosum, and the rarer, but beautiful T. polyphyllum, Calystegia pubescens fl. pl., Hops, &c., are also planted on the wall. A

prominent part in this miniature wall decoration is taken by that fine old nearly evergreen Rose Ophir, which occupies considerable space on the east wall, and has grown right up to the eaves. By the way, this is a Rose deserving far more notice and extended cultivation for this purpose than are now accorded it.

The benefit of this mode of planting is apparent in the increased and prolonged effectiveness and additional interest given to a wall thus treated, especially where wall room is limited, and as far as I can observe, with a common-sense and timely thinning of shoots, &c., none of the subjects employed are much the worse for their associates. Of course, to keep up the vigour of such a medley crowd, their larder must on no account be overlooked, but be kept freely and often supplied with substantial and invigorating fare. One more word as bearing on this double planting, or whatever it may be termed, as applied to shrubs as well as climbers. A pleasing little feature attached to this same cottage is a small shrubbery thinly planted chiefly with spring-flowering shrubs to hide the back premises. This is over-run with pink Convolvulus and Hops, which make a splendid autumn display, long flowering shoots, twining and festooning over and from shrub to shrub, covering the whole with a mantle of beauty. J. R.

Pyrus japonica virginalis.—Those who prefer purity in the white will give the preference to this fine variety over that of the common white, because of the large size, fine shape and snowy whiteness of the flowers. But both are remarkably good; the creamy tint of the ordinary white variety goes well with the red as with the pure white. All are blooming freely in the open air just now, and any position appears to suit them—the most preferable from east, southwards to west. I do not think the Pyruses are sufficiently appreciated as plants in pots for flowering in a cold house in early spring. It is in this way I grow virginalis, and it is remarkable how long it remains in flower and how successively it blooms. In this respect it contrasts most favourably with the fleeting character of Pyrus Pissardi.—R. D.

Berberis Darwini.—Often as I have urged the usefulness and beauty of this Barberry as a plant for walls, especially for comparatively dwarf ones, I am unable to resist again mentioning it, for on my cottage at the present time it is truly lovely—notably, a plant encircling a bow window having a west aspect. In addition to being trained a good width under and around it, a single stem has been led up each of the grey stone mullions of the window and then festooned along the top. This being in full bloom is a pretty and rather unusual sight. To prevent the undue obstruction of light, these shoots (especially on the mullions) are after flowering spur-pruned. By so doing we certainly lose the bluish purple berries, but to make amends for such, a few growths of the Flame Flower (Tropæolum speciosum) are led up these shoots. These in autumn bloom profusely and also berry, so I think the loss of the Barberry berries in this instance is amply and interestingly replaced. Neither does this arrangement appear to be in the least detrimental to the Barberry, for it is annually a mass of bloom.—J. R.

Spiræa Thunbergi.—Several times within the past week I have been appealed to concerning the identity of the Spiræa bearing the above name, to which a first-class certificate was awarded at the meeting of the Royal Horticultural Society on April 19. The confusion that exists in the matter is owing to there being two totally distinct plants to which the name of S. Thunbergi has been applied. The facts of the case appear to me to be as follows: The true S. Thunbergi is one of the shrubby members of the genus and forms a neat-growing bush clothed with small lanceolate leaves, while the pure white flowers, which are freely produced, make their appearance early in the spring; in fact, it is in the open ground the first to bloom of the entire genus. This is the S. Thunbergi of the "Dictionary of Gardening," but the date of its introduction is not there given, and I am uncertain on that point,

but it has doubtless been grown in this country for about twenty-five years. The plant, however, to which the certificate was awarded is one of the herbaceous section and totally distinct from the other. In the "Dictionary of Gardening" this is included in the genus Astilbe under the name of A. Thunbergi, but this genus being by many merged into that of Spiræa is the cause of the present state of confusion. A. Thunbergi was introduced by Messrs. Veitch, through, I believe, their collector, Mr. Maries, and a first-class certificate was awarded it under this name on May 24, 1881, so that the Royal Horticultural Society would appear to have bestowed a certificate twice on the same plant, firstly, under the generic name of Astilbe, and, secondly, that of Spiræa.—H. P.

ANDROMEDA FLORIBUNDA.

IN any selection of spring flowering shrubs this Andromeda must have a place assigned it, for those that bloom so early in the year as this are very limited in number, while the Evergreens to which this Andromeda belongs are fewer still. It is, taken altogether, a very desirable shrub, and if not in too hot or dry a place, one whose foliage will be always bright and cheerful throughout the year, while the flowers are borne in great profusion during the months of April and May. The flower-buds of this Andromeda occupy a prominent position on the plants for a long time previous to their expansion, but in this stage they seem proof against sharp frosts and cold cutting winds. Its usual habit is to form a freely branched bush little more than a yard high, but in North America, according to Dr. Asa Gray, it varies from 2 feet to 10 feet in height. A bed of this Andromeda edged with the pretty little Erica carnea forms a very pleasing feature in early spring. It is also a first-rate shrub for the greenhouse or conservatory, as the roots are so dense that it experiences little or no check from removal, and consequently it may be lifted, potted carefully, and taken direct into the greenhouse if there be no other accommodation at hand. The neat, deep green foliage renders it, irrespective of blossoms, a very ornamental shrub, and when the specimen is studded with pure white Lily of the Valley-like flowers its beauty is, of course, greatly enhanced. Under glass the blossoms are even purer in tint than in the case of those that expand in the open ground, while in both instances they remain fresh a considerable period. A near ally of the above is A. japonica, also known by the generic name of Pieris. This is a much-branched bush clothed with neat deep green leaves, but the whole plant is more upright than A. floribunda. The waxy-white flowers of A. japonica are borne in long pendent racemes, so that when in good condition the upper part of the plant is quite veiled with them. It is at its best a very beautiful shrub, but in the open ground the blooms are in many cases liable to be injured by spring frosts, as in this respect it is far more tender than the preceding. Under glass it is very striking, for with the protection thus afforded it, growth quickly recommences, and as the young leaves are of a bright crimson tint, it is in this stage very noticeable. There is a variegated form of this last whose leaves are deeply, but irregularly edged with creamy-white, and in conjunction with the bright red tint with which the young leaves are suffused, as well as the deep green of the mature foliage, it forms irrespective of blossoms a very ornamental little shrub. Although nearly allied and a good deal resembling each other, these two species differ markedly in one respect, and that is A. japonica strikes root readily from cuttings of the young growing shoots, while A. floribunda is much more difficult to increase in this way. H. P.

Cassandra calyculata.—This is less showy than some of the Ericaceæ, yet it is both interesting and pretty, and being a native of the colder districts of North America, it is proof against even our most severe winters. The Cassandra forms a low, branching shrub, seldom reaching a height of a couple of feet, the branches being clothed with small oblong-shaped leaves of a rusty hue under-

neath, while the upper surface is of a peculiar, yet pleasing bronzy tint. The blooms of this, which are borne in great profusion, are bell-shaped, wax-like in texture, as in many of its allies, and hang from the undersides of the shoots. Soil more or less of a peaty nature suits this *Cassandra* well, and it is seen to the best advantage in a cool, fairly moist spot. It can without any trouble be had in bloom under glass quite early in the year, and while yielding variety in the greenhouse, its flowers remain fresh for a considerable time. When needed for this purpose it may be lifted, potted and taken under glass directly, as for such a purpose the dense mass of small fibrous roots stands it in good stead.—T.

FLOWER GARDEN.

HARDY HERBACEOUS LOBELIAS.

THE hardy perennial *Lobelia*, of which *L. splendens* and *L. syphilitica* may be taken as types, are amongst the most beautiful and useful of autumn flowers. Although fairly hardy, they are very impatient of excessive moisture, and in most districts require protection during winter. This may be done by placing ashes in the shape of a cone over the crowns, or lifting and storing in a dry shed or frame. The latter method, though perhaps more troublesome, is safer, and in every way more satisfactory, as the plants are always under control and easier to get at for propagation in spring. By storing the roots in frames they begin to grow earlier, and where large stocks are required it is most convenient. Although impatient of moisture during the resting period they revel in it when in active growth, and where beds can be prepared in the vicinity of lakes or streams, better results will be obtained than in the mixed border or flower beds. In propagating in early spring they can be divided into single crowns, and these potted on soon form sturdy plants ready to plant out on the approach of warm weather. They thrive best in a free vegetable soil and like plenty of sun, unless in the case of *L. cardinalis*, which I find thrives best in a partially shaded bed.

L. CARDINALIS.—The true plant is one of the rarest, though one of the brightest of the genus. The brilliant effect produced in autumn by tufts of this species well repay any trouble it may give, for though by no means fastidious, the difficulty of growing it well in small gardens in the absence of shade and moisture is very great. It is a real bog-loving plant, being found in wet ground in Brunswick, Florida, and the borders of Texas. It may be described as the least hardy of those mentioned here, and on this account is often considered annual or biennial. It is, however, a true perennial, although maybe a short-lived one, and should be frequently raised from seed to make sure of keeping up the stock. This species is not so liable to disease as the *splendens* varieties, and may be kept a little damper during the resting period. Grown on an ordinary border, it invariably has a weak, stunted appearance but in a free rich soil in a shady position and well supplied with moisture, I have often seen it 3 feet to 4½ feet high and flowering very profusely. The flowers are of the brightest and most vivid scarlet, wonderfully effective, and as they last a long time in perfection it well deserves care and attention. So far as I know, there are no varieties of this species in cultivation. Dr. Gray mentions its varying to rose colour and even white, but this, it seems, is rare, and I have never seen anything but the scarlet form. Parkinson mentions it as "cherished in our garden in 1629," and gives it as "growing near the river of Canada where the French plantation in America is sited." It differs from all the other species in its bright scarlet flowers and broad serrated leaves. Figured in *Botanical Magazine*, tab. 320. The

illustration gives some idea of the effect of a single clump of this grand species.

L. HYBRIDA of gardens, but also called *Milleri* and *L. fulgens* var. *violacea*, appears to be a hybrid between *L. splendens* and *L. syphilitica*, though of this we are uncertain. Its fine rich violet-purple flowers mark it out for special distinction. It is invaluable for grouping in the flower garden or mixed border, and is one of the hardiest of the hardy *Lobelia*s. It may be left out during winter with perfect safety, and can be lifted, divided, and replanted in spring without trouble. The leaves are almost as broad as those of *L. cardinalis*, glabrous, hairy, and with the long sepals and hairs of *L. syphilitica*.

L. SPLENDENS.—This species is also called *L. fulgens*. It appears that the same plant was named twice by Willdenow in the same year in the Hort.



The scarlet *Lobelia* (*Lobelia cardinalis*).

Berol., 85 and 86, the former specimen from Texas, &c., and the other from Mexico. Dr. Gray keeps up the name *splendens*, though the other ought to have precedence. Next to *L. syphilitica* it is the most prolific of varieties of all the *Lobelia*s, Queen Victoria, Sir R. Napier, Rob Roy and a host of others having been obtained from it by florists. These vary in colour and habit very much, and as they are all robust, free-flowering plants, they are indispensable in the autumn garden, where they give such striking effects until cut down by early frosts. It differs from the others by its much narrower leaves, almost glabrous, and all but the lower sessile or stem-clasping. It will be found a really good border plant and hardier than *L. cardinalis*. The variety *igneus* has broader leaves and larger flowers.

L. SYPHILITICA.—An extremely variable species and one of the most useful autumn plants we possess. It is very popular for grouping, and proves so hardy and robust in free soils, that it might with

advantage be introduced into the wild garden or the mixed shrubbery. It may be managed much in the same way as *L. hybrida*. It will be found to stand the winter well, and as it is prolific in varieties of all shades of violet and purple, varying to rose and white, it cannot fail to become a favourite. North America. Flowering from July to September.

L. TUPA belongs to an entirely different set. It is often called *Tupa Fuelli*, and although a native of Chili, will be found to stand well in the south with such protection as may be afforded with sifted ashes, gravel or other loose material. It is best, however, against a south wall or in front of a house, and when doing well often attains a height of 6 feet to 8 feet. The flowers are large, brick red, and produced in large racemes, and the leaves are broad and woolly. It flowers from July to September. *L. Cavanillesii* is said to be amenable to the same treatment as above, but I have not tried it out of doors. K.

NOTES ON HARDY PLANTS.

Adonis vernalis.—This, though not quite in full bloom, is a very beautiful object now. It is one of the commonest flowers; and as I have heard a friend say, whose knowledge extends over a pretty wide field, "It is one of the most charming of all our hardies." I am aware that the usefulness of this plant is much discounted by many, and perhaps justly so, for no species more plainly asserts extreme likes and dislikes in different gardens. I mean in this way: you may have it planted in some gardens in the most off-handed manner by the rule-of-thumb style of the garden boy, and it grows and prospers like a Potato. In another garden, neither by a similar simple method of planting nor with the utmost amount of coaxing, will it grow. I think it quite safe to conclude that it loves a rather heavy loam, not clay, because my light soil did not suit it, and only where it is accommodated with heavier stuff does it flourish.

Narcissus triandrus.—I believe some GARDEN readers will be glad to know something of the behaviour of this species after being planted and left severely alone for four years. It is because the flowers are now out and in more vigorous form than before that I am reminded of a promise to report on my experience with this somewhat fickle kind. No more need be said on the matter of results, for I could not well have had better. The possibly useful fact to speak of is that the bulbs were set in a walk little used, and made of the usual rubbly stuff, in this case of coarse sandstone made rather fine near the top where the bulbs lodge, otherwise the bulbs had nothing special at planting that I am aware of. The position, however, is not a very dry one, though quite exposed to full sunshine. The stature of scapes and leaves exceeds a foot, flowers from seed-pods about 2 inches long, the corona being half that size. These cultural remarks apply to several forms, including *pulchellus*.

Synthryis reniformis.—This has come through the late severe winter without any injury. Its flowers, which are open at the beginning of May, are sheeny lavender-purple, and arranged in dwarf (6 inches to 8 inches) pyramidal spikes. The anthers protrude well from the tubes and add quite a pretty feature. Looked down upon, a well-flowered group has more than ordinary beauty. The flowers last a long time, and there are several crops from the same plant in a year. It prefers a very sandy soil.

Mertensia maritima.—This exquisite species is usually considered fickle under cultivation. The best plant I ever had here grew on a heap (2 feet high) of well-rotted stable manure and sandy walk sweepings, say half and half. The trailing flower-stems were nearly a yard long, covering the sunny side of the heap; position full sun. That plant was given me seven or eight years ago by Miss Jekyll. To remove the manure, the plant was removed. I did not care to try to save it, because ever since numerous seedlings have sprung up in

the sandy walk close by where it grew without any care on my part, and, taken when young, have hitherto answered all requirements.

Rhododendron Vaseyi.—This seems to be a very dwarf and free-flowering species that may well have a place in the rock garden; hence I speak of it under hardy plant notes. An American friend sent me a nice plant in bud during the early part of winter, and it is now in flower. We appear to have the fullest assurance that the species is a very hardy shrub. It belongs to the deciduous class. The foliage is remarkably like that of *Azalea pontica*; leaves thin, lanceolate, pubescent, and pale green when young. The flowers are very small and crowded, white, with a pink Apple-blossom-like tint, of wax-like substance, with slight spicy perfume. This description applies to one specimen only, grown in a cold greenhouse, four months or so after importation.

Soldanella minima alba has its charms, if, owing to its pigmy size and pale flowers, it cannot be said to be showy. The latter are scarcely white, but pink-tinted. The inner part of the bell-like corolla is of surpassing beauty, where, in strong and rich colours, Nature has lavishly adorned this humble mountain flower.

Thalictrum anemonoides pl.—This is another gem, of a height of only 2 inches or 3 inches, yet intermingling with the new russetty green and Fern-like foliage the flowers appear comparatively large. This may be an instance of double flowers, that will, I fancy, prove pleasing to most people. The flowers are like miniature white Camellias, three-quarters of an inch across, and they last much longer than the single ones of the type, which become fertilised and fall in a very short time. Indeed, these double flowers are many days before they reach perfection; hence one should not too hastily condemn them, as I know has been the case. Grow the plant in a sheltered and moist corner, and give the flowers at least a week to mature and reach a fully-grown stage, when the greenness goes off from the centre and the bronze from the outer petals, as they may be termed.

Saxifraga virginianensis.—Though not one of the earliest, this distinct species may be fairly classed among the earlier flowering. Its leaves are in somewhat flattened rosettes, like those of the common Daisy, but owing to the brown pubescence the foliage at once reminds one of that of *Primula viscosa*. The flowers are white, and borne in the manner of compact short spikes of London Pride. It is a most simple flower, and yet it captivates old growers of alpine. I have grown it many years and I never protect it, so that, notwithstanding the warm climate of its native country, it is quite hardy.

Cistus alyssioides.—To my mind, it is odd that this should have come safely through the past winter grown by the side of others all killed. Of the many kinds I had up to last autumn there is scarcely a plant left but this, and it is not even hurt at its points. The youthfulness of the specimen would no doubt be to its advantage against cold.

Primula venusta is now in blossom, but its crimson-purple flowers are not grand by the side of some of the European species, and might, referring to the name, disappoint many. There is, however, one very pretty feature about the flowers. On the face side of the corolla the "paste" is pure white, and developed with a sharp line on its inner edge, where the highest colour of the flower forms another ring. I have lost this plant several winters in the open borders. I am now growing it in pots plunged in quite cold frames with surer results.

Lathyrus splendens may be considered perfectly hardy after the past winter's trial; at present it does not show any symptoms of injury.

Sanguinaria canadensis.—We still meet with great numbers of amateur and even professional gardeners who do not know this unique and charming spring flower, and who appear astonished

that the Blood-root, so long in cultivation, should not have found its way into nearly all gardens. To see it in perfection you should afford the plant a deep black soil, and allow it to form a group a foot or half a yard in diameter; old roots produce the largest flowers, whose size and pure whiteness are dazzling in the sunshine.

Petrocallis (Draba) pyrenaica.—I consider this one of the very best alpine. Just now it is opening its delicate grey-purple or Heliotrope-coloured flowers, which totally cover the whole plant that resembles Moss, of less than an inch in height, if the height of such a humble plant can be so spoken of. Nothing could be more beautiful, and though the colour is a quiet one, good patches are really effective. Many fail with it, I know, and it has a special requirement, and that is lime.

J. WOOD.

Woodville, Kirkstall.

The scent of Solomon's Seal.—In Mr. Tallack's useful remarks on the value of this fine old border plant for forcing (p. 318), the following cautious sentence occurs: "Many people find the peculiar sweet scent of the flowers a great attraction." Mr. Tallack might have added that perhaps more do not, and affirm that Solomon's Seal has no scent. "What of that?" many of your readers may exclaim. Perhaps, as is often the case, the truth may be found in a sort of compromise between the two. And just as we cannot all see the same beauty in every flower, so neither can we smell the same sweetness. But that is really not the explanation; but the undoubted fact that there are two varieties of Solomon's Seal, the more common with so little fragrance that it may practically be said to have none, and another so sweet as to prove no mean rival, though quite different to the Lily of the Valley. I doubted this at one time, but was convinced by the actual arrival of the sweet variety from various quarters and its growth side by side with the common, alike in all other respects.—D. T. F.

Hardy Primroses.—I note the remarks of Mr. J. Crook, from West Dorset, on hardy Primulas. I have raised some really fine varieties of nearly every shade of colour. At present, long lines of them are very beautiful in a herbaceous border. One can cut them by the basketful and they are hardly missed. I have large demands for bi-weekly supplies of cut flowers, and these Primulas form no mean portion of our collection on packing mornings. Though April has been very cold, and much frost was experienced about the middle of the month, Primroses of the class indicated have been very abundant. Some of the common kinds planted in open spaces in the grounds and also under trees have bloomed freely during the most of the winter. We had comparatively little frost like that which has been experienced throughout England, judging from reports and private correspondence, and many wild flowers have had a fair chance of thus developing themselves.—M. T., *Stirlingshire*.

Daffodils at Ham.—Mr. Walker's enormous breadths of Narcissi this season may well be said to present one of the floral wonders of the kingdom. Some 20 to 25 acres of open land are literally masses of white or yellow. Ornatus is, of course, the most extensively grown, the beds extending to several hundred yards in length. There seems to be hardly any limit to the varieties grown, as scarcely one of any reputation can be named but is found in plenty. Such fine forms as Emperor, maximus, Empress, Horsfieldi, and others of the larger trumpet forms are, of course, very abundant. They are wonderful bloomers. The small, deep yellow rugulosus seems to be highly favoured, too; but then, as immense breadths succeed each other, it naturally becomes a matter for wonder how such vast quantities of flowers can ever find a market. Still, they do so, that is certain, and then leave behind exceeding value in the millions of bulbs, all of which have to be lifted during the summer, sorted, well dried in the sun,

and replanted in the autumn. In some portions of ground carrying other crops there is ample evidence of the trouble found in lifting the bulbs out clean last year, because the soil was so frequently saturated with rain. Thus it becomes evident that annual changes of soil for Narcissi are indispensable, or otherwise the stocks would soon become mixed. It is probable that but few growers have greater stocks than has Mr. Walker; few, perhaps, have soil so easily cleaned or so admirably suited for bulb culture, as it is a deep, free-working sandy loam, in which fruit trees and vegetables thrive equally well.—A.

NOTES FROM LANGPORT.

AMONGST plants that should be known by all are—

EURYBIA (OLEARIA) GUNNIANA.—A most useful flowering shrub introduced from Tasmania. It is hardy during most winters. Its greatest height is 3 feet, and a compact bush covered with its snowy blossom is very effective. The leaves are small and dark green, toothed and hoary underneath; the branches are also covered with a silvery down. The flowers, which are profusely borne through the spring and early summer in the open garden, are nearly an inch across, starry in shape; the foliage is hardly visible when the plant is blooming. It should be extensively grown, not only in the open border, but as a pot plant, or planted out in the greenhouse and conservatory. It is an invaluable addition to the plants which can be forced into flower in February, March, and April. The usefulness of a plant, as described above, flowering in these early months indoors is evident, and when I add that the flower-stems are of useful length for cutting, and that the blossoms do not drop or droop as *Deutzias* do, but stand well above the foliage, and can be had in abundance at Easter, its value can be at once seen. It seems to thrive in any garden soil.

ACHILLEA MONGOLICA.—A Siberian species and a really good border plant, very useful for cutting. The blossoms are pure white, large, and very abundant. It grows 18 inches high, and forms a fairly compact plant. It was certificated by the Royal Horticultural Society last year.

HEUCHERA SANGUINEA.—This, introduced in 1882 from Mexico, is already making its way in this country. The flowers, very bright coral-red, with an occasional salmon tinge, are very large and borne upon spikes a foot high. It is very free-flowering, quite hardy, and useful also for greenhouse and conservatory culture.

ASTER LONGIFOLIUS LADY TREVELYAN. The very best of all white Michaelmas Daisies that I have seen. It grows about 3 feet high and becomes nearly hidden in a mass of pure white flowers of large size. It is invaluable for cutting from in September and October.

CENTAUREA MACROCEPHALA.—Very distinct from other Centaureas in habit of plant and size of flower. It makes a very neat second row border plant. Height, 3 feet; colour, golden yellow. The thistle-shaped heads of bloom are always admired. July is its month for flowering.

ANTHEMIS TINCTORIA KELWAYI.—A deep gold-coloured variety of tinctoria. Far brighter and more attractive than the pale coloured species. Flowers profusely through June and July.

PEONIA CORALLINA much resembles the Gladwin Iris in the ornamental character of its seed-pods. Over its handsome foliage appears a dull-coloured flower of no particular merit, but the succeeding carpels and seeds more than make up for its lack of attractiveness. The pods are large and lie open as soon as the seed is matured. The matured seeds are a rich purple, nearly black, and side by side with these and alternating with them are the infertile ones, bright coral-red. **ADOLESENEX.**

Perennial Cheiranthuses.—Although the common Wallflower sometimes puts on a semi-perennial habit, yet it is best known and grown as

a biennial, because it seeds so freely. The double Wallflowers have to be treated as perennials, although far from being hardy, and therefore it is wisest always to propagate young plants of these annually from cuttings. Those who have the old yellow, red and black (if the latter really exists), have plants which are far too rare in gardens, in spite of their beauty and comparative easy propagation. But the true perennial forms of *Cheiranthus* are found in the bunch or dwarf cluster-growing varieties, the best known perhaps being the pale-hued ochroleucus, and the prettiest the orange-flowered Marshalli. Perhaps it would be more exact, as this latter form is certainly not a species, but the product of a cross, although it is not at all certain how obtained, for after all it may have come as a sport from ochroleucus, to refer to it as Marshall's variety. I saw recently in Messrs. Barr and Son's bulb nursery at Long Ditton numerous plants in pots of the less known perennial form *mutabilis* blooming freely. This is reputed to be a native of Madeira, and therefore cannot be regarded as hardy, although it was introduced into Europe more than 100 years ago. It was flowering at a height of 9 inches, the blooms opening of a reddish buff hue, then changing to reddish purple—a very pretty tint; hence the name *mutabilis*. This variety most certainly needs to be preserved through our winters in pots in a frame. It roots readily from cuttings in the autumn. All these perennial Wallflowers do best on somewhat elevated positions where the soil is dry and contains a fair proportion of lime rubbish and rubble. —A. D.

NEW AURICULAS.

A GOOD number of new Auriculas put in an appearance on the occasion of the annual exhibition of the National Auricula Society, especially among the alpine varieties, and so fine in character have the latter become, that considerable caution is necessary in awarding certificates of merit. Prizes are offered at this exhibition for new varieties, and they are awarded certificates also if deemed worthy of that honour. A new green edge was selected for a prize, viz., Commander, raised and shown by the Rev. F. D. Horner, large in size, with a well-formed and solid green edge, fairly good tube, but wanting in body colour, which is of a dark shade. It was also awarded a certificate of merit, though there were differences of opinion as to its worthiness. But it must be borne in mind green edges are very scarce indeed, and any good addition to a limited class is acceptable. In the class for new grey edges, a first prize and certificate of merit were awarded to Dinham, shown by Mrs. Kyrke Penson, Dinham, Ludlow. It is of large size, good substance, fine shape, tube, and paste in keeping, and a good grower. In the class for white edges a first prize was awarded to Venus, raised and shown by Mr. B. Simonite, Sheffield, rather small in size as shown, but very chaste and pretty, full of the sweetness that characterises the delicate white edges, and highly promising; it was also awarded a certificate of merit. In the self class a first prize was given to Mabel, raised and shown by Mr. C. Phillips, of Reading, a very pleasing variety of the style of Mrs. Potts, but somewhat redder, pip stout, smooth, and of fine form.

So many fine new alpine were shown, that the judges had some difficulty in making their selections. Mr. C. Phillips, Reading, obtained first and second prizes with seedling plants raised by Mr. T. E. Henwood, Reading, the varieties being Evelyn, rich gold centre, dark ground, and brilliant crimson edge, and Emily, gold centre, dark ground, edged with chestnut-crimson: to the former a certificate of merit was awarded. With cream centres, Mr. W. L. Walker was placed first with Winnifred, having a deep creamy centre, dark ground, and pale salmon edge; Mr. C. Turner being second with Phyllis, also a charming variety of great promise. Certificates of merit were awarded also to the following new alpine: H. E. Milner (C. Turner), a large and very handsome gold-centred variety, dark ground, and bright rosy-salmon edge; Romulus (W. L. Wal-

ker), creamy centre, dark ground, edged with pale salmon-pink; Ben Simonite (W. L. Walker), golden centre, dark ground, and pale salmon-blush edge; and Perfection (W. L. Walker), golden centre, broad dark ground and pale salmon edge. R. D.

DECAYING OF GLADIOLUS BULBS.

THE question, Why do Gladiolus bulbs decay or gradually die away after planting? was discussed in the pages of THE GARDEN a few years ago, and, as far as I can remember, it closed without any satisfactory solution being given. I return to the subject again, hoping that what I have to say about the matter may be of some service, and because during the past two months I have had painful evidence that there is no abatement of the disease or whatever it may be that causes the bulbs to decay. During 1876 and 1881 I raised several thousand bulbs from seed and spawn, which I grew in the garden attached to my cottage at Othelstone House. At the end of the fifth year I could plainly see that there was a decided decline in the vigour of the plants, and in two years after the inherent weakness of the stock became so manifest, that, although I changed the position of the beds as far as a limited area would allow, I had to give up growing them. In other words, I had grown the same stock in the same garden until I could grow it no longer. If the bulbs did not decay before planting, many of them refused to make satisfactory growth after, and many died when they had formed leaves a few inches high. In the year 1888 I introduced some of the same stock into a new garden, and it quite recovered any loss of vigour, but I fully expect to see the bulbs again decline in health.

To show that my experience is not singular, I may mention the case of an amateur grower who has been known as a successful exhibitor of Gladioli at most of the flower shows in the west of England for several years past. This grower has taken many leading prizes at Bath, Bristol, Taunton, Sherborne, Exeter, and other exhibitions, but to keep up his stock he has found it necessary to purchase some fresh bulbs every year, and with a hope that he may secure more vigorous growth, he sent to France this season for a supply of bulbs. Only a few days ago this grower told me that he had to throw away over fifty large roots at planting time because the bulbs were decaying at the base. This lot, it will be understood, was his original stock. No one can be surprised to hear that he feels rather anxious about the behaviour of the remaining part of the stock.

I have yet another instance to record of the bulbs decaying. About two months ago I purchased 400 bulbs from a grower whom I knew had grown and shown Gladioli successfully during the past four years. When the roots were examined preparatory to planting, nearly one-fourth of the largest was found to be decaying. I freely acquit the man of any attempt to impose upon me, because it is quite possible that when the order was made up there were no manifest signs of anything being wrong, but a more critical examination would probably have revealed a different state of things. Although I counted the bulbs when they came to hand, I did not notice any trace of decay. The most remarkable feature in this case is that only the very largest roots—and they were the finest lot I ever handled—had begun to decay, the smaller ones being perfectly sound.

With such facts and experience before me, it might be supposed that I should have something definite to say as to the cause of the decay in the bulbs, but I am as far off as ever in tracing it to a source that would prove conclusive. I do not believe it to be the result of disease. I, however, do think it to be the result of degeneration and high feeding combined. The latter has a tendency to promote undue luxuriance for a time, but it ends in developing an immature growth, which causes a sudden collapse at a time when renewed activity should commence. If it was disease that caused the mischief we should find it attacking all varieties alike. This it does not do, as I have some old

named varieties now in stock that I have grown for ten years or more, while other and better sorts raised from seed have vanished altogether. Again, if it were a disease, the plants would not regain their lost vigour when given a change of soil. It is hardly likely that the experience I have related would be general, as no doubt some soils are better suited for this plant than others. I am, however, quite satisfied that in soils where the bulbs show a tendency to decay high feeding in any form is a mistake. It, in fact, aggravates the evil, and the worst form of stimulants is strong manure and powerful applications of liquids made from concentrated mixtures which are sold as plant food.

J. C. CLARKE.

Saxifraga sancta.—For many years I have wondered why this deep almost orange-yellow-flowered species should remain comparatively unnoticed. It is always a neat, deep green, shining-foliaged plant, and when in flower in March and April it strikes one as being much brighter than some of the favourite yellows that preceded it by about a month, such as luteo-purpurea, Malyi, aretioides and the yellow Burseriana. I am aware of one objection to it; it has the reputation of being a shy bloomer. You get over this, however, by simply leaving your plants undisturbed beyond a little top-dressing. It should be allowed to expand into tufts as big as a man's hat. A friend has just written me from Grange-over-Sands that "a clump the size of a large mole-hill is one of the greatest novelties I have met with. When studded all over with bright yellow flowers, it gave a striking effect on a limestone rockery."—J. W.

Dwarf Dahlias.—The various forms of dwarf Dahlias are very useful when cultivated so that their flowering period may begin soon after mid-summer. Cactus varieties seem to be the most popular at present. To have these and others early (they are now at end of April showing flower-buds), I plant the roots in boxes during February, slightly covering with soil and placing in warmth. They soon start into growth. They are divided when the shoots have started a few inches. If young stock is desired, cuttings are taken off and rooted in 2½-inch pots plunged on bottom-heat. They are grown on in the boxes till May, and then are well prepared by judicious exposure till the end of the month or early in June, when they are planted out in rich ground and well watered and staked. They begin to open their flowers soon after, and continue blooming till frost puts an end to their usefulness. Last season they supplied cut flowers to the end of October. I do not hold with the system of growing Dahlias to the end of August before they flower, as they sometimes become disfigured during the month of September from early frost.—M. T.

Tulips at Long Ditton.—Whilst there is at present in flower a very beautiful collection of all the best Dutch Tulips, there will shortly be in bloom at Messrs. Barr's nursery a group of Darwin Tulips, which, whilst known to connoisseurs, are yet little known by the general public. The blooming season of these seems to be intermediate between that of the Dutch and the late border Tulips, out of which the florists' Tulips have been created. A few somewhat quaint varieties flowering in a frame would hardly pass muster in conjunction with their brilliant congeners, but they are yet interesting. One is a sulphur-white-flowered variety from Afghanistan, carrying several smallish flowers on long single stems branching from one main or Polyanthus-like stem. Each plant has five, somewhat erect, pointed petals, whilst the calyx, also of five segments, flattens outwards. These are of a sulphur colour on the upper side and darkish green beneath. Tulipa Leichtlini is even smaller flowered. The flowers of this, too, are pale sulphur.

SHORT NOTE.—FLOWER.

Anemone Glory of the South.—This is an intensely brilliant scarlet variety, having broad-petalled flowers of the fulgens type, with foliage of the coronaria

section. Very beautiful is it out in the open. So also is talgans, large beds of it having a wondrous glow of colour. How welcome are such rich hues of colour as these give to us in the spring. Anemones of this type seem to thrive much better at Long Ditton than do those of the coronaria section.—A. D.

STOVE AND GREENHOUSE.

SOLANUM JASMINOIDES.

THOUGH hardly in a few of the more favoured districts of this country, the *Solanum* in question must be, generally speaking, regarded as a greenhouse plant, for it is when treated as such that it is most effective. One thing in its favour as a roof or rafter plant is that the foliage is not in any way dense, so that even a large specimen of it will not obstruct a great amount of light, which is in a general way a desirable feature in a climbing plant. At the same time the young shoots are rather liable to be attacked by aphides, and if the atmosphere is too dry, red spider will quickly make its appearance and work havoc with the foliage. With a little care, however, both these can be kept in check, and then this *Solanum* will under suitable conditions flower for months together. I have had under my observation for some time a by no means large plant which has not been without flowers since last November. Under glass especially where slightly shaded the blooms are pure white, but out of doors they are often tinged with bluish-mauve. It strikes root readily and is altogether of very easy culture. *S. jasminoides* is, however, by no means the only climbing *Solanum* that ranks high as a flowering plant, for two or three species of great merit have been very attractive at Kew for the last few years. One of them, *S. Wendlandi*, a bold, strong-growing climber with clusters of purplish-blue blossoms, was illustrated by means of a coloured plate in *THE GARDEN*, Vol. XXXVII, while a second species, *S. Seaforthianum*, has clusters of flowers a good deal like those of *S. jasminoides*, except that they are of a pleasing shade of pale lilac. *S. pensile*, the third to mention, has lanceolate leaves of a very deep green tint and clusters of deep purple blossoms. All of the above, except *S. jasminoides*, require stove treatment. Another species is *S. crispum*, which is hardy in the especially favoured districts of this country, and may be treated as a wall plant in others. It forms a large bush, while the flowers, which are freely borne, are of an attractive shade of pale blue. This is an old plant in gardens, and though but little known, it is where hardy a very showy shrub.

H. P.

Rhodanthes in pots.—Both the pink and white forms of the pretty *Rhodanthe* are largely grown by Mr. Warren at Isleworth for market. Of course, these are all in $4\frac{1}{2}$ -inch pots. The seed is sown in January for the first batch, the pots taking the places just previously occupied by *Cyclamens*. It seems to be an unfortunate element in the culture of these Everlastings that the soil should be very firm, so as to induce stout, stocky growth. Were the soil too light, the plants would be apt to run tall. Seed is sown thickly, very thickly in fact, as the grower holds that it is better to have the plants too thick than in many cases so thin that many pots have to be thrown aside as useless. However, it does not seem as if the plants were unduly crowded, judging by the admirable way in which they bloom so profusely when about 10 inches high. The selling price is not considerable, but it is a paying one all the same.—D.

Cyclamen.—Opinions as to the best time for sowing a general batch of seed differ materially amongst growers. Some favour an early date, some a late one. At Isleworth Mr. Warren sows so early as June, and, as a result, his stock of seedlings is now very advanced, the strongest being in process of repotting into $4\frac{1}{2}$ -inch pots in which they will bloom. Certainly no stock of seedling *Cyclamen* could look more healthy or robust, and there is ample evidence that with ordinary care all

the stronger seedlings will be in good bloom during October. The plants have to be stood in low span-roofed houses, which are shaded during hot sunshine and kept very damp. An abundance of moisture in the soil, good drainage, and in hot weather plenty of vapour about the plants seem to be regarded as essential elements of culture.—D.

Dipladenia boliviensis.—Although this species has been introduced into this country for about twenty-five years it is only within the last few seasons that its merits have been more fully recognised. Indeed it is not now grown nearly enough in our stoves. Why this is the case can hardly be explained, unless it be that some growers are thinking more about the mealy bug than they are about the plants that should be grown. I think this is possibly the case, for when I have been questioned as to the bug upon *Dipladenias*, I have been looked at with something akin to astonishment when stating that no bug was allowed quarter (nor did the plants breed them, as some used to fancy). This fine *Dipladenia* is most useful for cutting where white flowers with golden throats are admired, and where are they not? In our case it is now coming into flower and will continue thus until the house has to be cooled down at the end of October, otherwise it would continue longer still. If always in a stove temperature it will flower nine months out of the twelve.—H. G.

Daffodils in pots.—Those who grow these useful spring bulbs in this manner will do well to look after them still, as they go out of bloom, rather than let them take their chance. It is my intention to turn my stock out in the open border during the next few days in cool and rather shaded positions where they will remain for a few seasons just as they come from the pots without division. These not being scarce or choice kinds, but merely grown for cutting from, it will not be needful to label each clump. The choicer sorts that are more expensive should have labels to each clump for safety. I consider this planting now will bring the bulbs back to their more natural conditions with no risk of extremes of drought and moisture.—H. G.

Xanthoceras sorbifolia.—At one time great expectations were formed of this *Xanthoceras* as a hardy shrub for most parts of this country, but up to the present these anticipations have not been realised, as it is only in a few districts that it can be induced to thrive. Within the last few years, however, it has been employed for forcing, and it is so treated both distinct and pretty. The flowers, which are borne in racemes at the points of the stout rather erect growing branches, are white, with a reddish blotch at the base of the petals. The bright green divided leaves make their appearance at about the same time as the flowers. The foliage produced in this way is, however, extremely delicate, so that after the flowering season is over care must be taken that it is not injured.—T.

Caladium minus erubescens.—On page 358 that most useful of all *Caladiums*, the beautiful little *C. argyrites*, is well shown, standing out as it does quite distinct from any other variety in cultivation. At the same time there is another form, *C. minus erubescens*, which will commend itself to those on the look-out for low-growing kinds, as this seldom exceeds 6 inches in height, yet it is of good sturdy habit and robust constitution. The leaves of this, which are slightly twisted, are bright crimson edged with green. It is certainly not so useful a plant as *C. argyrites*, for the leaves are less clearly marked and not quite so numerous, yet it affords a pleasing variety.—H. P.

Why Hyacinths sometimes fail.—Much disappointment has been caused by the non-blooming and poor spikes of *Hyacinths* in general this year. A specimen of a non-flowering bulb sent from Dundee to an authority in Haarlem has elicited the following: "Your favour to hand. We are not surprised at its contents; indeed, similar complaints come from all sides. The bulb you send us is blind, and, notwithstanding its large size, it does not hold a flower-bud. The cause is nothing else but the very cold spring and summer of

1891. We had here only on three days whilst the bulbs were in the ground a temperature of 65° to 70° Fahr., but mostly it was not higher than 50° to 58°, and in May, the period when the new buds are formed, we could seldom go out without our overcoats, so you may judge what a development of flower-buds this would cause, and it appears that some have formed no bud at all. In 1889 we had what we call here an old-fashioned summer—May, June, and July very hot. The consequence was that the bulbs ripened off quickly, and were in general small in size; but the results were very satisfactory—flowers came early and easy. As to the cultivation of bulbs, these are more carefully grown than ever. I have had forty years' experience, and know that growers used to treat their *Hyacinths* as *Potatoes*; but now everyone does his utmost, as the most careful growers have the best returns, and I daresay that we keep now three men to do the same work which used to be done by two. I am convinced that the low temperature during the time the buds are forming is the cause of the unsatisfactory blooming of *Hyacinths*. A long and severe winter does no harm, neither a cold February nor March. In April the weather must be tolerable, but May and June especially must be good, as this is the time for development and growth."

GARDEN FLORA.

PLATE 856.

ERICA HYEMALIS.

(WITH A COLOURED PLATE OF *E. HYEMALIS* AND *E. H. ALBA*.)

ALTHOUGH *Erica hyemalis* has been a favourite garden plant in England for the last fifty years, no picture of it has ever been published until this year, when the *American Garden and Forest* reproduced a photograph of a pretty little specimen which had been purchased in Covent Garden Market in February last for 1s. 6d. It is probable that on the principle that "Good wine needs no bush," no one has hitherto thought it necessary either to publish the picture or to set down the history of a plant which is almost as well known as the zonal *Geranium*, and is perhaps more largely grown as a window plant than any other. Consequently we have to record now that the origin of *E. hyemalis* is unknown. It may be a seedling form of *E. Linnaea*, or a hybrid; it does not appear to be a genuine Cape species, for it is unrepresented in the Kew Herbarium of wild Cape Heaths. Mr. John Fraser, of the Lea Bridge Nurseries, informs me that he purchased three plants of it from the Pine-apple Nurseries about forty years ago. Andrews, who grew a very large collection of *Ericas*, and whose "Coloured Engravings of Heaths," published in 1809, is a magnificent monument to the cultural skill of our grandfathers, does not appear to have known *E. hyemalis*. There was, however, even in his time a Cape Heath which enjoyed great popularity with the growers for Covent Garden Market, as is shown by the following extract from Andrews' work above-named. He says of *E. Linnaea superba*—

This fine plant has ornamented various collections for the last five or six years. In growth it is

* Drawn for THE GARDEN by Gertrude Hamilton, from specimens sent by Mr. Balchin, Hassocks Gate, Sussex, January 2, 1892. Lithographed and printed by Guillaume Serrevaux.



ERICA HYEMALIS. AND E. HYEMALIS. ALBA

luxuriant, as we have frequently seen it 2 feet high, with numerous long flowering branches at Covent Garden among many of the most beautiful, if not most rare, *Ericas* which are exclusively cultivated for that well-known emporium. It may certainly be considered as one of the finest variations of *E. Linnaea*.

This plant, however, blooms in April and May. It is in flower now at Kew, and whilst resembling *E. hyemalis* in the form of its flowers as well as in general habit, it differs in colour and also in being a less vigorous grower.

The best of all greenhouse Heaths, and, I think we may say, one of the very best of the smaller winter-flowering plants, is therefore a garden findling, so far as can be made out. But however it came, there can be no doubt that, as the Yankees say, it has come to stay.

English horticulture has somehow thrown Cape Heaths generally over the wall, for where ten kinds are grown now, a hundred were grown thirty years ago. The best of those that remain are *E. gracilis*, *E. persoluta*, *E. Willmoreana*, several of the varieties of *E. ventricosa* and those here figured. These are grown in enormous numbers by the London nurserymen; they are also largely grown in Erfurt and several other parts of Germany. *E. hyemalis*, or winter Heath, comes into bloom in November and continues till February. *E. gracilis* comes at the same time and is followed by *E. persoluta*, sometimes called the white *gracilis*. *E. Willmoreana* is at its best now. I have seen lately most excellent little specimens crowded with flowers very like those of *E. hyemalis* in several London nurseries lately, and they may be purchased for a shilling or two in any London florist's shop now. The *ventricosas* are a little more delicate in constitution than the others, but when well grown they are superb pot plants. That known as *coccinea* minor forms a little globe of elegant rosy crimson tubes, and *superba*, *magnifica* and *Bothwelliana*, though larger, are equally beautiful when in flower in spring and early summer. The yellow-flowered *E. Cavendishiana* is also deserving of mention as being still a favourite with a few growers, and when covered with its large waxy-looking yellow tubes in April and May, it is a grand Heath.

There are two named varieties of *E. hyemalis*, viz., *superba* and *alba*; the former has flowers half as large again as those of the ordinary plant; the latter differs in having less purple in the tube than either the type or the variety *superba*. They all flower about the same time.

The plants which are grown for the London market are raised in about three years from cuttings. These are put in in the autumn. By the following spring they are rooted and ready for potting off, and twelve months afterwards they are again shifted, this time into 2½-inch pots. Their final shift is into 5-inch pots. This takes place in January and February, and by the following autumn the plants are 18 inches high and a foot through with six or eight sturdy shoots full of flower-buds. Sandy, dark brown peat is used, and

the plants are not allowed more fire-heat than is necessary to keep frost and damp out. In summer they are grown on cinder beds in the open. *E. Cavendishiana* and the *ventricosa* varieties will not bear the open, but must be kept in frames all summer. All the sunlight possible, no more fire-heat than is absolutely necessary, and a regular supply of water are the three chief essentials to good Heath culture. The first-rate growers employ stimulants during the growing season, but they must be very carefully applied, or the plants will produce few flowers. W. W.

ORCHARD AND FRUIT GARDEN.

GRAPE THINNING.

THIS important operation will soon be in full swing and promises to be even more tedious than usual. A month of clear weather and hot



Erica hyemalis.

sunshine has greatly strengthened first the Vines and then the bunches, and this has favoured strong flowering and a free set of berries. In most cases there should be no delay in commencing thinning the berries, and that for several reasons. Not only can the bunches be thinned most expeditiously when the berries are about the size of the seed of Sweet Peas, but the chances are, unless this early start is made, many of the bunches will have made such rapid progress before their turn to be thinned arrives, that it will not be possible to thin these either cleanly or quickly, rubbed berries being a sure consequence. Early thinning also of first the bunches and then the berries is most desirable for the good of the Vines, everything being done by the thoughtful cultivator to husband their strength as much as possible.

Cutting off bunches is to many very hard work, and in very numerous instances more are left on the Vines than the latter are capable of properly maturing. The exact quantity each Vine should be weighted with is not an easy matter for an

outsider to decide, so much depending upon circumstances. What is considered a fair crop is 1 lb. of fruit to every foot run of rod, but this would be thought a very light crop by market growers, and is usually exceeded in most private gardens. Anyway, the most productive laterals should be cleared of all but the best shaped bunch before the flowering period, some judgment being exercised by the operator in selecting. Large clusters are, perhaps, the most attractive to the casual onlooker, but they are often very ugly in form and the least serviceable in the end. Especially are great loose shoulders objectionable, and the timely removal of these frequently improves the rest of the bunch considerably. Medium-sized bunches with berries of the largest size are more to be desired than large clusters with medium-sized berries, and that whether for exhibition or market or for home consumption.

The bunches being freely reduced in number, experts rarely waiting till the thinning of berries is completed before finally reducing the crop, and all being set, the next proceeding should be to thin out the berries or the bunches most preferred. In thinning, good judgment must be exercised, varieties differing considerably in the conformation of their bunches and berries, some also being much freer in setting than others. No general rules can, therefore, be laid down, and perhaps I shall best meet the case by taking each variety *seriatim*. In each and every case, however, it is of the greatest importance that perfectly clean, sharp Grape scissors be used and the greatest care be taken so as to avoid rubbing the berries either with the scissors or head, or otherwise many of them will soon present a rusty appearance. Black Hamburg rarely fails to set freely, and the bunches produced by well-ripened wood are usually fairly compact. With the aid of a light thin stick in the left hand for steadying the bunches and raising the shoulders, commence thinning the latter, trimming the longest of them if they promise to disfigure the bunch, and then snip out two-thirds of the berries, leaving the largest and best set, next slinging up these shoulders with the aid of strips of raffia tied to the wires. In some instances the uppermost shoulders may with advantage be drawn a little above the horizontal position, those immediately below being slung up to an easy distance of these, the better to enable the lower berries to swell to a good size without unduly jamming against each other. If the bunches that promise to be well above 1 lb. in weight are not "shouldered up," then must they be more freely thinned out, or otherwise they may keep badly in the autumn. In any case, snip out those berries with an inward tendency, and altogether remove about two out of every three berries. It will be seen that the central berries on the stems are mostly the largest or best furnished with stones, and, as a rule, few others than these should be left. Very cautious or inexperienced thinners are apt to leave too many berries at first, this necessitating a second turn of thinning; but those who desire to have perfect bunches, that is to say, with berries large and free of blemish, will do both the shouldering and complete the thinning at the outset. Where shanking frequently occurs, the thinning-out should not be so severe, or otherwise the bunches may eventually become far too loose.

Foster's Seedling and Madresfield Court both produce neat, compact bunches and set very freely. These must also be somewhat severely thinned out, the more seeing that the footstalks are short and sturdy. Both are addicted to cracking during the ripening period,

and unless the inside of the bunch is well cleared of berries and jamming of the rest anticipated by free thinning, much mischief may result in a few hours. It should also be borne in mind that decaying berries cannot be cut out of a densely packed bunch without damaging several other berries; therefore be not sparing of the scissors now, especially in the case of the large-berried Madresfield Court. Cut off long shoulders of the latter and loop up those reserved on the larger bunches, Foster's Seedling sometimes being benefited by the same treatment. Buckland Sweetwater and Gros Guillaume, though totally dissimilar, require almost identical treatment as far as thinning out the bunches is concerned. Both are liable to set somewhat irregularly, and in the case of Buckland Sweetwater this cannot well be remedied by artificial fertilisation, owing to the tenacity with which the flowers retain their caps. The thinning out ought, therefore, to be very light at first—in fact, the best way to proceed is to loop up most of the shoulders, and only cut out the small or stoneless berries as they are discovered. In this manner very few well-set berries will be taken out, and if the bunches of Gros Guillaume are well selected, they can be had as solid as those of Madresfield Court.

Muscat Hamburgh ranks among the shyest setters in cultivation, and it is not often that well-set, large clusters are seen. According to my experience, much the best results follow the retention of the medium-sized to small bunches. Even these should be very lightly thinned out at the outset, appearances often being deceptive—that is to say, what at first sight appear to be well set may turn out to be quite void of stones. The bunches being of a somewhat loose character, shouldering up ought to be resorted to, the thinning-out being done gradually and never very severely. Cannon Hall Muscat is also a very shy setter, and in this case extra long and very gappy bunches are most often seen. It is advisable to select the smaller bunches, and if these are well fertilised with Black Hamburgh, Lady Downe's, or Alicante pollen, it may prove necessary to thin out severely, the variety producing extra large berries. Thin out very cautiously at first. Black Morocco is another extra shy setting variety, and seldom met with for that very reason. It must be very cautiously thinned. Muscat of Alexandria too often thins itself to please its cultivators, but it frequently happens that apparently thin bunches fill up surprisingly, the berries attaining a great size, especially when they are furnished with three or four stones. In this case, again, it is a mistake to leave the largest bunches that show, these very often being far too heavy for the strength of the Vine. Better, therefore, in most cases to be content with smaller samples in the first instance, the extra large clusters being unhesitatingly cut off. Thin those reserved piece-meal or according as it is seen which are the best set berries, taking care that those saved have good room to swell. I prefer to shorten back the longest shoulders, solid symmetrical bunches giving the greatest satisfaction. Over-cropping must be guarded against.

Gros Maroc, Gros Colman, Golden Champion, and Duke of Buccleuch are all fairly reliable setters, and have berries of the largest size. These, therefore, should be early and very freely thinned out, selecting and reserving as much as possible those that are well quartered, that is to say, furnished with the full complement of stones. Trim off ugly shoulders and loop up those reserved, and if it is seen that the berries are swelling regularly, go over the bunches again

and take out a few more, for it is better to risk looseness than to have the berries jammed tightly together. Lady Downe's, if well set and freely thinned out, also forms very fine berries, and seeing that long keeping is most desirable, there is all the more reason why the berries should not press against each other. It is of the greatest importance that the bunches be thoroughly cleared of rubbish and small berries, not removing the former being a frequent cause of the early decay of the stalks. Alicante usually sets very freely, and must in consequence be early thinned out, the operation also being severe. Large bunches are very attractive, but the smaller ones will keep much the best, especially if they are sufficiently well thinned for the air to pass through them. Alnwick Seedling, properly fertilised, sets freely enough, but left to itself it may fail completely. Seeing that well-set berries attain a large size, the thinning should be rather severe. Mrs. Pince's Muscat should be treated very similarly to the Muscat of Alexandria. Mrs. Pearson sets fairly well and should be thinned out with moderate freedom, while the berries of Golden Queen ought to have good room. White Tokay, Syrian and Calabrian Raisin should be well looped up and thinned only moderately hard, or otherwise they may be too loose.

W. IGGULDEN.

The fruit bloom.—There does not seem to be any considerable cause for concern as regards the condition of the fruit bloom generally. Very likely in some districts, such as on the south-eastern side of the kingdom, much of the earlier Plum and Cherry, as well as Gooseberry and Currant bloom was seriously injured by the heavy snowfall and frosts of Easter. But a careful scrutiny generally reveals yet on both Plums and Cherries a fine lot of later bloom, apparently quite free from harm, and a material thinning will be helpful rather than otherwise. The warmer sunshine and rains which have since visited us have done wonders in helping to perfect the bloom and to give strength to the buds on Pears and Apples yet unopened. It is held to be a danger that the leaf should be too forward at the time of blooming, although why is not very apparent, except it be that it is thought the leafage tends to abstract too much sap from the bloom spurs. So far, the leafage is not unduly forward, whilst bloom generally is opening rapidly. Should a really good crop of fruit result again this season (and there seems to be no good reason why it should not be so), we must be prepared for some two or three very thin seasons to follow, as trees never do bear freely more than two years in succession. Hence, it would be well if thinning of abundant sets were much more largely indulged in than is usually the case, but it is generally found that work of so much importance is neglected because it has to be done at the busiest period of the year. Both Apple and Pear trees which fruited heavily last year are showing a luxuriant bloom this season. Its prospective value will be tested by its endurance and robustness. The heavy rains of last summer, allied to a good ripening autumn, however, did wonders for the trees; hence, there is all the more reason to hope that the season's promise in bloom will be fully realised in fruit.—A. D.

Moisture for Apricots.—During May it is certainly advisable to give Apricots plenty of moisture and nourishment if the soil is light or porous, as it is surprising the amount of water and feeding, stone fruits will take when in poor light soils. I have of late lifted my Apricot trees every third or fourth year and given new feeding material—good loam, not rank manure. No matter how old, all have been treated in this way, and some large old trees of Hemskirk have been removed to different positions with excellent results, as they bear large quantities of fruit and do not canker as formerly. Apricots delight in a compost with which mortar rubble, charcoal refuse,

brick rubbish, and burnt earth are largely incorporated. This material requires a lot of moisture, and as the bottom of the border is thoroughly drained, it seems as if the roots revel in unlimited supplies of moisture and feeding. As our trees are on raised borders we feed well, often giving liquid manure and mulching at this season. I find the nearer the roots of the Apricot can be kept to the surface the better, and if these are healthy there is little canker. The periodical lifting encourages this surface-rooting. The lifting is done in September before the trees shed their foliage. The roots of large trees are cut round one autumn and lifting is done the next.—S. H.

APPLE NEWTOWN PIPPIN.

THE note from America by Mr. Nathan James on the present abundance of this splendid Apple in the American markets is most interesting as well as surprising, inasmuch as it has been out of condition as well as out of season for the last month or more in Covent Garden Market. There is another point that perhaps Mr. James may furnish the readers of THE GARDEN with information about. It is said and generally believed that the Newtown Pippin is failing in America, just as the Ribston has done in England, and certainly the spotted, undersized and inferior samples of this Apple so plentiful in our chief markets and shops this season seem to favour the deterioration theory. Is this so, or do the American States keep their best samples at home? It is certain that while the Northern Spy from Canada was in season with and competed against the Newtown Pippin, the latter had but a slender chance of selling at full prices. Apples from the Cape and Tasmania will make it more needful to uphold the high standard of the Newtown Pippin if it is to continue to command and dominate our English markets when in season. Possibly also the Americans may have to meet a more vigorous competition against English grown Apples than they have recently experienced, and even Newtown Pippins may be grown at home on dwarfing stocks and bush, pyramidal and cordon trees equal or superior to a good many of those imported. The non-growth of Newtown Pippins in bulk in England is less a matter of climate than of quality. The tree is of fair average hardiness, and, like Cox's Orange Pippin, a somewhat slow bearer until of considerable age. But now we have discovered many short cuts to fertility such as root-pruning, fibrous rooting and early fruiting stocks, the modification, and in some cases the virtual abolition of top-pruning, we may be able so to heighten and hasten the fertility of the Newtown Pippin as to enable us to equal or surpass the American standard varieties. In any case, such fine English Apples as Cox's Orange Pippin, Blenheim Orange and the old Ribston, if, as we hope, we shall be able to resuscitate it by modern methods of culture, should prove as attractive and profitable on our markets as the Newtown Pippin, New York Pippin, Baldwin, or any other foreign Apples.

D. T. F.

Large Strawberries.—Of late years large fruits have found such favour with many persons, that even those who should judge fruit by its merits have been obliged to lean to size in place of quality or flavour. Before this note is in print there will have been an exhibition of forced fruits (Strawberries) at the Royal Horticultural Society's meeting on the 3rd of May, and it will be interesting to see how far my views on large fruits are carried out, as from close observation of late large fruits of any kind have carried the most weight, even if they have been of little value as far as flavour is concerned. The society is to be congratulated upon its increased usefulness, and I am pleased that they are enabled to offer prizes as in former years, but one thing I hope they will not lose sight of in the case of fruit and vegetables, and that is quality as compared to size. I am well aware that for market, size is everything, but is

the market always to be considered? Fruit should be tested upon its merits, and not merely size considered. I have noticed the difficulty those persons have to contend with who do not grow for size and appearance alone, and who are considered behind the times. I feel sure there is more credit attached to producing well-flavoured fruits than those which are large, watery and flavourless. Strawberries during the last few years have been introduced in quantity, and I fear size is the chief point in their favour, as the new kinds do not have fruit like the smaller, but delicious kinds grown years ago, and though I do not say we should lose sight of size, it should not be at the expense of flavour. Last year I saw several new varieties of Strawberries and got the opinion of those who understand the quality of good fruit, and in one or two cases they would have given the award to these smaller fruits in preference to coarser kinds that had nothing but size to recommend them. I am fully alive to the advantages of sending this fruit in the highest possible condition to the table. I do not condemn good culture, but I contend that some of our best flavoured Strawberries are large enough for all purposes when well grown. If quality and not size could be encouraged in fruit and vegetables, some good would be done and the tendency to award prizes for size alone checked.—B.

VICOMTESSE HERICART DE THURY STRAWBERRY.

IT is to be deplored that so useful and generally excellent a Strawberry as this is should have such a very long name. I think if it were generally written of as "Vicomtesse" only, everybody would recognise it fully. It is not generally known that many years ago when the late Mr. Thomson was at Chiswick, he, on the instruction of the Royal Horticultural Society, paid a visit to the French Strawberry gardens and brought over to Chiswick plants of a number of the best varieties. Of all these, the one now mentioned is the sole survivor and affords another illustration, if such were needed, of the undoubted fact that of all the seedling Strawberries put into commerce during the past twenty-five years, very few have been found qualified to out older sorts from popular favour. The Vicomtesse still remains one of the most popular for pot culture; perhaps of early kinds it is the one most widely grown for forcing. It sets freely, is fairly easily managed, produces when the trusses are duly thinned very good-sized fruits of fine form and rich colour, and though not first-class, is perhaps one of the best-flavoured of all early forced varieties. What sort of fruit it can produce early was well exemplified in the large box of beautiful fruit which Mr. Frank Lees, of Reading, exhibited at the Drill Hall on the 19th ult., the colour being exceedingly bright and pleasing. It is possible that greater light and purer air are found at Reading than prevail in the London district. Certainly fruits have been shown from near London recently which were dull and heavy-coloured as compared with Mr. Lees' examples. With respect to outdoor culture of this variety, Mr. Norman, of Hatfield Gardens, strongly admires the variety, preferring that and Sir Charles Napier to any other two sorts. He treats the Vicomtesse largely as a biennial, for he selects all the best runners not required for forcing and plants them in good, deep, well-manured soil so thickly as 12 inches apart all over. The breadths are kept well hoed, and in the late spring are well mulched with long manure litter. Then the fruits after there has been a good set are hard thinned down to a mere few to each plant, and thus a very fine crop is ensured. So soon as fruiting is over, three-fourths of the plants are cut clean out, and the rest have ample room to develop that season into fine clumps. The following year they crop heavily, then are cut out also, so that no breadth endures longer than two years. A short life and a merry one for Strawberries seems to be Mr. Norman's motto at Hatfield. Certainly, he states that the soil there will not produce a good

crop the third year, and it is rare anywhere that it pays to allow plants to stand longer when really fine fruits are needed. That in some deep holding soils breadths kept clean and heavily mulched with manure will endure for several years and produce fine crops is certain. Elton Pine will do so, as I have found even in soil that was far from being rich, and give a wonderful lot of fruits for ordinary use and preserving. The plan adopted at Hatfield with Vicomtesse naturally necessitates the putting out of large quantities of runners to cover a given area annually, but then there is the undoubted advantage that every part of the ground is at once fully occupied. After all, the chief consideration is how can the finest fruits be secured? That is an element in Strawberry culture which requires special prominence.

A. D.

CROWDED PEACH SHOOTS.

THE remarks made anent these (p. 344) are well timed, as unquestionably they are often left much too thick both under glass and on open walls, and the result is that the leaves from them not only unduly shade the fruit, but prevent the wood ripening. In matters of Peach culture, as in most others connected with gardening, there can be no hard and fast rules laid down, but in a general way if the shoots are left or laid in during the winter, training at from 4 inches to 6 inches apart, they will be quite near enough, and in doing this, or rather before, in the pruning, an eye must be exercised to so leave them that they may cover all space on the wall and have no waste of room. Starting with a young tree the way to manage when it is received from the nursery is to look over or examine the head, and if there be a centre shoot it should be taken out close down, using a keen-edged knife for the purpose. This throws the middle open, which in the case of all trees that are intended to be fan-trained is the thing to do, as the sides can then be filled easily, the growth being forced in that direction instead of upwards. Shoots may gradually be carried from the two upper branches and the wall covered in very quick time, or a space of 100 feet square in two years. I have done this repeatedly and am never satisfied unless a tree grows to that extent, but then I never cut back, which I regard as a foolish practice, as when carried out the tree operated on is at the end of the first year at about the same stage as when bought in, it having made as much growth as had been cut away, and many gardeners then shorten again, thus wasting precious time and undoing what the tree had done. If one inquires the reason for this mutilation, he is told it is to make the plant break back, but who ever saw a healthy young Peach, Plum, Pear, Cherry, or what not that will not, or does not, start all its buds if planted properly and at the right season? It stands to reason that the more head a plant has and the greater the leafage, the more roots it forms, the more quickly it increases in stem and branch and becomes established. This, I think, is evident, and the less of the knife a young tree has the better, and instead of cutting, I advise all shoots to be laid in full length and an equal number on each side. These, trained regularly at an equal distance apart, form the frame and give a fair start. In the spring comes the disbudding, and then a little judgment is necessary to decide on which shoots to leave, but all should be situated on the top side of the branches and well placed at a suitable distance apart, and others rubbed out (unless needed for spurs), when those left will grow away and should be so trained that they form no elbow, which may easily be prevented by giving a tie near the base so as to keep that part somewhat close to the main stem and more in line with it. The after training consists in leading each shoot on in its proper course, and taking others from them on the upper side the year after, till the wall space or trellis is filled with the right number of branches. If these are of Pear, Plum, Cherry, or Apricot, of course they will have spurs, as instead of rubbing out or disbudding, as in the case of Peaches and Nectarines, the shoots should have been kept stopped by

pinching during the summer, which then forms the spurs. We now come to the fully grown or fruiting trees, and now is the time to be at work at them, as directly Peaches or Nectarines are set, thinning or disbudding the shoots should commence at once, but be carried out piecemeal, a little one day and so on the next till the job is complete. If the pruning and laying-in have been as mentioned, all the shoots necessary to be saved will be one at the top and one at the base of each shoot, the latter, of course, on the upper side so as to be close with the wall or flat with a trellis. The only exception to this rule of disbudding Peaches and Nectarines is in cases where a young branch is extra long; then another shoot may be requisite midway, or if it should happen that there is a bare space, that must be provided for, and a shoot or shoots left to fill in. As soon as these get 2 inches or 3 inches long, they should have a tie run round them and the branch they emanate from, so as to bring and keep them nearer together; otherwise there will be what is termed a shoulder or ugly bend where they start. The tie obviates this and makes the branches lie flat and run off as they should. With pyramids or bush trees grown in houses, the tying at the base is unnecessary, but the disbudding should be carried out in much the same manner as when trees are trained, and no more shoots left than are absolutely requisite. Some adopt the double system of young shoots and spurs, and then stopping comes in. If one has a very light, roomy structure, the growing of bush trees has many advantages over those trained, as they are far more natural, the leafage is fully exposed, and there is not half the labour and trouble involved in managing and looking after the trees. We have a span-roofed house filled with Peaches on one side and Nectarines on the other that are as free as Willows and will give much more fruit than if they were on trellises.

J. SHEPPARD.

THE DROPPING OF PEACH BUDS.

SOME forty years ago the uncovering of Peach trees under glass was looked upon as an essential feature in their successful cultivation. So soon as the crops were gathered, the roofs, and also where possible the front lights and ends, were removed, the trees by this process being removed from the shelter of glass into the open air. This was done to keep the wood clean and to harden it, and before the close of the season the wood took on the nut-brown hue, which was a very sure and certain test of perfect ripeness. The buds were also brown, hard, and specially full. Many of the older practitioners did not believe in the perfection of the ripening unless the trees had the benefit in the latter stages of from 5° to 10° of frost. Such severe cold was held to set the final and finishing seal on the maturity of the wood and buds. The houses were mostly re-roofed early in November at the latest, and in October if the first crop was to be ripe in June. No one can question that wonderfully fine Peaches were grown under this system of finishing the ripening of the wood in the open air. It cleaned and hardened the wood, and in so far as it made the maturity of the wood and of the buds more perfect, it may have partially prevented bud-dropping, but it certainly did not wholly cure it. In one sense it introduced a new element of uncertainty of the security of the tenure of the buds on the branches. The semi-transition from the inside to the out, and again from out to in, were extremes that, unless carefully guarded against, prevented the healthy finish of the bud's growth, and might lead to its falling off. But the older cultivators were alive to these dangers, and so far as possible unroofed and re-covered their Peach trees tentatively almost a light or a sash at a time. And their caution in this respect had its reward in such regular crops as to make some look back to the unroofing of Peach trees as a remedy for bud-dropping. It is quite worth trying when and where the structure of houses renders it practicable. But any and every extreme of drought or moisture, heat or cold, direct sunshine or shadow

is sure to endanger the safety and stability of such sensitive flower-buds as those of Peaches, Nectarines, Apricots, Plums, and Cherries. But the modern pressure on all fruit houses for the storage and growth of other plants of so many sorts is probably one of the fertile causes of so many flower-buds dropping at the present day. The old cultivators were mostly satisfied with a good crop of Peaches sandwiched with Strawberries. Now, not only are many houses overcrowded with trees, but the trees have hardly room to breathe for other plants, and in the struggle for light, air, and food it can hardly be wondered at if the weakest—that is, the Peach blossoms—go to the ground. The remedy may possibly be found in raising and insisting on the old cry, "The Peach house for the Peach trees." D. T. F.

APPLE DUMELOW'S SEEDLING.

THE welcome article on this the best of cooking Apples by "D. T. F." (p. 366) reminds me that I intended sending you a few fruits to illustrate its keeping qualities, and I now do so. You will see that "D. T. F." has kept well within the mark as to its length of season, and he might safely have written May instead of April, as there is no difficulty about keeping it till quite the end of the former month, and I think you will agree from the sample that this is so. A month ago I could have sent fruits of double the weight (those I send run three to the pound), but I find, especially with those varieties which are naturally large, that the medium-sized samples keep best. The question of deterioration of this and other standard varieties need not give intending planters any uneasiness or prevent their being grown. Given a suitable soil and proper treatment, there is no fear of the ultimate result being anything but good. Near where I write there is an old orchard which contains fine old trees of Ribston Pippin that bear well, and a large proportion of the fruits are large. These trees have boles at least 1 foot in diameter. In the same orchard are fine trees, quite as old, of the Lemon Pippin, Dutch Codlin, and the true old Golden Pippin. From these trees grafts were taken some twelve or fifteen years ago, and the trees thus propagated now occupy another orchard and are without exception in the finest health, forming a practical and conclusive answer to the deterioration theory. I quite believe that the pruning knife has a great deal to answer for, and that excessive pruning and the absurd system of double cropping (so called) have helped to produce canker and other evils. If fairly young trees, not too badly cankered, are allowed to have their heads, simply thinning the branches sufficiently to admit light and air and leaving them undisturbed at the roots, the improvement in their general health after a season or two will be marked.

Dumelow's Seedling is never at its best unless allowed freedom of growth, with very little pruning more than keeping the centres of the trees clear from twigs and the main branches shapely. In common with the Blenheim and others, close pruning spoils all chance of a full crop. Two marked peculiarities of this Apple are the curiously speckled bark of the wood and the hammered appearance at the apex of the fruit. The tree being a quick grower should be allowed plenty of room to develop, a crowded orchard being especially bad for this kind, and "D. T. F.'s" advice to remove every alternate tree might be carried out with good effect in many a fruit garden. I fear that this Apple will not commend itself to those who prefer kinds which grow their own sugar, but there are others who think these latter insipid, and

who prefer more piquantly acid fruit which requires artificial sweetening, and to those who think thus, one may say that Dumelow's Seedling or Wellington will beat all other late-keeping Apples for cooking. At the present time we have plenty of good Norfolk Beautifin, but the colour when cooked is against this, so that it will not be asked for while the more attractive Wellington is to be had.

J. C. TALLACK.

Absence of green-fly on Peach trees.—It is curious how to account for the marked absence of insect pests on Peach trees under glass in cold houses this year. I have here a long Peach house (cold) with trees on back wall and front trellis. Up to the present time (April 14) there has been no green-fly on the trees, although the fruit is as large as peas and the shoots several inches long. In previous seasons I have been obliged to dress these trees two or three times. I thought some time ago perhaps the absence of fly arose from dressing the trees in winter, but on closer examination I observe those that were not dressed are just as clean as those dressed. It cannot be said it is because we have no east wind in this part of the country (Dorset). We have had continued east wind ever since the trees came into bloom, and it still continues. Nor are our trees protected from its effects, as the front lights are thrown open every day after breakfast. Mine is not an exceptional case, for a friend called to see me a day or two since, and he, too, remarked as to the absence of fly. He told me he had not seen a fly on any of the trees, forced or otherwise, the whole season. According to my observation, the cause of fly is more due to changeable weather than to east wind. It will be interesting to hear how others have fared.—J. C. F.

Cutting down Raspberry canes after planting.—"I." directs much-needed attention on p. 366 to the penny-wise-and-pound-foolish practice of leaving several canes to fruit the first year. The practice is suicidal. But supposing they did fruit and ripen through a specially dripping summer or other accidents of growth or season, such fruit would probably cost a guinea per ounce in the sacrifice of the strength and free growth of canes for fruiting next year. Raspberries in this respect are widely different from Gooseberries, Currants, and other bush fruits, though the less strain through much fruit-bearing on those the first season, the better ever after for their future health and fertility. But Raspberries are more impatient of root-disturbance; hence, plant as early in the winter as possible, leaving a foot or 15 inches of the current year's wood till the end of February to keep the roots in action and help multiply their numbers. Then cut the canes over level with the ground or a few inches above, and from one to three or four strong suckers will spring up from the root-stock and form good fruiting canes for next year, which will become brown as nuts and almost as hard before the end of the season. Those shoots of the current year will often show fruit late in the autumn, whether of the so-called autumn-bearing varieties or not. But even these fruits had better be picked off so as to husband all the energies of the plants for future fruitfulness.—D. T. F.

Thinning Peach and Nectarine flower-buds.—When buds on Peaches and Nectarines are few and well placed, I invariably find them set well and the fruit proportionately large. While shoots are allowed to remain crowded with buds large and small, the setting is less certain and the crowding of the flowers is against the strength of the fruit. When small and weak at first, they never attain the same perfection as selected buds, which have never been cramped for room by their fellows and had full liberty to expand on the best side of the shoots, fully exposed to sun and air. When shoots are heavily laden with buds, I run the finger up the backs of the shoots, clearing off every bud, and then the front buds are thinned a little later, so that they can be allowed all the

space the fully-developed flowers require. A deal of bud-thinning can be done in a few hours. I think it was from reading Mr. Coleman's notes on Peach management that I was induced to strip the buds from the backs of the shoots in the summary manner indicated. I have thinned Peach buds always when they required it for more than a quarter of a century, and experiments frequently practised have taught me that the small amount of labour expended is highly beneficial. On our early trees this year I have had to thin off thousands of fruit after bud-thinning was practised. Some trees were left unthinned. Though heavily cropped, they have not the display of large, well-placed fruits. Thinning of wood-buds is generally done as soon as they can be picked out—before the fruit-buds are much on the move. One shoot is left at the base of its predecessor to supply fruit next season, and a shoot is left as a leader at the top of the fruit-bearing one to lead up nourishment.—M. T.

THINNING THE BUDS OF PEACH TREES.

ACCORDING to the observations of "S. D.," the thinning of the flower-buds of Peach trees before they open is quite useless. The above is confirmed in principle by "D. T. F." at p. 334. The common-sense note of "J. B." on the same page strikes the key-note of the whole subject when he cites the improved size of Roses, Chrysanthemums, &c., when the flower-buds are thinned, and also the removal of the flower-spikes from sickly Orchids to assist them in regaining their health. I differ with both "S. D." and "D. T. F." According to the observations of "D. T. F.," the flowers perform analogous functions to the leaves—in fact, they add to the increased strength of the tree until the blooms are actually set. This is entirely different to the common law of Nature, as "D. T. F." may prove with but little trouble or observation. For the sake of argument, I will take an Orchid. Watch the development of the spike until the flowers actually open, and the longer the flowers remain on the plant the weaker it will become. In some cases over-flowering kills the plant, or it is so exhausted that it drags on a miserable existence. According to the views of "D. T. F.," the flowering should add to its vigour. For another example I will take the Rose, say a *Maréchal Niel*; allow one plant to perfect dozens or even hundreds of flowers according to its size, and from another remove all the flower-buds as soon as visible. What is the result? Coming to fruit, we will take the Vine: Allow every bunch that forms to remain until all are set. Is the Vine's vigour added to? as, according to "D. T. F.," it should be. Remove all the embryo bunches from weak shoots. Is the Vine improved or not?

We must take a common-sense view of the whole subject, and not allow our imagination to be carried away by suppositions. Flowering is a very exhausting process, more or less according to the strength of the plant or tree. Thinning of the flower-buds of any plant or fruit-bearing subject means larger, stronger, and more fully developed flowers. How can this principle be wrong? In a fruit-bearing subject thinning the flower-buds judiciously renders the fructifying organs stronger in every part, and if these are stronger, the flowers must set better. What sense or reason is there in allowing thousands of flowers to open when only perhaps a few dozen fruits are required? Has either "S. D." or "D. T. F." observed how some Plum trees are so crowded with blossom, that no fruit whatever has formed? According to the dictum of "D. T. F.," the tree must have cast its flowers through over-luxuriance. I will also add Pear trees to my list of examples. "S. D." says the flowers fall fast enough without setting without going to the trouble of pulling them off. If such is the case with "S. D.'s" trees, it is not so with mine, and I fancy he must look further afield for the mischief. If only for economy of labour sake, thinning the flower-buds has a deal to commend it, and anyone would say so who may have the same quantity of trees to go over as I

have. Although ours were thinned heavily, the labour of thinning out even now will be immense, and this with a reduced labour staff requires a deal of time. But it is the whole principle which I uphold as being a march forward in the routine of fruit culture, and which it behoves all to practise as far as it lies in their power according to the circumstances of each case. Y. A. H.

Frost and its effects.—It will now be only too evident how very destructive the late frosts have been. There never was a brighter prospect as far as fruit blossom was concerned, but this has been completely marred, and, in this district at any rate, choice Pears, Plums, Cherries, and Gooseberries, and, I believe, Raspberries, will be very scarce. On the morning of April 14 there were 7° of frost, and this following close upon rain and snow did very much harm, the Pear blossoms being coated with ice. Worse was to follow, for during the next night our thermometer registered 12° of frost, and in the lower parts of Frome it was still colder, there being 15° of frost in a friend's garden. On the morning of April 16 there were 7° of frost, and it was quite as cold for another two nights. What the first frosts missed those following finished, and there are scarcely any sound flowers left. Not a few of the apparently uninjured buds are also ruined. Apples, Morello Cherries, Plums on late walls, and Currants not being very forward are, I much hope, uninjured, and not many of the Strawberries were sufficiently advanced to be injured. Apricots under copings and blinds have escaped fairly well, and protected Peaches will very probably yield a light crop, the bulk of the newly-set fruit, however, being blackened. The destruction was never more complete.—W. IGGULDEN, *Marston House, Frome.*

NEGLECTED FIG TREES.

I AM no stranger to the southern coast, in fact many of my early lessons in gardening were gained within easy distance of the English Channel, and I have also seen a good many large, old, and what I term neglected Fig trees. I had those very trees in my "mind's eye" when the advice to keep Fig trees more within bounds was penned. If we could be sure of the trees being uninjured by severe frosts, there might be some excuse for letting them grow unchecked and unrestrained, beyond, perhaps, fastening the main branches to the walls; but, as it happens, the Fig tree is far from being hardy, and occasionally it is either cut down to near the ground or the points are crippled, this meaning no fruit. Whether this happens in Cornwall I am unable to say, and even granting that Fig trees are never injured in that naturally warm county, it does not follow that either Mr. Tallack or I would be justified in advising growers in other parts of the country to adopt Cornish methods. Cornwall is not England, and a calendar writer has to take the conditions of a great many localities into consideration, penning advice oftentimes without being allowed space to give reasons for different practices. I maintain that the trees generally are safer because more easily protected when kept well within bounds and trained against high walls, and, moreover, in many districts the wood would not ripen sufficiently if it did not get the benefit of warmth from brick or stone walls. If Mr. Tallack doubts the wisdom of adopting these views, let him pay a visit to either Longford Castle, Salisbury, or to Badminton, near Chippenham, before he wholly condemns the practice again. At both places there are grand trained Fig trees, which, being protected, never fail, and that is more than can be said of neglected trees generally. I only advised root-pruning in the case of over-luxuriant and therefore unfruitful trees; while if trees gave signs of exhaustion, failing as they sometimes do to swell off a good crop, then I know from long experience that it pays well to manure them. Some of the finest Fig trees that were ever

seen in this country probably were at one time growing under the Shakespeare Cliff, Dover, and these certainly had no rich food at their disposal, but then they had the benefit of a salt-laden and most congenial atmosphere.—W. IGGULDEN.

—I agree with the remarks of Mr. Tallack on this subject (p. 366). In the case of such fine Fig trees as he describes as not infrequently met with in such counties as Cornwall, and he might have added Sussex, the vital question is often to find where the neglect comes in. It is many years since I advocated strongly in these pages and elsewhere the free and easy, that is, the natural mode of growing Figs, as the surest mode of obtaining good crops in the open air. Nothing that I have seen or learned since has led to any modification of those views. On the contrary, their soundness and success have recently been strongly confirmed. The latest is also the most extensive example that I have ever seen of Fig growing in the open air in England. The conditions are very similar to those described by Mr. Tallack, though they are not the same trees and hardly in such a favoured clime as Cornwall. They were planted, however, in paved yards without apparently any border or preparation whatever, and clothe, moreover, surfaces of wall—in fact, almost all the offices of a large



Roses trained over an iron arch.

mansion, many of the trees being from 20 feet to 30 feet high and as much wide. The varieties were mostly the White Marseilles and the Brown Turkey, the latter of which I consider the best Fig for the open air, though the Brunswick and all the Ischias will also ripen well in the open in an average of seasons even in East Anglia.

Two conditions, however, are essential to success. A hard, poor, or no root-run for the roots, and no pruning, training, nor stopping of the tops. In other words, starve the roots and let the tops alone, simply tacking them up to the wall and fixing the leading shoots against fence, wall, or other support. They will then naturally form a sort of half-standard with short, bushy branches all over the surface, each of these branches ripening from three to five or more Figs every year. Better fruit in size and flavour no one need desire than can be gathered from such trees with this minimum of culture and of labour, while as to the quantity it may be safely affirmed to be ten times as great as can possibly be gathered from skeletonised Fig trees that one frequently meets with in the open air.

Nor is this the only advantage. By restricting the supplies of sap and of food and converting them all into luscious Figs, through hundreds of channels the trees are made far hardier and winter well without protection. Not that the Fig is even absolutely hardy in our climate, unless in the

counties close to the seashore. Hence every now and again, or once in a decade or so, the thermometer runs down to zero, and our Figs are cruelly maimed and crippled, perhaps killed to the ground line. But even then Fig trees grown on these free and easy methods come through the freezing best, and often suffer very little, while the skeletonised, formally pruned and trained trees are killed outright. It must also be admitted that all summers are not alike favourable to the ripening of Figs in the open air. We have had several cool, comparatively sunless summers in succession, the last, that of 1891, being the worst of the series. Hence there were several complaints of outdoor Figs not ripening last year.—D. T. F.

ROSE GARDEN.

CLIMBING ROSES AND THEIR USES.

WHAT can be more beautiful than an Ayrshire or Evergreen Rose scrambling up the stem of some old tree, which is probably bare of branches for the first 10 feet or 12 feet from the ground-line, although its lofty head is a fine feature on the outskirts of a lawn or shrubbery? Deftly and rapidly these Roses twine and wind themselves around the rugged trunk till they reach the branches above, where, spreading and bending downwards, the clusters of flowers gracefully intermingle with leaves and branches. Climbing Roses are equally well adapted for trailing over arcades, painted iron arches (see illustration), arbours, and rustic temples. For the purposes just indicated, the Ayrshire, Evergreen, and Multiflora Roses are the best, while Gloire de Dijon and Lamarque both do well on painted iron arches and trellises. They grow vigorously when well fed, often making shoots 10 feet to 12 feet long in one season. They are very hardy, and when fairly established flower most abundantly. For low fences, the Hybrid China, the Hybrid Bourbon, and the strongest growing Hybrid Perpetuals may be used;

and if a wall with a south aspect requires to be covered, whether high or low, some few of the Noisette, Tea-scented, and Banksian Roses are the very best kinds that can be planted. The general management of climbing Roses is familiar to every Rose grower. The Banksian Rose alone requires special treatment. It is common to hear of this Rose growing freely, but flowering sparingly. This is usually due to the system of pruning, very little of the latter being necessary. The gross shoots should be stopped during the growing season, and the thin wiry shoots removed early in the spring. The aim should be to obtain and preserve a goodly number of moderate-sized, well-ripened shoots, for it is such, and such only, that produce flowers. T. P.

Trellis-trained Roses.—"A. D." has an inspiring note about these, 16 feet and 20 feet high in a high house under glass. When thoroughly clothed in the early spring, the colour and fragrance must indeed be magnificent. But his selection of varieties is so peculiar as to merit special notice. Catherine Bell I do not know, but of those named, neither Homère nor Cheshunt Hybrid are often grown under glass. The colour of the latter is against it as a house Rose, however useful it may be in many positions in the open air. It would be inte-

resting to many readers to learn whether glass refines the exquisite buds of *Homère* without prematurely opening them into flat or malformed blooms. *Homère* is almost matchless in the open air, especially for the colour and almost perfect form of its autumnal buds; but I have seldom met with it perfect either in colour or form under glass.

D. T. F.

ROSES ON THEIR OWN ROOTS.

ABOUT this time last year there were two or three articles in *THE GARDEN* upon this subject. The question of own-root Roses is one of great interest, especially to amateurs, who are often unable to detect the difference between a sucker that emanates from the stock the Rose is worked upon or whether it proceeds from the Rose itself. This is undoubtedly the chief cause of the popularity of own-root Roses over those worked upon various stocks, and is, in fact, the only advantage I see in this system of cultivation.

Not only do Roses worked upon a stock that is suitable both for the variety and the soil it is to be grown upon do much better and retain a stronger and more healthy constitution, but they produce flowers of greater merit both as regards colour and size. In only two cases would I grow Roses upon their own roots, viz., in very light sandy soil and as pot plants. Even then I much prefer them to be worked upon some stock. Many of our finest Roses lose their vigorous growth to a certain extent, unless assisted by the more robust constitution imparted by a judicious use of some stock. The force of this is fully borne out by experience, and I may state that all extensive growers, whether for sale or exhibition, invariably grow the majority of their plants upon some foster stock. It has been said that it is useless to ask in many of the best Rose nurseries for plants upon their own roots. As a trade grower, I may reply that any demand for such plants would speedily create a sufficient supply, and that the greatest argument against own-root Roses is the fact of so few being grown by our most successful and enthusiastic rosarians. There are but few Roses that recommend themselves to me for own-root cultivation besides the *Fairy* and *China* classes. *La France*, *Boule de Neige*, and a few of the Tea-scented division, such as *Marie van Houtte* and similarly free growers, are all that I can recommend for this style of culture. A little thought should always be given to the important question of which stock is most suitable for the soil you intend growing Roses in, and also upon the variety of Rose. There is not nearly sufficient attention paid to this among amateur propagators and growers, and hence the great diversity of opinion upon this important point. It is only natural that the nurseryman should grow his plants upon the stock most suited for them, and we may take it that there is a greater demand for worked Roses than for those upon their own roots, simply because the former are preferable, and not on account of the difficulty of obtaining plants that are cultivated in the latter manner—a difficulty (?) that would be readily met if the demand only called for it.

All dwarf Roses should be planted a little below the junction of stock and Rose, and will then almost invariably start off upon their own roots to a greater or less extent. It has been argued that this fact points to own-root cultivation as being the most suitable, but upon transplanting established plants I have almost always found the roots of any suitable stock to be in first-rate health, and consequently affording a great deal of support to the Rose. There are very few gardens in which own-root Roses thrive satisfactorily, and these are almost always composed of light sandy soil over a chalky or gravelly subsoil. In most of these cases had the Roses been worked upon the *Manetti* or the cutting *Brier* stock, according to their variety and class, better results would have been obtained, more especially if some manurial assistance of a stiff or close nature had been applied. Own-root Roses take a considerable time to grow large and strong enough to produce a satisfactory crop of flowers, and even in the event of

severe frost cutting them down to the ground-line, there is little to choose between them and a well-worked dwarf that was properly planted and which received a little judicious protection in the way of earthing up with soil on the approach of severe weather; in each case the plant will push into new growth from below the ground-line. It is in the warmer southern countries of Turkey, Egypt, &c., that Roses thrive upon their own-roots satisfactorily, and although American growers cultivate the Rose somewhat extensively under the same system, I believe I may safely affirm that it will be a long time before this style of culture becomes popular among experienced and unprejudiced growers in this country.

On page 401, Vol. XXXIX., "A. H." mentioned having planted twelve own root plants of *The Bride* in heavy loam and with rather unsatisfactory results, notwithstanding this grand variety is very extensively grown in this form by Americans. It would be interesting to know whether our American cousins attempt to cultivate own-root Roses in heavy loam. RIDGEWOOD.

THE HARD PRUNING OF ROSES.

I NEVER quite understood the baldness and bareness of this until a few days ago I had the pleasure of seeing an exhibitor's Rose ground. At a few paces distant this rosery looked like a bare fallow. On nearer approach, a few long-pruned sorts showed a few branchlets with from two to three buds apiece on them; the others were cut hard back to the ground line. In some cases even the earth was removed from the collars to enable the Rose shoots to be cut back yet harder still. Teas on *Brier* cuttings were cut harder still. From the character and circumference of the stumps one could estimate the faggots of Rose wood for the fire that must have been carried off this single Rose ground. The loss of force and of fragrance set me asking, Is Rose showing worthy of such sacrifices? It seems almost a sacrilege to the Roses to waste so much to produce so little. Of course such modes of culture are useful in their way. They show what the concentration of vital force and cultural skill can accomplish in certain directions—viz., in staging Rose blooms as big and so far perfect as to win prizes.

A thing of beauty is a joy for ever is, or ought to be, emphatically true of the Rose. But what of those bald, bare beds, those horrid smelling mulches and saturating draughts of foul-smelling liquids, and all the rest of the stimulating régime adopted by growers of Roses? The results are flowers of prodigious size, rich colour and texture. Granted; but, nevertheless, it is high time that the growing of Roses only or chiefly for showing became less and less, and that the growing of a Rose for its fragrance, natural colour, grace and beauty in our gardens and landscapes should be increased in all directions.

While on this question of restrictive growth for show Roses, perhaps some expert in such matters would explain why *Brier* cuttings are superior to seedling *Briers* or any other stock and to own-root Roses for hard pruning and the growth of perfect show Roses. D. T. F.

Rose *Reine Marie Henriette* under glass.

—It is only towards the autumn that the deep colour of the flowers of this Rose is seen when grown in the open air, and as it is not so free flowering at that time as in the early summer months, it is not considered a first-class red Rose for outdoor culture. Under glass, however, it is always very highly coloured and forms one of the very best deep red Roses we have. For early forcing there is probably no red Rose superior to *Reine Marie Henriette*. It forms a particularly pleasing bud of a long and pointed shape, and each one opens into a good-sized flower, while it leaves nothing to be desired in its freedom of growth and flowering. This Rose may be treated exactly the same as *Maréchal Niel*, and, generally speaking, it will give better results. The flowers are also a grand con-

trast in colour, and when grown under glass are altogether superior to those from plants cultivated in the open air. Our plants of this grand Rose make quite as strong and long growths as *Maréchal Niel*, frequently throwing from four to seven or eight shoots 12 feet to 15 feet in length, and which flower with even more freedom than those of *Maréchal Niel*. Where a good red Rose is wanted, and sufficient room can be afforded, I can very strongly recommend *Reine Marie Henriette*, and, provided it is grown upon the long-root system and treated the same as *Maréchal Niel*, I am sure it will please all who give it a trial.—R.

THE WEEK'S WORK.

PLANT HOUSES.

STOVES.—PROPAGATION.—Now that the main part of the bedding plants is out of hand, no time should be lost in turning to the best account the means at disposal for the propagation of such plants as have not yet received attention for the requisite increase this season. Of course, with well-arranged propagating pits, without which no place of any pretensions should be considered complete in its arrangements, it is much easier to give better attention to and greatly facilitate the propagation of any plants. Attention should now be turned to the stock of plants for the following winter season. The earliest batch of *Poinsettia* cuttings should be got in as soon as the plants have made sufficient growth, for each has to be taken off with a heel. If the old stools have not thus far been placed in more heat to induce them to break kindly, a portion at least should now be so treated; some can be left till later if desirable, but those now started will give several successional batches of cuttings if they are not in any way pruned. All the light possible should be given the old plants, with a watering now and again at the root, but too much atmospheric moisture is not desirable, otherwise the young shoots will be of too sappy a nature to strike speedily and without the loss of the leaves already made. A moderately close pit with a steady bottom-heat will suit them well, a sufficient amount of ventilation being afforded to preserve the foliage from damping, yet not sufficient to cause the cuttings to suffer. One cutting to a 2½-inch pot is better than more in larger pots with the after necessity of dividing with its corresponding check. Loam, leaf-mould, and silver sand in about equal proportions will suit well for propagation. The best kind for propagating now is *Poinsettia pulcherrima roseo-carinata*, which is about three weeks earlier than the old kind or type.

EUPHORBIA JACQUINLEFLORA should also be struck now as soon as good cuttings can be had; these strike much better in every way if the plants are thoroughly exposed to the sunshine. When the cuttings assume a bronzy tint, as in the case of plenty of light being given them, they strike more kindly—at least, such has been my experience. Cuttings about 3 in. long taken with a heel are the best. These I prefer to strike about six or eight in a 4½ in. pot rather than in separate pots, as these latter retain with the additional soil too much moisture at the commencement. More sand is advisable also with this *Euphorbia* for striking, whilst I would rather cover with a bell-glass than place them in a propagating pit with other things. The bell-glass can be wiped dry once a day when needed, a piece of paper being used when any shading is found requisite. These cuttings as soon as rooted fairly should be potted in small pots and be still kept moderately close for a time, but the nearer to the glass so as to ensure a sturdy growth, the better plants will they eventually make. Where there is a suitable corner in a warm house the old plants may with advantage be planted out, but not in over-much or excessively rich soil, drainage in good quantity being provided; these plants will throw a good quantity of bloom for cutting.

Cuttings of *Plumbago rosea*, *P. coccinea*, and *Eranthemum pulchellum* when plants of good size are desirable should now be struck;

the same may be said of such Begonias as *B. insignis* and *B. Knowsleyana*. The winter-flowering tuberous Begonias need not yet be excited into growth; they will come away all the better if allowed a little more rest. Seedlings of *Aphelandra aurantiaca* Roezli should now be making nice little plants if the seed was sown in good time; these should be kept as close to the glass as possible, a dwarf and close growth being most desirable. If seedlings have not been raised, which is the most expeditious mode of increase, cuttings should be taken from old stools at once if sufficient growth has been made. Where the stock of such useful plants as *Ixoras* in variety, *Gardenias*, *Clerodendrons*, and other flowering stove plants is at all low, or the older ones showing symptoms of failing, then sufficient cuttings should be taken so as to ensure the proper number of each being retained in a healthy condition. This important fact should be borne in mind: a healthy thriving young plant is far preferable to an old, decrepit stool, however reluctant one may be to destroy those which have done many a good turn.

FLOWERING PLANTS of the stove house which are now making, as they should be, a free growth for summer and autumn blooming can be timed to a nicety for their flowering period when this is desirable for any particular purpose. *Allamandas*, for instance, if stopped all over (strong shoots and weaker ones) will, if pinched back to the youngest of the developed leaves, break away in an even manner and flower simultaneously in from ten to twelve weeks according to the temperature. *Bougainvillea glabra* requires the same time. *Rondeletia speciosa* major, a much-neglected plant, requires sixteen weeks; treated thus this fine subject for autumn flowering is increased in beauty two-fold. *Clerodendron fallax*, the best of the shrubby species, requires about six weeks from the last stopping, the same time being allowed for the *Vincas*. *Stephanotis floribunda*, if quite at rest by being retained in a temperate house, will come into flower in about twelve weeks when again introduced into heat. These facts may be useful to some growers for special purposes.

JAMES HUDSON.

FRUIT HOUSES.

PINES FRUITING.—Plenty of sunshine and rather high day temperatures will have brought the forwardmost along rapidly, and some of the Queens will now be near their ripening period, in some cases probably already colouring. All ought to be kept uniformly moist at the roots, liquid manure being applied frequently, nothing answering better than guano mixed with warm, soft water at the rate of 1 oz. to the gallon, well-diluted liquid manure being a good change. While the fruit is swelling, high temperatures and a moist atmosphere may be safely and advantageously maintained, overhead syringing being also resorted to on clear days when the house is finally closed. Seeing that air may and should be given rather freely during the hottest part of the day, much atmospheric moisture will not seriously affect the quality of the fruit, but the crowns should not be wetted more than can be avoided, as it is not desirable that these should attain a great size. For the earliest and also the successional batch, and which ought now to be near the flowering period, a bottom heat of about 85° should be kept up, while the top heat may range from 75° to 70° by night, dropping to the lowest figure after 10 p.m. On clear days give air when the heat stands at 75°, and keep it at about 80°, closing early enough to run it up to 90° for a time. Dispense with fire-heat as much as possible, especially when sunshine prevails. Keep fully grown Smooth Cayennes, Rothschilds and any other late sorts that are to be started early in June somewhat cool, and also dry at the roots till that period, or otherwise they may fail to fruit when desired.

YOUNG PINES.—The sunshine has been almost too fierce for these, and in all probability rather more shade would have been beneficial. There

must be no sudden changes in the treatment or undue excitement, or not a few of those finally potted in February or March will fruit prematurely. Keep up a steady bottom heat of about 85°, and let the night temperature not exceed 65°, air being given in the morning when the heat reaches 75°. Close somewhat early, so as to run up the heat to 85° and syringe overhead very lightly, maintaining a moist atmosphere by frequently damping the dry walls and floors. Give the plants good room with a view to keeping them sturdy, 2 feet apart each way being none too much. Any not sufficiently well rooted to be shifted into fruiting pots in March should now be in a condition to be finally potted.

EARLIEST GRAPES.—In order to colour Grapes properly, and also to bring out their full flavour, they must not be kept too hot and close during the ripening period. Admit air as freely as possible without, however, unduly lowering the temperatures, and a little front air should also be left on every night. Continue damping down occasionally, a very dry atmosphere not being desirable, and attend well to the watering; those in pots require abundance of water and liquid manure up to the time they are nearly fit to cut, when clear water should be given. Pot Vines rarely do any good a second time, and are usually thrown away after fruiting; but if particularly required or valued, they may be prepared for fruiting again. Soon after the fruit is cut, turn them out of the pots they were fruited in, rather freely reduce the old ball of soil and roots, and then shift into pots a size or two larger than those they were previously in. Use a rich loamy compost, to which half-inch bones have been freely added. Keep rather close and warm for a time, also shading lightly from bright sunshine, this, coupled with frequent overhead syringings, preventing flagging. When well recovered from the severe treatment given, let them have plenty of air, and early turn out against a warm wall where they must be kept well supplied with water and prevented from making much late growth.

SUCCESSIONAL VINERIES.—Look well to the bunches, taking good care not to leave too many on the rods, and if the berries promise to reach their full size, see that they have good room to swell, late attempts to cut out a few more berries not unfrequently leading to the disfigurement of those retained. Also attend well to the fertilisation of those shy-setting varieties in the somewhat later houses, this being done towards midday or after the pollen is dry enough to distribute like a cloud of dust. Tapping the rods smartly is frequently all that is necessary at this late date, but those who are somewhat nervous about the matter prefer to use either a good-sized camel's-hair brush, a rabbit's tail, or the palm of a non-hard-worker's hand, the bunches being lightly touched over with these. Keep the sub-lateral growth well within bounds. It ought never to be so far advanced in growth as to require a knife to remove it. Keep a close look-out for red spider and thrips; sponging the leaves first affected by either of these dreaded pests with soapy water may be the means of saving the rest of the Vines, and nothing short of this tedious process can be said to be both safe and effective. Mealy bug if present last season will inevitably put in an appearance this spring, and that in spite of the greatest pains in cleansing the rods and house. If the Vines are gone over frequently and the few odd bugs that have escaped destroyed, the clearance may be effected and much worry and annoyance prevented. It is after overhead syringing ceases, and this ought in most cases to be when the flowering period is reached, that insect pests begin to be troublesome. They all thrive best in a dry, airy house, but not so the Vines; therefore maintain plenty of moisture in the atmosphere by damping down frequently, and if a little soot or guano water is added or distributed about (strong doses being guarded against), the ammonia thus generated will be highly beneficial to the Vines as well as objectionable to insect life. Ventilate early or soon after the sun strikes on the house, keeping the

heat at about 75°, closing early enough to run it up to 85°, and letting the temperature drop during the night to about 65°.

STRAWBERRIES. Very hot and dry shelves do not suit these, finer, more fully flavoured fruit being obtained from plants kept in moderately warm forcing houses only. If more of the early varieties were grown, these would ripen quickly on the sunniest greenhouse shelves and also in pits, but the late sorts would not succeed well in such positions, Noble on warm borders ripening more quickly. The latter could be potted up readily if more fruiting plants are desired for house culture.

PRACTICAL.

THE KITCHEN GARDEN.

BROCCOLI.—The past unseasonable weather, following also upon the experiences of last year, when most of the Broccoli was killed outright, may have deterred some people from growing it so largely as usual. Still, Broccoli is plentiful where due care was taken in growing the plants fully exposed from the earliest stages of their existence. The plants must be raised in an open quarter well exposed to the sun and air. Over-rich soil is certainly not necessary, but it must be rich enough to ensure an early germination, so as to enable the plants to grow away quickly from the ravages of fly. The seeds must be sown thinly in drills 15 inches apart, this being better than sowing broadcast, as the plants are fully exposed on all sides. As small birds are apt to be troublesome, do not neglect to damp the seed and cover with red-lead; but as the seedlings are often pulled up as they appear, whether red-leaved or not, do not neglect netting over the bed.

VEGETABLE MARROWS.—Plants raised much earlier than this, unless for forwarding in frames, are apt to become starved or stunted in the pots preparatory to being planted out. With ordinary care, plants raised now will be in good condition by the time the weather is suitable for planting. The seeds, if sown thinly in 6-inch pots, will quickly germinate if placed in any fairly warm structure or on a gentle hotbed. When ready for potting, use 5-inch pots. Plants already raised for growing on in frames should be planted out as soon as ready. If Potato or other frames which are in use are to be utilised and are not already clear, a root or two removed in the centre of each light will provide room for starting the plants. In preparing sites for Vegetable Marrows, see that they are well exposed to the sun, but sheltered from cutting winds. Heaps of fresh manure are not necessary, these causing a rank and unfruitful growth. A fairly rich bed is certainly needed, and if sufficient fermenting material to generate a gentle warmth could be provided and the plants have the further protection of handlights, the plants will be considerably benefited.

RIDGE CUCUMBERS.—These may also be raised now, especially if protection can be afforded the plants for a start. Where suitable beds are formed, the seeds, two or three under a hand-light placed at intervals of, say, 3 feet apart, may be sown where the plants are to remain, but the better mode is to raise the plants separately, either by sowing the seeds singly in 3-inch pots, or more in a larger one and potting them off. These by being placed on a gentle hot-bed or any warm structure will quickly germinate. Ridges of fermenting material surfaced with 9 inches of good soil will have to be provided for the reception of the plants. The ridges should be formed about 4 feet in width and 30 inches or 3 feet in height, and wide enough on the top to take a handlight. The plants if set out under these 3 feet apart and regularly attended to as regards watering, ventilation, &c., will soon come into bearing. Stockwood Long Ridge is the best for open-air culture. Gherkins for pickling are produced similarly.

SCARLET RUNNERS.—As a rule May 10 is early enough in the most favourable districts and soils, and on our cold soil it is quite a week later before we can sow. If early produce is needed and the

cultivator is anxious to get the seed in, the wisest course is to resort to forwarding in pots. Two seeds in a 5 inch pot are preferable to sowing singly in smaller pots. Place the pots in a cold frame, taking the precaution to see that the soil is in a sufficiently moist state, so that water need not be applied before the seeds germinate. See that the plants are well hardened off before planting out. Scarlet Runners succeed best on strong holding soils in a fair state of fertility. The seeds should be sown in double rows 9 inches apart, allowing not less than 6 feet between the rows. Isolated rows are also most productive, and in small gardens this is the best method, as other crops may be grown up to within 3 feet of the row. In private gardens I prefer sowing in rows and training to sticks to growing them as dwarfs without stakes. Where this latter is decided upon and stakes are not to be had, sow in single rows 4 feet apart, the plants being topped occasionally to make them bushy. A. YOUNG.

ORCHIDS.

SOME allusion was made last week to the special treatment of growing plants and the different treatment they require from that given to flowering plants. Many species of Orchids now considered difficult to grow would become amenable to the artificial treatment which they are given if we could ascertain exactly the conditions under which they are found and the climatic influences surrounding them in their native country. One of those conditions is certainly a good growing period, merging gradually into a state of rest. I have repeatedly urged the importance of this period of absolute rest, but it must not be implied from this that the plant is doing nothing during that period; the very reverse of this is the case. The resting period is a preparation for the time of flowers, but this would be of no use unless the plants have made good growth. Another important point which must not be overlooked, and this is the right time to allude to it, is the effect upon some Orchids of allowing them to carry their flowers for too long a period. Amateurs and others are not only anxious to see their plants in flower, but they like to see the flowers on the plants as long as possible, and in some cases it does not matter how long they remain in bloom. We have here a large specimen plant of *Cypripedium villosum* in the most vigorous health with at least fifty flowers now open upon it. That same plant has annually increased in size for sixteen years. It produces its flowers in March, and they remain in good condition until past the middle of June. The plant is placed in a cool house to keep the flowers as long as possible in good condition, and it has been at upwards of thirty exhibitions in that time. *Masdevallias* and many other *Cypripediums* will stand this treatment; many Orchids will not. The truly handsome *Oncidium Marshallianum* and *O. macranthum*, alluded to last week, will flower annually and grow vigorously for a few years, but if the spikes are allowed to remain on them until the flowers fade, they gradually lose vigour and bloom later every year. It is a good plan to give the plants a season's rest by removing the spikes as soon as they appear. This gives the plants a chance to throw all the vigour into the formation of new bulbs, and they will also recover the ground they have lost and flower earlier again. A vigorous healthy plant need not and ought not to be prevented from flowering; in fact, some Orchids resent any interference with the perfect development of their flowers, but the watchful cultivator will be on the alert and can tell when any of his plants are distressed from the over-production of flowers. I have seen Orchids, some of them of much value, in such a poor state, that the production of a flower-spike was the very last effort they were likely to make, and yet the plants would struggle to do this, even if they succumbed in the effort. To save the plants it would be wisdom to remove the flowers even for two seasons until the plants had time to recover. Many of the small *Oncidium*s, some species of *Phalenopsis*, and various other Orchids require this judicious treatment to do

them full justice. Some Orchids have a tendency to degenerate under cultivation, notwithstanding all that the cultivator may do to keep them in good condition, and when newly-imported plants of such genera can be purchased cheaply, it is better to throw the exhausted plants away and trust to keeping up a succession by fresh purchases. The cultivator must not be blamed if he cannot do what has not yet been done, but we ought not, on the other hand, to too readily take for granted that certain Orchids will not become permanently established in this country. The reason why some species which are possessed of extraordinary vigour in their native country, but which gradually decline after the first few years in our houses, is doubtless owing to the want of knowledge of their requirements. It is well known that some cultivators can grow certain genera better than others. The crucial point is that one may hit the exact requirements of the plants with but little trying, and another, try as he will, cannot do it.

I have already in these calendars alluded to the desirability of taking plants in flower into a cooler house, so that the blossoms may last longer;



Hanging basket of Ferns.

but this is a matter that must fairly be considered on the merits of each individual case. Some plants may suffer so much from the change that they ought not to be taken out at all, and others which may be weak ought to have their flowers cut off as soon as they open. *Lycaste Skinneri*, in all its beautiful varieties, from pure white to rich deep colours, has now mostly passed out of bloom and is starting to grow. Leaf-mould has been found to give great vigour to the bulbs, plumping them up to a large size, so that many large flowers are produced from one bulb the following season. These plants seem to like something between the cool house and the *Cattleya* house, and when in full growth an occasional dose of weak liquid manure water is beneficial. Some of the *Burlingtonias* will now be forcing themselves upon our attention; the flowers may be expected to appear during this month and the next. *B. candida*, upon which the genus was founded, is now in bloom, and its pure white flowers, with a

slight yellow stain on the lip, are very fragrant. *B. decora* blooms later, and the variety *picta* produces its flowers in the autumn. *B. fragrans* is said to fill the native forest where it grows with its fragrance. *B. venusta*, with its delicate pink-flashed flowers, produced in drooping clusters, is also very charming. They are all very easily grown suspended from the roof-glass in the *Cattleya* house in teak baskets. They do not like too much decaying peat and *Sphagnum* about their roots. The roots push outside the baskets and hang downwards, and they should be encouraged to do this by being damped frequently, even when none is needed for the material in which they are planted. J. DOUGLAS.

FERNS.

FERNS FOR GROWING IN HANGING BASKETS.

THIS mode of culture for Ferns has much to recommend it, inasmuch as with a suitable selection for respective kinds of houses Ferns are, on the whole, as well or better adapted for the purpose than any other description of plant with ornamental foliage. Lofty conservatories of an ornamental character are excellent places for displaying hanging baskets to advantage. Considering that sufficient room for flowering plants can be found upon stages or other positions at a lower level, it is on the whole considerably better to depend upon the baskets being filled with plants that will remain of permanent interest. The best position for hanging baskets is over the pathways, so as to avoid any drip upon plants beneath them. These may be suspended in two ways with advantage, either by means of slender, but sufficiently strong chains, or by wire rope running through pulleys. This latter is a convenient method for watering without the use of steps, which have to be used in the other instance. A very good time for watering hanging baskets is at nightfall, the object being to avoid any drip during the daytime; when this is not suitable, the early morning is the next best time. The majority of Ferns in hanging baskets require but little shade. Where this is the case, more water will be found necessary;

in fact Ferns in baskets will in comparison with those in pots absorb a deal more moisture; hence, good attention is requisite upon this point. In making up baskets of hanging Ferns, it is far better to select a tolerably good and strong plant rather than two or three weaker ones. The sides of the basket should be lined with *Sphagnum Moss* to hold the soil as well as to retain moisture around the roots. Sufficient room should be allowed for watering, keeping the crown of the plant in a slight hollow. Around the sides some *Selaginella* should be pricked in; this will soon take root if the baskets be kept for a short time in a humid atmosphere, and at the same time be an assistance to the Fern itself. The baskets are most durable when made of wire, afterwards galvanised; these may be of various sizes, but those unduly small do not give sufficient room

for soil. The tops of the baskets should be the widest part; plain baskets are just as good as those of an ornamental character, bearing in mind that the Ferns are the real ornaments—not the receptacles. Ornamental baskets of rustic make look very well, but these when made of wood do not last so long in good condition. Those made of pottery are better, but are, of course, heavier; hence wire baskets are the most suitable for the purpose. The soil for the majority of Ferns in baskets should be about equal proportions of fibrous peat and loam with sand. For an ordinary conservatory that is kept at about the temperature of a greenhouse with free ventilation the following are good kinds to grow, viz.: *Asplenium flaccidum*, *Davallia canariensis*, *Adiantum assimile*, *Lygodium palmatum*, *Nipholobolus lingua*, *Platynerium alcorni*, and *Woodwardia radicans*, the last for large baskets. In a temperate house the following will do well, viz.: *Goniophlebium subauriculatum*, *Adiantum amabile* (one of the best of all), *A. cuneatum*, *Davallia elegans*, *D. fijiensis* major, *Lygodium scandens*, and *Nephrolepis exaltata*. For a stove temperature the following may be added to the foregoing selection, viz.: *Asplenium longissimum*, *Davallia tenuifolia*, *Veitchiana*, *Nephrolepis davallioides furcans*, *Adiantum concinnum*, *Gymnogramma schizophylla gloriosa*, *Davallia bullata*, and *D. Mooreana*, the last for baskets of extra size. *Adiantum farleyense*, where it does not succeed so well as one could wish, should also be tried suspended from the roof in a stove; thus treated it often thrives remarkably well. The present is a very good time for making up Fern baskets. That of which an illustration is now given is a good example. PLANTSMAN.

NOTES OF THE WEEK.

Lobelia Reine Blanche.—To those who require a first class dwarf white Lobelia I can strongly recommend this. During last season (being a wet one was a very fair test as to its habit) it remained equally as dwarf as the blue, and is a distinct acquisition.—W. B.

Soldanellas.—Mr. Fison has mis-read what I said. A reference was made by me to *Primula Allioni*, and not to *Campanula Allioni*, which does not require anything to be done for it. *Soldanellas* blossom very freely in some places, as I know—e.g., they do so in the garden of Clare College at Cambridge, but they behave very differently in other localities, and they have been very obstinate with me. It has for some time been a difficulty with me to see why it should be so.—H. EWBANK, *St. John's, Ryde, I. W.*

Shrubs in pots.—By same post I send you a few sprays of flower of hardy shrubs consisting mainly of the following: *Genista Andreana*, *G. præcox*, *Berberis stenophylla*, *Choisya ternata*, *Solanum jasminoides*, and *Andromeda japonica* for its foliage; they are from plants taken from the open ground and placed in a cool greenhouse to bloom. It is surprising that more attention is not given to this class of plants for pots, as they so amply repay the little attention they require.—R. H. VERTEGANS, *Birmingham*.

The spring Star Flower (*Triteleia uniflora*).—Although one of the commonest of this genus in cultivation, how rarely does one see it naturalised, and yet it is a plant that does well in this way. It suffers most from the east winds in early spring, and if care is taken to plant the bulbs in sheltered spots, that is, on western or southern exposures, the result will be a very pleasing surprise. It does not seem to mind even strong tufty Grass, and as the leaves die down early in summer, the mowing is in no way interfered with. The flowers are produced in April and May, and to see thousands of these bluish white

stars peeping from amongst the Grass—is very beautiful and well worth any trouble. It increases by offsets, and may be lifted and replanted when the numerous offsets show signs of overcrowding. The latter may be taken off and sown in drills, and in a couple of years will be ready for planting in the wood.—K.

The white wood Lily (*Trillium grandiflorum*) may be taken as the type of this genus of dwarf American plants, several of which are in cultivation, but none to be compared with the species mentioned above. It is one of the most singular and charming of all hardy plants, and one of the easiest to manage. Although it flowers well in an ordinary border, and we have often seen it do so, it is in moist, shady woods that this plant is seen in all its grandeur. It should be planted in shady ferneries, shady nooks of all kinds, and no pains should be spared to get strong, healthy specimens, as this is half the battle. With the exception of *T. californicum* and *T. erythrocarpum* (the Painted Lady), none of the other species is very showy.—K.

White Daffodils, we are told, are by no means easily managed, and this much I can bear out from the experience of a good many years. One thing I feel perfectly sure they want, and that is lifting often, and the more carefully they are harvested the better will be the result. They certainly do best in a poor sandy soil, which is kept dry with the roots of shrubs or trees, and in this way Mrs. J. B. M. Camm grows as freely as Emperor. I like it much better than Mme. de Graaff, and if it retains the robust health it has at present, I should say an infinitely better Daffodil. The flowers this year are larger and better formed than any of those of Mme. de Graaff I have ever seen. The most abundant flowerer of all the white Daffodils is William Goldring; the only fault is the drooping habit and weak stems. It is an excellent Daffodil for greenhouse work and forces well in pots.—K.

Heuchera sanguinea from seed.—It seems very remarkable that not one in thirty seedlings of *Heuchera sanguinea* come true to the colour and habit of the type as introduced by Mr. Ware, of Tottenham, a few years ago. Many of our seedlings have flowers quite as large, but none with the brilliancy of colour or dwarf habit of the type; but that, we hope, will come in time. The seedlings flower far more freely than the type. The latter, if planted out, flowers well the first year, but rarely ever afterwards. On the other hand, the seedlings bloom annually. They are very robust, with graceful flower-stems from 2 feet to 3 feet high, and numerous flowers of pale or deep rosy pink, very showy, but not so striking as those of the old *Heuchera sanguinea*, which we consider one of the finest hardy plants introduced in recent years.

Alyssum pyrenaicum.—Of all the Madworts we know of none to be compared with this. It is quite an alpine shrub, forming woody stems, and in spring forms a dense sheet of the purest white with its lovely Hawthorn-like flowers. We find it perfectly hardy, and it may be planted in between chinks of rocks on the driest part of the rockery, and here it will be found to thrive best, provided the roots can find good soil near at hand. It ripens seeds freely, which should be sown directly they are gathered, or it may be increased from cuttings taken off with a heel, and placed in sand under a hand-light. It is not a common plant, we believe, and even in the Pyrenees it is usually beyond the reach of the timid tourist. *A. Mœlendorfi* is a new species just received, and it promises to be a very good rock plant; the bunches of yellow flowers resemble those of *A. montanum*, but the leaves are much larger, with a beautiful glaucous tint. The dense tufts in which this species grows are very attractive during the winter.

Pasque Flowers.—The Pasque Flowers are about at their best now in the south. We noticed the other day a fine patch, a yard across, of the common one in the Kew rockery. Although not so grand as *A. patens*, our British species runs it very close, and it has the advantage of being more free-flowering and a better grower. It is a very useful rock

plant and does well in sandy loam with plenty of lime rubble. It seeds freely, and may be increased to any extent. *A. pratensis*, the type, is a beautiful dark velvety-flowered species, but it appears to be very variable, and some of the forms, such as *obsoleta*, have no segments at all, and others are small and dingy coloured. *A. montana*, a fine, strong free-flowering species with very dark purple flowers, is a great addition to the rock garden. It does well on a northern exposure, and may readily be increased by division or seed. *A. Halleri* is very near to *A. montana*, a dwarfer plant, however, and a very free flowerer. They are very easily grown, and are a very interesting group of alpine.

Primula nivalis (Pall.) var. purpurea.—This *Primula*, raised several times in England from seeds introduced from the Western Himalayas, has always proved difficult of cultivation, and as a rule dies out after once flowering. Is it not a singular fact that it proves very easy of cultivation if raised from seeds received from the Eastern Himalayas? Horticulturists are indebted to the directors of the Museum Garden at Paris for the introduction of this beautiful showy *Primula*. It proves as hardy as the common *Primrose*, and is by no means particular as regards treatment. It is also known as *P. Stuarti*. The thick, leathery, Oleander-like leaves are glaucous green above and covered by a thick golden yellow dust underneath. The flowers, which are composed of twenty or more in an umbel, are of the size of those of *P. japonica* and of a peculiar reddish lilac colour—about the same shade as a deep coloured flower of *Syringa vulgaris*. Specimens can be seen at the Royal Gardens, Kew.—MAX LEICHTLIN, *Baden-Baden*.

Notes from Carsethorn, N.B.—The greater part of April has been so unseasonable, that hardy flowers have had an unpleasant time, and it is surprising to see so many in bloom. Daffodils are very beautiful just now, but established bulbs of the white trumpet sorts have not flowered so well as usual. The bicolors have flowered freely enough, but have had less substance than usual, Horsfieldi in particular having been the worst in this respect. The yellow trumpets have done well, however, and the same may be said of the Star Narcissi, although, as the Rev. C. Wolley Dod has observed, the orange tints are entirely absent this season. The poeticus varieties promise well, and ornatus opened on April 26, poetarum following the next day. The first of the Tulips was *T. Greigiaurea*, which opened on April 24. *T. præcox* and a number of the early flowering Dutch varieties are well in flower also. Several of the Erythroniums are very pretty just now, among others being *E. Hartwegi* received from M. van Tubergen last autumn. It is a very pretty yellow-flowered species, and has prettily mottled leaves. Few of the species are as fine as some of the named Dutch sorts, among which *E. dens-canis* *blanca* is as good as any, having very large, almost pure white flowers and beautifully mottled leaves. The Fritillaries are as curious and interesting as ever, and it is strange we see so few in gardens. *F. æmopetala* with olive-green and brown flowers is very curious. *F. Moggridgei* is a gem. *F. Thunbergi*, although only a small-flowered species, is very curious, and *F. contorta* is both curious and pretty, the flowers being beautifully white and the twisted stem very singular. I have several others in flower or in bud. *Aubrietias* are covered with bloom, *Primroses* and *Polyanthuses* are in full flower, and *Poppies*, *Anemones*, several *Muscis* and many other things are very attractive.—S. ARNOTT, *Rosedene, Carsethorn, by Dumfries, N.B.*

Cymbidium eburneum.—The two species of *Cymbidium* that stand pre-eminently above the rest are *C. Lowianum* and *C. eburneum*, neither of which should be absent from any collection where there are facilities for cultivating them. They are very distinct from each other, *C. Lowianum* representing the section with flowers coloured yellow and brownish-red, whilst those of *C. eburneum* are, as the name implies, ivory-white. The latter species has been known in European gardens ever since 1846, but for many years it was by no means a common plant, and even now, although widely

and generally known, it might well be more extensively cultivated, considering its great beauty. It is a plant of good habit, having narrow, arching leaves of a pale, bright green, and arranged in two opposite rows. The raceme is erect, and differs from most of the *Cymbidiums* in being only one or two-flowered. The flowers are fragrant and of large size, their only colour appearing on the lip, which, whilst being mainly of a purer white than the sepals and petals, is also stained with pale yellow. The species has been found in Bengal, China, and latterly in Burmah. Commencing to flower in April, it will continue up to and beyond the present time. It requires an intermediate temperature, and should be potted in a compost of fibrous peat and loam with which a little chopped *Sphagnum* has been mixed.

Goodia latifolia.—This is one of the numerous leguminiferous plants from the Australasian region which add so largely at this season to the attractions of our greenhouses. Of these, the *Acacias* are the most conspicuous, but, unlike them, this *Goodia* belongs to the Pea-flowered section of this immense family. Its flowers are for the most part yellow, but there is a patch of reddish brown occurring at the base of the standard petal. Each flower is about half an inch across, the spike being 2 inches or more long and carrying about a score of blossoms. Every branchlet is terminated by a spike of flowers, and it is to its free-flowering character as much as the bright colour that the effectiveness of this plant is due. It may be grown either in pots or in the conservatory border. For freedom in flowering the former method is to be preferred; when planted out with an unlimited run for the roots it is apt to become coarse in growth after the first year. It can be propagated readily from cuttings or seeds, which ripen abundantly. In order to obtain bushy, low-growing plants, they should be frequently topped when small. As regards temperature, simple protection from frost is all that is needed in winter, and for the rest of the year no departure from the ordinary greenhouse treatment is required. Like most flowering plants from Australia, it likes to have plenty of light, and the nearer it is to the glass the better; but on the whole it is a very easily-grown plant. The generic name was given in honour of Peter Good, a gardener sent out from Kew to Australia towards the end of the last century on a plant-collecting mission.

Notes from Almondsbury.—Daffodils like C. J. Backhouse and Duchess of Westminster have been very fine with me this year. I had some sixty of these in glasses with their own foliage on the altar at Easter, keeping the trumpet-like *maximus*, *Emperor*, and *Horsfieldi* for the vases, I consider these high-class Daffodils, and superb for decoration. A dozen small glasses with single heads of *Geranium* filled up the rest of the space over the altar, and looked well against the carved Oak *reredos*, which has no colour at all on it. This is a sheltered garden, and I have no losses through frost to report, and all I require is some rain. *Gentiana acaulis* and *verna* are in bloom; also *Ornithogalum nutans*. How lovely this is. Will anyone tell me how to bloom *O. arabicum*; fifty bulbs tried on every position have given me one bloom only in three years? *Camassia Leichtlini* would please you; it is nearly out. Why is this so rarely seen? It increases very rapidly with me. *Primula rosea* has been lovely; half an inch of snow on it took the colour out a little. *Fritillaries*, red, yellow, white, green and yellow, charm many of my visitors, and a clump of *Anemone aldboroughensis* growing near *A. blanda* is very fine. This large form ought to quite displace *A. fulgens*, which always comes up too early with me and suffers accordingly. After all, *Hepaticas* are the best of the early spring flowers. My collection of 200 large plants represents much care on my brother's part in 1883. This year they were in bloom in February, disappeared under the snow, emerged triumphantly in March, and now are maturing foliage. Every year all the foliage disappears before August, and I do not think the plants are any the worse for it. Rain up to date, 5.36 inches.—C. O. MILES.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

MAY 3.

THIS was not such an extensive display as far as groups were concerned, but choice exhibits were numerous, particularly so of Orchids and new decorative fine-foliaged plants, with new *Roses* and beautiful examples of the *Polyantha* section. There was also an excellent display of hardy *Primroses* and *Polyanthuses*.

Orchids.

First-class certificates were awarded to the following species and hybrids:—

CATTLEYA VICTORIA REGINA, of which an imported plant was shown with two well-developed flowers, each about 6 inches across. The sepals and petals are of a rosy pink colour, suffused with violet, the lip some shades darker. This species appears to come nearest to *Lælia elegans* in colour, but lighter than *Cattleya superba*. Other imported plants, semi-established, were also shown, which clearly show it to be a most vigorous grower as well as being a free-flowering variety. Messrs. Sander and Co.

LÆLIO-CATTLEYA PHŒBE (C. *Mossii* × L. *cinnabarina*).—This lovely hybrid closely resembles, if it is not identical with, L. *Hippolyta*, shown by (and certificated) Messrs. Veitch and Sons in 1890. The sepals and petals are narrower than in C. *Mossii* (about three-quarters of an inch in diameter), the colour a rich apricot; the lip is of the same colour as that of *Cattleya Dowiana* in its best form. This is a singularly handsome hybrid, clearly showing in its colours the affinity to both of its parents. From Mr. Norman J. Cookson, Oakwood, Wylam-on-Tyne.

CATTLEYA MENDELI (Quorndon House var.).—This, save the faintest flush, might be termed a pure white form of this well-known Orchid. The lip is pure white, with inner markings of the palest yellow and veinings of a rosy shade. Amongst the lightest forms, this is one of the finest, the nearest to it being C. *Mendeli* (Blunt's var.). From Mr. W. E. B. Farnham, Quorndon House, Peterborough.

LÆLIA LATONA (L. *purpurata* × L. *cinnabarina*).—In this cross the colour is slightly deeper than in L. C. *Phœbe*, previously described (a bright rich apricot); the lip has some of the character of L. *purpurata*, smaller, but the colour deeper. As in the other instance, the plant bore two flowers. It is an exceedingly interesting hybrid. From Messrs. Veitch and Sons.

Awards of merit were given to—

PHAIUS SANDERIANUS.—This species is of vigorous growth, as much as or more so than *P. grandifolius*, whilst the flowers are considerably larger than in that well-known kind. The colour of the sepals and petals is a glossy brown; the lip has a broad margin of white, and is of good size, with a large blotch of a rosy brown shade. It probably comes nearer to *P. Wallichii* than any other species. From Messrs. Sander and Co.

CATTLEYA PHILO VAR. ALBIFLORA (C. *iricolor* × C. *Mossii*).—A delicately beautiful hybrid, having the faintest shade of colour in its otherwise pure white sepals and petals; the lip has the shades peculiar to C. *Mossii*, the flowers partaking of those of its other parent in form. From Messrs. Veitch and Sons.

Botanical certificates were awarded to *Eriopsis biloba*, a species first introduced in 1845, flowers dark yellow shaded with brown, borne upon erect spikes. From Messrs. Charlesworth, Shuttleworth and Co. Also to *Cynoches flexuosa*, the flowers having a conspicuous yellow lip with a dark blotch, sepals and petals green, a dwarf growing plant. From Messrs. Sander and Co. A cultural commendation was likewise awarded to the *Cattleya Mendeli* Quorndon House var., which was fully deserved, for a plant in better health could not possibly be desired, whilst it bore nearly a dozen splendid flowers.

From Messrs. Sander and Co. also came *Oncidium Larkianum superbum*, which is a fine form of the type with the lip somewhat larger and the colour of a deeper yellow, whilst the markings were more decided. From Mr. Cookson came the finest spike yet seen of *Cypripedium Rothschildianum*, showing this handsome species to be one of the very finest; its characteristic markings throughout were most decided and the flowers of extra size. Mr. Farnham also exhibited several plants of *Dendrobium Phalaenopsis Schroederianum amabile*, with strong spikes of bright-coloured flowers suffused with rosy pink, the clearly-veined lip darker in colour. Messrs. Charlesworth and Co. had a good example of *Lælia grandis tenebrosa*, with bronzy-yellow sepals and petals, the lip pink with a purple blotch. Mr. Handley, Bath, sent cut examples of *Vanda teres* and *Lælia purpurata*, the latter one of the finest forms. The seldom-seen *Lælia Boothiana*, with flowers of the colour of *Cattleya Lawrenceana*, but borne upon a more vigorous spike, was sent by Mr. Walker, Winchmore Hill, who also had *Gongora truncata*. Mr. Wrigley, Dukinfield, Cheshire, also sent *Dendrobium Phalaenopsis Schroederianum*. From Mr. Gledstanes, The Manor House, Gunnersbury, came a fine cut spike of *Cypripodium punctatum*, with its yellowish flowers spotted with brown—an Orchid rarely seen at any exhibition. *Oncidium citrosimum album*, a pure white variety, came from Messrs. B. S. Williams and Son.

Floral Committee.

First-class certificates were awarded to—

AGLAONEMA COSTATUM.—A dwarf and very compact growing Aroid, with heart-shaped leaves only a few inches in height, the colour a dark green with silvery-white spots and blotches. From Messrs. Veitch and Sons.

CALADIUM SOUVENIR DE PAËRO.—A miniature growing variety, having the markings of C. *bicolor*, but as dwarf in growth as C. *argyrites*, and of compact habit. From Messrs. Veitch and Sons.

TILLANDSIA MOENLII.—A species with elegantly recurved foliage, veined or mottled with pale green upon a yellowish green ground; a handsome variety. Messrs. Veitch and Sons.

TILLANDSIA MASSANGIANA SUPERBA.—Another fine form of vigorous growth, the foliage blotched and barred transversely with a dark bronzy shade upon a lighter ground. Messrs. Veitch and Sons.

DRACENA COULLINGI (D. *Mooreana* × D. *terminalis alba*).—This elegant variety has foliage considerably narrower, but nearly twice the length of that of *terminalis alba*, with the same colours, but more clearly defined. Messrs. Veitch and Sons.

LOTUS PELIOBRHYNCHUS.—A distinctly elegant plant with small red flowers, the growth pendulous, and some 6 feet to 7 feet in length, the foliage small, but densely arranged. This leguminous plant, known also under the name of Bird's-foot Trefoil, was introduced in 1884 from Teneriffe. Shown by Sir Trevor Lawrence.

Awards of merit were given to—

DOUBLE AURICULA GOLDEN DROP.—A pale or lemon-yellow variety with well-formed, neat flowers, very full, quite distinct, and an acquisition to its class. Mr. R. Dean, Ealing.

TEA ROSE CORINNA.—A new Rose of free blooming character, with flowers of a salmon-pink colour, full, and very beautiful in the semi-developed stage. From Messrs. W. Paul and Son.

HYBRID TEA ROSE WHITE LADY.—Those who desire *Roses* of the largest possible size will in this find a decided acquisition; the growth is very vigorous; the flowers, which are extra large and of globular shape, are borne upon stout footstalks, the colour almost white, with a slight tinge of blush. Messrs. W. Paul and Son.

TEA ROSE WABAN.—A sport from, but several shades deeper than Catherine Mermet, with the good qualities of this well-known Rose; this sport should prove a good addition. From Mr. W. Furze, Teddington.

Mr. H. B. May, Dyson's Lane Nurseries, Edmonton, had an extensive display of the choicest kinds of Ferns suited for decoration, the plants indicat-

ing by their appearance their suitability for exposure, the growth being of an enduring character, yet fresh and healthy, many being suffused with those tints peculiar to them when not too much coddled. These included *Pteris cretica* Mayi, *P. c. nobilis* (one of the most enduring), *P. serrulata* deasa, *Adiantum Williamsi*, *A. fragrantissimum*, *A. rubellum*, *A. æmulum*, *A. mundulum*, *A. Legrandi*, *A. glaucophyllum*, *Davallia Mariesi* (very elegant for rustic baskets), *Nephrolepis pectinata*, and that elegant, but little-known Fern, *Leucostegia immersa*, with its *Davallia*-like fronds of an attractive bronzy hue. With these were well-developed plants of *Fiscus elastica variegata* (silver Flora medal). Mr. R. Dean had an extensive display of hardy Primroses of his select strain, all shades from light to dark colours being well represented, and of giant fancy Polyanthus, the growth of which and the quality and colour of the flowers were excellent. This exhibit was by far the best yet seen this spring. Three new alpine Auriculas were also included, one named Prince George being a rich dark-coloured variety with a distinct yellow centre (silver Banksian). Mr. S. F. Hill, Lismore, Wimbledon Park, had a good exhibit of alpine Auriculas, seedling Amaryllises, and two examples of *Arisæma* sp. The Auriculas were well grown and freely-flowered, bearing large trusses of bloom; whilst the Amaryllises were an excellent strain of seedlings (silver Banksian). Messrs. Barr and Son had another of their well-known displays of Daffodils, the present being of a most comprehensive kind. Queen of Spain was again shown in fine condition, with the choice kinds mentioned last week in the report of the R.B.S. show (silver Banksian). Messrs. Lane and Son, Berkhamsted, had four large baskets of Polyantha Roses profusely flowered. These were beautiful examples of this Fairy Rose in its various colours. As pot Roses they are undoubtedly valuable for decoration, their growth being so compact. The sorts shown were Perle d'Or, Anna Maria de Montravel, Little Dot, and Polyantha, the method of showing in baskets being excellent (silver Banksian medal).

Mr. H. B. May also showed cut blooms of Tree Carnation Mrs. A. Hemsley, figured in THE GARDEN, March 26, 1892. Messrs. B. S. Williams had in *Asparagus medius* a promising-looking kind, the habit more plumose than in most kinds. Another capital Carnation shown by Mr. Thoday, Willingham, Cambs, was Florence Emily Thoday, with pure white flowers, in shape the counterpart of those of Mrs. A. Hemsley, the perfume in each instance delicious. Sir Trevor Lawrence showed a fine form of *Anthurium Rothschildianum* called maximum; its specific name well denotes its character. In addition to the certificated Roses, Messrs. W. Paul and Son also showed H.P. Danmark and Duchess of Albany, both of La France character, but of a darker shade; also Tea-scented Medea and The Queen. In the competing classes, Mr. Hodges, Lachine, Chislehurst, was first for a nice collection of alpine plants, consisting chiefly of Gentians, Saxifrages and varieties of Primulas, with *Anemone apennina*. For Barr's Daffodil prizes, Mr. Adams, Enfield, was easily first with a superior exhibit of sixty-five varieties of various sections, the best being Mrs. J. B. M. Camm, Harrison Weir, C. J. Backhouse, John Nelson and Queen of Spain. Rev. G. P. Haydon, Hatfield Vicarage, Doncaster, was second with also a good selection.

Fruit Committee.

There were a few interesting exhibits before this committee, notably the collection of vegetables from the Royal Gardens, Frogmore. A silver Banksian medal was awarded to Mr. O. Thomas, the Royal Gardens, for a collection of twelve varieties of vegetables, the Seakale and Asparagus being very fine. Fulmer's Forcing Bean, Model Broccoli, Large Red Tomatoes, and Ellam's Early Cabbage, Leeks, Mushrooms, Cucumbers, Ashleaf Potatoes, Kale, and Celery were also shown. From the same gardens was sent an excellent dish of La Grosse Sucrée Strawberry, the fruits being very even and well finished. A collection of fourteen dishes of Apples was staged by Mr. Miller, gardener

to Lord Foley, Ruxley Lodge, Esher. These had been kept for some months in the dark, and when exposed had become somewhat discoloured. The best varieties were Wellington, Ashmead's Kernel, Norfolk Beaufin, Ribston, and Northern Greening. A fine dish of Noble Strawberries was sent by the same exhibitor. A large Cucumber was also sent named Gilbert's King of Cucumbers, six fruits being staged; these the committee considered not equal to existing varieties. A nice lot of Mushrooms (3 dishes) completed the exhibits from these gardens. They had been grown in the open air, and were very fleshy. Mr. Wythes, Syon House Gardens, Brentford, staged a fine dish (2½ dozen being shown) of Brown Turkey Figs of large size. These were very fine for so early in the season. From Albury Park Gardens Mr. Leach sent two dishes of Lettuce Veitch's Perfect Gem. This is undoubtedly an excellent quick-growing Lettuce for spring sowing. Those sent were sown on the 14th February, planted in cold frames on March 11, and were ready for use in the middle of April. A new seedling Cucumber, a cross between Lockie's Perfection and Sutton's Prize-winner, was sent by Mr. H. Castle, The Gardens, Castlemans, Twyford. These were of a beautiful green colour with few spines, but a day or two past their best. Mr. J. Gibson, The Oaks, Carshalton, Surrey, was the only competitor for the prizes offered at this meeting for thirty fruits of forced Strawberries, any variety. He staged a good example of Vicomtesse Héricart de Thury. If a few leaflets of prizes awarded at these meetings could be distributed at the previous meeting, the competition would no doubt be keener.

INTERNATIONAL HORTICULTURAL EXHIBITION, EARL'S COURT.

This exhibition, which is formally opened to-day (May 7) by H.R.H. the Duke of Connaught, was, upon an inspection a few days ago, rapidly approaching completion. Mr. Milner has made the utmost possible use of the short time at his disposal since the control of the grounds was given over to his keeping. Several of the beds outside are already filled with shrubs of various kinds, and that in a characteristic manner, grouping rather indiscriminate mixtures being a feature in Mr. Milner's arrangements. Specimens of various styles of gardening both ancient and modern are nearing completion. These will be very interesting and instructive, giving particularly an insight into systems now seldom seen. The lawns throughout look remarkably well, the turf clean and good. The walks are laid out with forethought for the accommodation of large numbers of visitors; these also are nearing completion, the final touch of gravel being now laid on. The outlines of the borders are not in any sense formal, whilst the curves of the walks are easy, diverging from and into each other in a gradual manner. Under cover in the long range of building, which is entered from the main entrance in the Brompton Road, the space is being rapidly taken up by all kinds of exhibits bearing upon horticulture in a greater or less degree. At the entrance itself the effect will be noble and imposing with the final arrangement of foliage plants of large size, with others in flower. At the opposite end a covered garden is provided, which will be a source of considerable attraction, as well as a convenience during wet as well as hot weather. Here also large Palms and fine-foliaged plants are being effectively grouped. Latanias, Seaforthias, Chamærops, and Date Palms are distributed in good numbers, with Tree Ferns here and there. Beds for flowering plants are also arranged for; these are nearing completion, and will be replenished from time to time as occasion may require. The first competitive exhibition of plants, cut flowers, and fruits on May 27 is expected to be one of the most comprehensive displays held in London for many years. Good prizes are offered, whereby inducements are given to exhibitors from a distance to enter the lists. Many who have been absent from London shows of late years are expected to avail themselves of this one to again visit

the metropolis. The periodical shows will be held every month and sometimes oftener, according to the season. All kinds of garden produce will from time to time receive encouragement. Hardy plants, flowers, fruits, and vegetables occupy a good portion of each show; it cannot, therefore, be said that those only who have the accessories in the way of glass have any inducement held out to them to compete. It is to be hoped that this exhibition will receive the patronage and support of all interested in horticulture and floriculture. Throughout it is organised upon a much broader basis than has ever before been attempted. With inducements such as those offered to the trade and to private growers, from the gardens of the wealthy to the allotment of the humblest cottager there should be a good response. Mr. Milner will be glad of any support at either of these gatherings.

National Auricula Society (Northern Section).—The annual exhibition was held in the New Town Hall, Manchester, on April 26. Both the quality and quantity of the flowers were good, considering the cold late spring, during the whole of which there were few such days as Auriculas expect and delight in. The date was too early for cold and hilly districts such as Todmorden and Halifax, and many flowers exhibited were hardly at their best. Both in London and Manchester Auriculas suffer severely in effect from the dull and dreary vastness of the exhibition places. It is not easy to say whether the Manchester Town Hall or the London Drill Hall deadens them the more. Both places are utterly unfair to such flowers, and many others too; and when, as I have known it, the gas has been turned on over Auriculas in Manchester, the ruinous effect is complete. Once this happened before the judging was over.

Williams Memorial prizes.—The Williams memorial trustees have decided to offer the following medals this year, viz.: At the Temple show, a large Williams memorial silver medal for best group of Orchids, amateurs. At the International Horticultural Exhibition, Earl's Court, a Williams memorial medal and £5 to the winner of first prize in class 23 on the show to be held on the 27th and 28th of May.

Death of Mr. E. Cooper.—We are sorry to have to announce the sudden death on the morning of the 2nd instant of Mr. Edward Cooper, for seventeen years head gardener to the Right Hon. Joseph Chamberlain, M.P., Highbury, Birmingham—the cause of death being cerebral apoplexy, with effusion of blood to the brain, caused by the rupture of a blood-vessel situated at the base of the brain.

New or rare flowers for drawing.—Readers will kindly remember that we shall be greatly obliged for any specimens of new or rare plants, or information concerning them.

Oak for wheel spokes.—Can the writer of the article on hard-wooded trees, &c., give any information respecting the cleavage of Oak for wheel spokes? How should the tree be treated so as to cut least waste? What is the cost of cleaving, the best market for disposal of spokes in southern counties, and what price is obtainable?—B. D. K.

Names of plants.—*J. B.*—1, *Angræcum ichneumoneum*; 2, *A. Sanderianum*.—*Mr. Redwood.*—*Cattleya intermedia*.—*J. Ingestree.*—1, *Vanda cœrulescens* Boxall; 2, *V. cristata*.—*A. Belwood.*—*Epidendrum cochleatum*.—*J. Hudson.*—*Lygodium scandens*; your question shall be answered as soon as possible.—*Fanny Meechin.*—1, *Asplenium fontanum*; 2, *Blechnum Maunderi*; 3, *Polypodium vulgare trichomanoides*; 4, *Scolopendrium vulgare cristatum*; 14, very near *S. v. capitatum* Forsteri; shall be pleased to name your Devonshire plants for you if possible later on when they are developed.—*C. H.*—A form of *Imantophyllum miniatum*.—*W. Sinclair.*—An excellent coloured form of *Azalea mollis*.—*W. Robinson.*—They are mostly *Lastreas*; send again when fertile; it is impossible to name these in a young seedling infertile state.

WOODS AND FORESTS.

VALUE OF THE BIRCH.

NEXT to the Scotch Fir, the Birch is probably, all things considered, the most valuable tree for general planting, irrespective of economic value, that we have in this country. Its powers of suiting itself to almost every conceivable situation are alone good reasons why the tree should be of value for general purposes in this country; while the rapidity with which reproduction goes on is astonishing. Cut over the Heath, Gorse, and other natural vegetation on our waste and common grounds, and soon the Birch will take possession of the place, and in an almost incredibly short space of time thriving Birch trees will have taken the place of the shrubs and Grass which formerly occupied the ground. But this is not all, for to the observant person it is somewhat puzzling to account for the fact why a tree like the Birch, and that seems quite at home amongst the rocky crevices of our wild mountain slopes, can survive at all on the higher mounds of swamps and morasses as we so frequently find it doing. In the peat bogs of Northern Ireland, and where acres of ground are constantly semi-submerged and only covered with almost aquatic vegetation, there we find the Birch doing well, and in positions, too, where the roots must be constantly in contact with water. From its marvellous powers of withstanding these opposite extremes, its value for low-lying and almost worthless grounds can hardly be over-estimated. On the slag and iron waste, as also on the coal and ballast heaps of our mining districts, there, too, we find the Birch in all its glory. On the sides of the bleak Scotch mountains fringing the Highland lochs, and taking possession of vast tracts of loose rocky soil, the Birch is to be found; in fact, there are few positions that would seem to come amiss to this most useful and accommodating of trees. True, the value of the best class of Birch timber is not great, although when we calculate the rapidity of growth, low money value of the ground it grows in, and that 10d. per foot can readily be obtained for decent logs, there is not much to grumble at. All this can readily be laid aside, for the great good done by the Birch both in a sanitary and ornamental way is quite enough to compensate for the footing it holds.

Birch timber is light, strong, and prettily marked, and when large stems are cut up the wood is frequently used in the making of bedroom furniture, for clog soles, and many minor uses, such as the manufacture of bobbins, spoons, &c. The so-called Silver Birch is in no way distinct from the typical tree, and this is a question that has frequently been put to me of late. Artists, whose ideas of tree names are somewhat fanciful, and country people, too, apply the name silver to those trees in which the bark is of a light silvery tint, but at a certain period of growth most Birches have the bark of this seemingly pleasing tint. There is a very rough-barked Birch growing in the lake wood at Holwood, and which interested the late Charles Darwin very much. It is more than probable that in the northern reaches of the Birch the bark as a protection is unusually thick, a peculiarity that is sure to be retained for a certain period after the tree has been introduced to more favourable quarters. This may be the case with the Holwood trees, and most likely so, as many of the original owners of the property had unusual advantages for procuring foreign specimens of either

animals or vegetation. The bark of the Birch burns like a wax taper, and that, too, when newly taken from the stem, a fact I was not aware of until it was pointed out to me a few days ago.

In the little Scotch Birch (*Betula nana*) we have a very interesting dwarf plant, and one that from its associations and peculiarity of growth is unusually well suited for planting on the rockery or in the shrubbery. For years I have had it in my garden, and though it buds out fresh and green from year to year, yet the upward growth is very slow, as also the lateral spread. It delights in granite rock with only a pinch of soil, but, like its bigger ally, can accommodate itself to almost any class of surroundings.

A. D. W.

The Alder.—A large variety of industrial wants is supplied by the Alder. The wood, which is white when alive, turns red when cut, and afterwards a pale pink, the latter colour being permanently retained. It is suitable for a number of purposes for which Poplar and other similar light woods are used, and has special qualities which recommend it for employment where other timber would be either unsuitable or much inferior in value. Although lasting but a short time when exposed to the weather, Alder wood is extremely durable under water, and on this account is largely used by engineers for foundation piles.

Larch on thin soils.—A most important fact, as regards rural economy, has arisen from planting Larch trees on rocky ground. The vegetable compost found thereon by the falling of the leaves has been the cause of producing herbage for feeding, and making the land much more valuable. The Larch is not particular as to soil, but the roots must be in a deep and porous medium, which has been cleansed by the free passage of water through it, and which has, at the same time, the benefit of being constantly kept clean and in a wholesome state by good descent for the water that may fall upon it. It does not thrive on thin lands, nor on those having a retentive subsoil.

Nurses for trees.—Wherever the landscape effects of group-planting are intended to be early and continuous, the nurses employed for sheltering the young permanent plants should be either the same or of the faster growing kinds that assimilate with them in general appearance, for the obvious reasons that they give the required shelter soonest, and they are the most remunerative as thinnings. For example, the Larch as a nurse for the Larch; the Scotch Fir for itself, and other true Pines; the common Sycamore for its own kind, as well as for others of the Acer family; the Turkey Oak for others of its genus; and the Ash, in addition to sheltering its own relations, will make a passable nurse for the Walnut and others having similarly divided leaves. As a nurse for the Silver Fir and the darker coloured Spruces, the Balm of Gilead or Balsam Fir is especially suitable, from its dying out generally at from twenty-five to thirty years of age, and thus obviating the tendency that too often exists among woodmen to spare trees after their presence becomes hurtful to their neighbours. When the early effects of group-planting are not deemed paramount, the Larch will prove a profitable nurse in situations not suited for its long-enduring healthy existence.

Sowing forest tree seeds.—In dry favourable weather finish the sowing of Pine, Larch, and other tree seeds. Should a spell of dry weather set in, it will be an advantage to spread out the seeds on a floor and saturate them with water, turning them over occasionally for a few days previous to sowing. By this means the seeds get swelled and the germs become more prominent, which will be favourable in promoting a fine even braid. The ground for the seed-beds should be of a light texture, thoroughly worked and free of knots and weeds; in fact, it cannot be too carefully prepared, as to want of proper precaution in this respect

many failures can be traced. On no account sow the seeds on wet ground, but have everything ready to embrace a favourable opportunity for committing them to a dry bed. When the work is finished the beds will require to be watched, or otherwise protected with netting, Fern, or small twigs, from the ravages of birds.

Transplanting Holly hedges.—Holly hedges, say from eighteen to twenty years old, may be removed with perfect safety, provided the ground is opened up on each side a full year previous to removal, and all the large roots which come in the way cut and smoothed over, particularly at the edges, with a sharp knife, instead of being hacked off with a spade, as too frequently happens, when few or no rootlets will be formed from their rugged extremities; whereas the smooth knife-cut roots will be found to put forth numerous fibres. The trench may afterwards be filled in with leaf-mould and sand mixed with the ordinary soil thrown out, applying a good dose of water after it has been filled in, and then allowing it to stand for a year.

Varieties of the Ash.—The common Ash (*Fraxinus excelsior*) and several of the North American kinds rank high as timber-producing trees, their wood, owing to its elasticity, being much sought after where strength and toughness are wanted. Apart, however, from their value in this respect, the different forms afford plenty of scope to the planter, some being large noble-looking trees, others comparatively small, and a few singularly grotesque. The recognised varieties of the common Ash are many, some of the more distinct being the weeping kind (*pendula*), so often employed for forming arbours; of this there is also a golden form (*pendula aurea*), the bark of which is bright yellow, but in other respects, except being of somewhat weaker growth, it resembles the common Weeping Ash. Another kind (*heterophylla*) is remarkable on account of the absence of leaflets. It forms a tree nearly as vigorous as the common kind, and is often known by the name of one-leaved Ash (*monophylla*), certainly a better name than *heterophylla*, the leaves being seldom variable. Of this there is a form in which the leaf is deeply slashed instead of serrated. The Cockscomb Ash (*F. excelsior cristata*) has often a large proportion of the shoots curiously fasciated, especially at the points, where they spread out in a Cockscomb-like manner. This is but a slow-growing tree, and frequently some of the branches die off without any apparent reason. A dwarf, bushy kind (*F. excelsior globosa*) assumes the shape of a small round bush, and when grafted standard high has a mop-like appearance. Other varieties, in addition to those just mentioned, are *crispa*, a dwarf form with very deep green and much curled leaves, often encircling the stem; the gold and silver variegated, neither of which are very effective when exposed to wind and sun; *aurea* and *jaspidea*, with bark yellow and striped; *angustifolia*, a kind in which the ordinary leaflets are reduced to mere filaments; and *verrucosa*, a variety with rough and verrucose bark.—A.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols., price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade connected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

No. 1069. SATURDAY, May 14, 1892. Vol. XLI.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

FLOWER GARDEN.

ARE DAFFODILS IMPROVING?

"J. I. R." (p. 391) puts this question and answers it himself decidedly in the negative. He fears that "the hybridists will pour out the vials of their wrath upon him" for this negation of the value of their work. As a hybridist who has been working among these flowers for some dozen years with interest and some satisfaction, I will empty no vial of wrath upon "J. I. R.," but attempt to show that he is mistaken. To begin with, he does not make it at all clear what he means by the "older varieties" which compare so favourably with the newer in "rich yellow and noble port." Does he mean by "older varieties" those natural or wild kinds, of which he says that "both in colour and in shape a flower that Nature has evolved in the course of ages has acquired a perfect balance and a complete adaptation to its environment?" Because it is certain that with scarcely an exception we have no wild Daffodils possessing the vigour, substance of blossom, and pure or brilliant colouring which our artificially raised forms possess. The Poet's Narcissus, or Pheasant's-eye, is almost the only instance to the contrary which can be cited, and even here the best varieties of *N. poeticus* are very probably garden seedlings or cultural improvements upon wild types. If, on the contrary, "J. I. R." means by "older varieties" to indicate such splendid flowers as Horsfieldi, Emperor, Empress, and the like, he must know that they are quite new—that is to say, have been raised within the memory of living men, which is very new indeed for a flower. And seeing that two men, and two men only, Messrs. Leeds and Backhouse, or three, if we suppose that Dean Herbert added his productions to theirs, raised nearly every one of the flowers which "J. I. R." saw at the late show, is it at all likely that they reached the limit of perfection in vigour and substance as well as in form and colour? Look at the lovely class of white trumpet Daffodils which so many have tried to grow in their gardens or to naturalise in vain, on account of the "miffiness" and fastidiousness of the old kinds. Only some five years ago Messrs. de Graaff gave us a splendid white flower, possessing constitution, size, form, a solid waxen substance of flower, purity of colour—in short, all the qualifications of a noble Daffodil. Within the last few days I have been admiring a series of truthful sketches of the fields and copses which lie round about an old English manor house, in one of which there were deftly painted indications of masses of a strong and floriferous Daffodil, which I saw at once to be Stella, one of the "new" kinds,

but which certainly surpasses every natural kind I know for endurance and large supply of bloom. If I may speak of my own work, I can only assure "J. I. R." that every seedling which shows flimsiness of flower or feebleness of constitution is straightway discarded, and that I possess quite new forms which excel the older ones in the very points of robustness and fine colour which he makes his criterion of merit. For instance, a flower which was reckoned and took the prize as the best seedling of 1891 is larger than the largest of its class—that of incomparabilis or Star Daffodil—known to me, has clear white and vivid red in its colouring, and has increased from one bulb and one flower last year to five bulbs and four flowers this year, thereby showing an almost ideal vigour. In short, I should say, in exact opposition to "J. I. R.," that the Daffodil is now on the footing of what we call a "florist's flower," in which inferior productions are sure to go to the rubbish heap, and strength of habit, form, and colour will be more and more insisted on in every flower which is to hold its own and become a standard sort. I admit that in the two collections of which I have spoken, and from which almost all our modern Daffodils have been derived, many inferior kinds were retained, and have been increased into marketable stock, which should have been discarded. But to-day a new Daffodil has to possess real merit to command attention. If "J. I. R." knew a little more of the work of the hybridist among vegetables, fruit, or flowers, he would be forced to own that their study is real improvement in flavour, size, strength, colour, freedom of produce, and that their work, which entails much patient effort, has met with large success in this generation. If sometimes they retain too many of the varieties which they have raised by many years' work, and these varieties come into the hands of the trade, and catalogues and flower shows are somewhat overcrowded with kinds too much alike, yet a little indulgence may be allowed to such workers on the score of natural affection for their own offspring and reluctance to destroy them. But I believe the contrary is more commonly the case. The hybridist or worker in any class of plants develops a most critical eye for points of excellence and inferiority, and discards with much sternness. Of my own seedlings, nothing like one out of every hundred is kept. Such strange power is in the hands of the hybridist, that it does sometimes happen that he does a certain violence to Nature and produces monstrosities, but these are soon set aside, and his general work is one of improvement, and is included in the old commission given him to till the ground. Perhaps "J. I. R." will allow me to take another illustration from my own attempts. He says, with much truth, that "nothing can be more lovely than the Poet's-eye Narcissus" (he means to write either "Poet's Narcissus" or "Pheasant's-eye;" the poet, I take it, has no red rim round his eye, unless it is very wildly "in frenzy rolling"), which is "a natural production." But the gardener is entrusted

with the power of doing more speedily what Nature has done in her slower laboratory; his art can sometimes "mend Nature, change it rather," even where Nature is so beautiful. Thus I have long had in my garden two forms of this Poet's Narcissus—the one with strong constitution and substantial flowers, the well-known poeticus ornatus, the other, poeticus poetarum, with feebler constitution and thinner flowers. It occurred to me that the cross-fertilisation of these two ought to gather up into one flower the vigour and solidity of the former and the finer colouring of the latter. This I have been quite successful in accomplishing, and thus possess a new race which has lost nothing, but gained in all points of value. I instance this because it is precisely the kind of work upon which hybridists are everywhere engaged. If "J. I. R." has seen some chaff left among the wheat, he must not therefore depreciate the good corn and its producers. And it is to be remembered that most Daffodils are unsubstantial and poor in this untoward spring of burning drought and bitter frost.

G. H. ENGLEHEART.

CULTURE OF MOUNTAIN FLOWERS.

TO THE EDITOR OF THE GARDEN.

SIR,—Your correspondent "F. W. B." in your issue of March 26 seems inclined to condemn any rockery except that according to his own or his friend's ideas. I beg to differ with his statements *re* artistic rockwork, and to refer him to the report of Mr. Goldring, who, upon his visit to Westonbirt (published in THE GARDEN, February 20, 1886), says:—

There is one of the most tasteful bits of rockwork I have yet seen, by Fulham, wonderfully natural, now weather-stained, and overrun as it is with an infinite variety of alpine plants and shrubs, one would hardly take it to be the handiwork of man. The way the rockery is planted enhances the effect. You see colonies of Primulas, Gentians, and the like climbing the crevices; Saxifrages with a foothold on the face of the rock, and Heaths defiling down the narrow ravines and fissures. The margins of the lake are studded with masses of rock grouped in the same natural way, and over these is a tracery of such plants as Cotoneasters, variegated Ivies, &c.

In so saying he was quite disinterested. I neither knew of its appearance nor did I see it till afterwards.

As to Primulas alluded to, I have alpine Primula Auricula which has not had any protection for fifteen years; I have the same plants increased, and in a shady place. I think with the so-called artistic rockery we can make more shelter and even snuggeries for such plants needing shelter than can be made under the comparatively open flat pocket system of the Botanic Gardens, especially for the hardy cactaceous plants, as at Floore. I may say that where our rocks are not well overgrown with plant life it is for the want of time or attention, as, for instance, some of the hollows intended for plants are often found empty after some years. In some of our first executed rockeries thirty-eight years ago I grant we had not acquired such experience in forming hollows and fissures for plants to grow in; now some of both old and young gardeners exclaim that we provide more hollows and depth than are necessary, so much so that all could be completely overgrown if desired, as that at Battersea Park, most of which is hidden from view.

This is not our aim, nor that of landscapists, for the object is, and should be, for the plants to grow over, about, and between the rocks as in Nature, so as to produce in combination with the vegetation, rugged, picturesque, and natural scenery. This cannot be with the so-called pocket system

which "F. W. B." seems to prefer. I wonder where the *Ampelopsis Veitchii*, *Akebia quinata*, variegated *Ivies* and the numerous climbers are to grow on "F. W. B.'s system."

A plant growing in the fissure of a rock is like a gem in a diadem—an effect not attainable in a mechanically-formed space or in a flower-pot. All the requirements of alpine and other plants can be well provided for in or on artistically-formed rockwork.

Such was the taste of the late Mr. R. Marnock, that he did not want the rock so much hidden, as it is at Battersea Park, most of it being overgrown by vegetation, but made us cover over some of the hollows for plants at Oak Lodge, Kensington, also at Taplow, where he had large, broad surfaces made of rock, in which no plant room was provided, only at the top of the thick strata, as may be seen now. He wanted, as most gentlemen of taste do, the picturesque effect of rocks and plants combined.

Those who want to grow the tender alpine that need the bits of glass would do well to follow the example of the late Mr. Joad, for whom we formed a rock cliff, under glass, for such as he found needed protection; these were planted about the rocks, but I do not recollect whether he had artificial warmth or not just to keep frost out. One side of the rocky bank or cliff was for Ferns, the other (through a rugged doorway) was the said alpinery.

At The Dell, Egham, may be seen a large number of alpine growing on the narrowest of ledges of the rock, and some on the vertical surfaces, and even flowering there. We made no hollows for plant life on such unlikely places, but all are unusually well planted. JAS. PULHAM.

FLOWERS ON THE GRASS AT KEW.

We are charmed to see great progress in this way at Kew. The effects of hardy flowers in natural groups in grassy places are very fine indeed. As we have had in past years to call attention to the absence of flowers of our own parts of the world in the ornamental parts of that garden, so we are pleased now to note their intelligent use. Many of our readers will remember when at Kew it was a question of bedding out alone; all the lovely flowers of the northern world were only in the botanical department—a tuft of each, which made it impossible to see their beauty in any broad and simple way. Now, the *Narcissi* the other day on the mound made quite a picture. Crocuses and other early flowers have been beautiful on the Grass for some weeks; it is astonishing how such things light up the landscape on the fine days that oftener come to us in England in the spring than in summer, judging by the experience of the last three years. In such a vast garden there are many other opportunities of carrying out this excellent system, particularly where the branches of trees touch the ground. In every one of such cases, some delightful early flower might be in position, the shelter and relief around such trees being exactly what many bulbs delight in. Hitherto, use has been mainly made of popular flowers well known in gardens, but this system may enable us to use with effect beautiful flowers that hitherto have not been considered worthy of cultivation in gardens—flowers which, perhaps, looked at in the hand are not so attractive as *Lilies* or *Daffodils*, but which might furnish new effects when seen in quantity. We mean such flowers as the less showy sorts of *Star of Bethlehem*, *Gagea*, and even *Allium*, *Fritillaria*, *European Gladioli*, *Grape Hyacinths*, which we find thrive freely in Grass, and the species of wild *Tulip* which are rarely seen in all their force of colour, and also some of the beautiful, but less seen spring flowers, which might be used more, such as the

Snowflake, particularly the spring variety; *St. Bruno's Lily*, in the rich Grass delightful; and the *Dog's-tooth Violet* which thrives in Grass, and which, however dwarfed and starved, is always beautiful. The supply of such things is the difficulty with the general planter; but it ought to be got over by the trade, who should offer them to the public at wholesale rates. We hope that, as soon as the trade see the vast importance of these beautiful spring gardens in turf, they will meet the demand. One way of getting these bulbs would be by saving all those that are thrown out of the forcing houses. In large gardens in England many hardy bulbs and flowers, after being forced, are too often thrown away. From these we might get some pretty effects; but better when we can afford to buy the flowers by the thousand, and make effective groups of them. One of the chief merits of this system is, that it enables us to make delightfully pretty many places that hitherto have been flowerless, and never thought of as of value for producing flowers, such as banks and corners useless as lawn. It also suggests to us how foolish mowing is, unless we want a carpet to walk or play upon. Many of the flowers we chiefly refer to here come before the Grass grows; but if we want later kinds, we may have the pleasure of seeing the Grass waving along with them. There is not the slightest reason why in large pleasure gardens so much labour should be wasted on Grass-cutting as hitherto, although we must always have certain portions as short turf. But the contrast between this short turf and the waving Grass full of flowers will be delightful. In the hot days spring flowers so often pass quickly away, that it is a great advantage not to have to disturb the whole garden for them; whereas on the Grass they are not in the way, and in the wild garden one bulb may succeed another, which is not so easy in the regular garden. There is not the slightest reason why two bulbs flowering at an interval of a month should not occupy the same turf to their mutual advantage, like the *Fritillaria* and *Crocus* for instance. —Field.

FLOWER GARDEN NOTES.

To advise as to the best materials to employ for the most effective, and at the same time the most tasteful display in the flower garden is by no means an easy task, as so much depends on the tastes to be gratified, natural surroundings, style and formation of bed or border, and many other things. There are certain flower gardens, scores of little beds perhaps enclosed by Box edgings, and with tiny gravel walks running between them, with which it is almost impossible to deal satisfactorily. The demand is generally that each bed shall be independent of its neighbour, and under such circumstances it is a very difficult matter to blend and harmonise colours. Neither can satisfactory results be gained by filling such gardens with herbaceous plants; the latter never look at home in small formal beds, whether these form part of a running border or of some intricate design. In offering a few suggestions as to summer planting, I may say at the outset that they are applicable to what is now the favourite type of flower garden, the herbaceous border, and beds on turf. It should be the aim to fill any vacant spaces in the herbaceous borders for the summer with those things that seem most in touch with the permanent inmates. A few tall things for the back are free-flowering pompon *Dahlias*, the useful bright yellow single *Helianthus*, a few clumps of *Prince's Feather* and of summer-flowering *Chrysanthemums*, or if there is already an abundance of flowering plants in the background, the summer introductions may consist of such fine-foliaged plants as *Solanum giganteum*, *Wigandia*, *Ferula*, *Cannabis gigantea*, *Ferdinandia eminens*, and a few *Cannas*. Bare

spots in the front of such borders may be filled, in addition to as many *Carnations* and *Violas* as there may be to spare, with *Cuphea platycentra*, *Gazania splendens*, *Diplacus glutinosus*, a clump or two of *Heliotrope*, pegging the latter once to keep it dwarf, and also a few blocks of the best of the scented *Pelargoniums*. In the arrangements in the flower garden for beds on turf, the gardener has, as a rule, to adapt his planting to the tastes and requirements of his employer; in one place plenty of bright colour must be the predominating feature; in another, sub-tropical work; in another, plenty of large bold plants, as big specimen *Fuchsias*, Ivy-leaved *Pelargoniums*, and the like; in another, carpet bedding either by the employment of the dwarfiest of plants or by the judicious blending of bright colours in foliage as would be represented, for instance, by the bronze and tricolour *Pelargoniums* and *Coleus Verschaffeltii*. Of many new ideas that have come in of late years to improve our floral arrangements, one of the best was the introduction of a minimum of tall, graceful, or large, well-flowered plants on a dwarfier carpet of flower or foliage. Instances of such planting will be found in *Abutilon marmoratum* with purple *Petunias*, *Fuchsia Abundance* with silvery *Centaureas*, *Rose of Castile*, or one of the *Cornellensis* type of *Fuchsia* with purple *Violas*, *Nicotiana affinis* with scarlet *Pelargoniums* or *Verbenas*, and white *Marguerites* with pink *Pelargoniums*. In all the above arrangements the dot plants are given first, and may be planted with a sparing or more lavish hand in proportion to the size of bed or border. The brilliant or glowing *Begonias* in scarlet, crimson or pink shades are all the better, especially if the flowers are heavy and have a tendency to droop, for the introduction amongst them of a few lighter, taller, and more graceful plants. The striped Japanese *Maize* is sometimes used, but this is a trifle stiff and formal, and I certainly prefer the variegated *Ribbon Grass*, the *Sweet Tobacco*, or even a few well-grown plants of *Eucalyptus globulus*, or *citriodora*. Beds of *Verbenas* can be relieved in a similar manner. Mixed beds in which two given plants are used in about equal proportions are also still in favour, and are very pretty and effective if the colours are nicely blended and the arrangement is not too stiff and formal. *Pelargoniums* *Flower of Spring* and *West Brighton Gem*, with respectively *Lobelia cardinalis* and the silver variegated *Fuchsia*, the silvery *Centaureas* and *Cinerarias* with *Heliotropes* or *Verbena venosa*, thin lines of bedding *Beet* or *Begonia* *Worthiana* running irregularly through a carpet of dwarf *Ageratum*, are a few instances of such planting, the size of plants again to be regulated in proportion to size of bed. A few large specimen *Fuchsias*, Ivy and other *Pelargoniums* and *Heliotropes* are not out of place even in small flower gardens; they may be plunged on turf or in small beds, and in the latter case could have a dwarf carpet of flower or foliage to show to advantage against the several colours. There are very few, if any, of the foregoing plants that are not to be had easily either from seed or cuttings, and are therefore within the reach of all who have a little glass. Of many other things that enter sometimes largely into the flower garden arrangements, such, for instance, as the half-hardy *Dracenas*, *Palms*, and *Aralias*, it is not necessary to write; they are not everybody's plants, and as such do not come within the scope of the present notes. E. BURELL.

Claremont.

Narcissi failing.—For the last three or four years I have had at the foot of a wall on a south border a fine show of a white *Narcissus* growing in a cluster of starlike flowers. Last year I suggested taking up the bulbs and replanting them, but a nurseryman who happened to be present advised me to leave them one more season, saying that I should have a splendid show. I took his advice, and to my disgust not a single bulb has moved this year; there is not even a leaf. I have had some of the bulbs dug up and they appear sound, but dormant. Can you account for this? The border was made up and manured in the autumn. Is it possible that

they are down too deep? Freesias will play this trick when not ripe, but the foliage of these Narcissi was allowed to die down, and I cannot account for their behaviour in any way. I have also some bulbs of the Star of Bethlehem; these are perfectly sound, and I cannot get a bulb to start either in cold or heat, in darkness or in light, and I have had them eighteen months or thereabouts.—J. WHITWORTH SHAW.

VIOLETS FOR WINTER FLOWERING.

Now that the time has come for preparing the stock of Violets to bloom next autumn and winter, a few notes on their cultivation may be of use to some of your readers. Many cultivators of Violets advocate raising the stock from cuttings, but I have not found cuttings half so satisfactory (besides taking more time) as pegging each runner into some good light soil, as in the case of Strawberry runners. I mostly use some finely-sifted leaf soil, into which the runners quickly root, and in about a fortnight or three weeks they are ready to go out into their summer quarters, which should have a southern aspect, and if slightly shaded from the midday sun, so much the better. Give the ground a good dressing of well-rotted manure from an old hotbed and dig it well in to the depth of 1 foot or more, as in raising some clumps last autumn I found roots quite $1\frac{1}{2}$ feet in the ground. In putting out the young plants, I always give them 1 foot each way, taking the plants up very carefully and planting them with the trowel, and if the weather is at all dry I give them a good watering. As the summer advances the plants will throw out a lot of suckers, which should be taken off as soon as they appear, for if left on for any time they take the strength out of the plants and thereby lessen the amount of flowers. The Dutch hoe run between them will also help them by keeping the ground clean and free from weeds, as well as preventing the soil becoming baked. In preparing the frames in which they are to bloom, I find that a hotbed which had been made up late in the summer, and from which all the heat is not spent, is as good as any. It must face south, so as to get all the sun possible. If such a bed is not to hand, make up a hotbed and let it stand till all the rank heat has passed out; then put the frame on, taking care to allow 1 foot all round, so as to be able to give a lining as the sharp weather comes in. Fill the frame half full of leaf soil and that from a Cucumber or Melon bed, half of each, taking care to fill the frame so that the plants will not be more than 8 inches from the glass. In putting the plants into the frames take care not to crowd them. The best sorts, I find, are Marie Louise, Comte de Brazza, and The Czar. I also grow a small single one. It is not much larger than our common blue Violet, but very free-flowering, very early, and not quite so dark in colour as The Czar. I grow the single varieties like the double, only instead of lifting them in the autumn, I put a frame over them and let them stop in their summer quarters. By leaving what runners come after September, they will start to flower and keep on till late in the spring; in fact, a few Violet blooms can be had all the winter with very little trouble, only just keeping very sharp frost from them. This can be done by covering the frame with litter or Bracken.—T. J. T., *Ewenny Priory, S. Wales.*

— There is no flower which is more appreciated during the dull days of autumn and winter, or say from early in October until the end of March, than the Violet. Although some persons consider it necessary to have several sorts, I grow but one blue—Marie Louise, and I have not been with-

out blooms since long before the date named above and with the aid of nothing more than cold frames. Heated pits would perhaps save the trouble of using so much covering for the frames during frosty weather, but I doubt very much if the crop of bloom would be larger or the colour brighter. I am not a believer in heat in any form or at any time in Violet culture. There need be no fear of damp affecting the plants in any way if the roots are properly grown during the summer with sufficient space between each, so that the crowns will mature thoroughly and the plants be kept close to the glass in the frame, and lastly, abundance of air admitted to the frame. Indeed, I think many people fail to grow double Violets during the winter successfully owing to their not removing the lights during the day. Our frame faces south and stands in front of a range of houses; consequently it is in a favoured position, but not more so than can be found in almost any garden. Directly the thermometer reaches 35° , off come the lights from the Violet frames, except, of course, it is raining or snowing; in this case they are tilted at the back. Pretty though white Violets may be, they are not appreciated like the blue sorts. My stock of Comte de Brazza—the only white I grow—is limited. Some persons advocate very strongly bottom-heat to give the plants a start after they are transferred to the frames, but I am much against this, because I think that when the plants commence to grow and make a lot of leaves the flowering season is past. The plants if grown properly while in their summer quarters will not need to be grown after they are placed in their flowering quarters for many months. Rather than follow the practice of making up huge hotbeds and shutting the frames up for a time when the plants are first put in, the lights should not be placed on the frame until compelled to do so by frosts or very heavy rains, and in this latter case they should be tilted at the back all the time both night and day. Where many make a mistake in Violet culture in frames is in not lifting the plants early enough in the autumn. The middle of September is the right time to plant them in the frames to ensure a full crop of blooms all through the autumn and winter months.

Double Violets will not grow freely in every soil. That which is heavy and retentive and largely impregnated with lime or chalk does not suit them so well as a damp sandy loam; in the former but little growth is made and red spider is troublesome. Road grit and decayed leaves should be mixed with the heavy soil. The runners ought to be cut off the plants at the time they are put into the frame; afterwards they need not be, because these supply blooms during March and April. While growing out of doors during the summer the plants must be freed from all runners. About the middle of April is the best time to increase the stock by dividing the old flowering roots and planting the most vigorous-looking offsets. An early start is important after dividing the roots. This can be facilitated if the weather be hot and dry by shading the rows with some evergreen boughs. I find a position on an east border favourable for the summer quarters.—E. M.

— Some cultivators plant their stock of runners in March, while others contend that the month of May is the best. I am of opinion that both these dates are extremes, and I consider that the month of April and as early in the month as possible, especially if showery, will be found to suit the majority of cultivators. Such kinds as The Czar, odoratissima and Wellsiana will do fairly well most seasons out of doors, and should the winter prove mild, there may not be many days throughout the winter when flowers may not be gathered. Those who have a deep and somewhat strong soil resting on clay, in my opinion, have the advantage of those on shallow and somewhat light soil, for by working a little leaf mould or old hotbed manure into the surface, heavy soil may be made to suit Violets admirably. To shallow or light soils the addition of clay or heavy loam would be advisable. Opinions differ as to the best position for Violets during the summer months, some choosing a shady site, others an open one. The site I like and one which suits

the plants here is on the north-east side of a high wall, but not planted under the shade of the same, as the nearest plant is 6 feet distant from it, and the farthest about 16 feet. Through the greater part of the day these plants are fully exposed to the sun, yet they do not get the whole of its rays from sunrise to sunset, and I think this little relief is beneficial.

Planting should be done either with a dibber or trowel, generally the former. The selection of the young stock is important, and on this depends to some extent the success or otherwise of the undertaking. In selecting the runners for planting I choose healthy plants that have been growing in frames; each clump is lifted bodily; the soil is then beaten from the roots and the clump pulled to pieces. The short, stout runners that form near the old crowns are the best for planting, and very often they may be had with roots attached. This is not absolutely necessary, and as plants in frames will often be still in flower at the time mentioned, it may not be desirable to disturb too many of the plants.

If work of this kind should be taken in hand in bright weather, care must be taken that the runners that are divided up do not remain long exposed. Should bright sun and cold winds set in, considerable care will be necessary in sprinkling the plants every afternoon and keeping them fresh until they become established. A suitable distance to plant is 9 inches apart in the rows and the rows 1 foot apart. The management of Violets on heavy and holding soil during the summer months is a simple matter, and consists in keeping down weeds by frequent hoeings, and as the plants become established and grow, the runners must be frequently pinched off, so that the whole strength of the plant may be concentrated into plumping up the crowns. On somewhat light and thin soils, in addition to the above, frequent watering at the roots and overhead syringing to keep down red spider, and also to keep the plants growing, are necessary. Too much attention cannot be given to removing the runners during the whole season of their growth out of doors, and even when placed under glass during the autumn and winter.

Although during the summer Violets may have more than enough sun, they scarcely get enough here during the winter, and the more they get the better they succeed, so that the position chosen should always be one where the maximum of sun can reach them. It was thought at one time necessary to have bottom-heat to succeed with Violets during the winter, and considerable trouble was gone to in providing hotbeds or beds of manure on which to place the frames, but that such trouble is not necessary I have abundantly proved. It is an advantage to raise the frames considerably above the surrounding level on account of the lighter and drier position, but it matters little what they are raised upon so long as they are properly drained and the plants have a good rooting medium. I think some of the plants with me produce finer flowers and do not have such a tendency to go to leaf when the frames are not set on a manure heap. The plan also of forcing them into flower during the winter by means of linings of fermenting materials is of doubtful value, for if the weather is dull and dark, a few flowers may be induced to open, but the weakening effect it has upon the plants oftentimes does more harm than good. Heating by hot water may in some few instances prove a success, but this, too, must be very carefully handled.

Marie Louise, Comte de Brazza, and, where it succeeds, the Neapolitan are all useful varieties. De Parme is also well spoken of by some. The Czar, odoratissima and Wellsiana make good kinds for a sunny border.—C. W.

Anemone fulgens.—This is now very beautiful among dwarf spring flowers in the open garden. To call its flowers a glowing brilliant scarlet conveys a good idea of what they are. In some gardens this spring, the rude winds and biting frosts which have been constant companions of late have marred the beauty of many blossoms, particularly those in somewhat exposed places. In exposed gardens comparatively sheltered spots should be selected for it. Not a few may be interested to

know that even now, if dry and sound roots can be procured, it is not too late to plant them, as the tubers are capable of retaining vitality for a very long time, and though much shrivelled in consequence of long-continued separation from the soil, they quickly plump up when they come in contact with it. From spring plantings I have had the most lovely sheets of colour late in summer and early in autumn, the more welcome, perhaps, because so few plants can compare with this in brilliancy, and in autumn particularly we have none too much of this shade. A few clusters planted now on the rockery would make that department gay at a season when flowers are on the wane.—E. J.

Omphalodes verna.—This should be found in every garden where it can be accommodated with shade and moisture, especially where these conditions exist naturally. It is in such places that it luxuriates, creeping and spreading into the most lovely carpets. I have never seen it so happy as in some of the gardens in the Thames valley district. All gardens, however, do not possess the moisture in which this spring beauty delights, but, notwithstanding, it may easily be grown in many a cool and shady spot too often barren from year to year.—E. J.

FERNS.

CLIMBING FERNS.

(LYGODIUMS.)

THESE are singularly beautiful Ferns, and very free growing. The fronds increase in length indefinitely, and remain permanently on the plants. They abound in the eastern tropics, and extend to New Zealand. They are also found in Mexico and Brazil, and one species has been found in Florida and Massachusetts, in the northern hemisphere. *Lygodiums* form beautiful objects in a fernery, being extremely useful as rafter plants, for clothing pillars, &c. These plants should be potted or planted out in a mixture of light loam, leaf-mould, peat and sand, but they must have good drainage if they are to succeed. They like an abundant supply of water to the roots, and during the summer season sprinkling overhead morning and evening will suit them admirably. This latter should not be done whilst any sun is shining upon them. The following known kinds are worthy of cultivation:—

L. ARTICULATUM is a native of New Zealand, and although members of the genus are found throughout the tropics, the present species is not found anywhere else saving Norfolk Island. It is abundant through the Northern and Middle Island, frequently growing 50 feet and 60 feet long, forming, we are told, dense screens in the forest. The sterile pinnules are each from 1 inch to 3 inches long, rich green on the upper side, often quite glaucous on the lower side, the fertile pinnæ contracted, somewhat fan-shaped. This is very suitable for the cool fernery.

L. FLEXUOSUM.—The pinnæ of this are divided nearly down to the base, are 6 inches or 8 inches long, deep shining green above, paler beneath, fertile fronds contracted, bearing the fertile spikes in close rows. This is found in many places through the Malay Archipelago, the Philippines, Ceylon, &c., and consequently requires the stove.

L. JAPONICUM is another species which thrives well in a cool house, and I once saw it used as a dense leafy screen between a warm house and a cool house. It is a handsome growing plant. Japan and various places in the East. The Japan form makes an elegant little climber.

L. VENUSTUM has deeply lobed segments of a rich bright green. I have never seen a fertile form of this plant.

L. PALMATUM is a species from North America, and is usually considered hardy; it is an interesting plant, but growers are very apt to be misled by

its being called hardy. It differs from the other species in seldom making fronds more than 18 inches long, and I have never seen it with fronds exceeding 2 feet. The fronds are palmate, usually three to five or seven-lobed, the colour being bright green. The upper part of the frond for about a foot is occupied by the contracted fertile fronds. It forms a handsome plant on the rockery of the cool house, where it will drape the rocks beautifully.

WM. HUGH GOWER.

SHADING FERNS.

FROM now onwards throughout the summer months the shading of Ferns is a subject for consideration. It is a point in Fern culture that is far too frequently carried to a great excess; the inference is arrived at without due thought that just because some Ferns thrive best with shade, others also must necessarily do the same. Far from it, however, for on the whole the opposite might be said to be the case. When shading is employed, particularly if it be at all dense, the growth of the plants is in the majority of cases considerably weakened; this is further aggravated by the adoption of permanent shading during a period of dull weather. The result is a soft, flaccid growth which in the case of such as many of the *Adiantums* is further seen in enlarged pinnæ. This, in some instances, as in the case of *A. Farleyense*, may look very well, but it is not of such an enduring nature as one would desire. Again, where a heavy shading is upon the plants when not required, the result is an excessive atmospheric moisture which is not easily dispelled without additional fire-heat, simply because the temperature does not rise sufficiently high to effect this desirable purpose in the case of all Ferns, the *Filices* excepted. Then ensues a period of damping off amongst such stove Ferns as the *Gymnogrammas* and many others where the growth is dense. *Adiantum cuneatum*, instead of retaining its fronds intact, will under these conditions go off in the same fashion when thick and the plants themselves too much crowded together. Where permanent shading is used at all, it should be of as light a character as can be employed with safety. Do not on any account smother the glass as if white-washing a wall or a ceiling, but lay on the mixture as lightly as possible, or employ the thinnest of shading material, which is of the two the better medium. During a period of cloudy weather, but all the more so when rainy as well, the damping down and watering require to be performed in a careful manner, with a considerable diminution of the former part of the work. If done in a perfunctory fashion, with no distinction between hot and dry weather as against the opposite extreme, it must not cause any surprise if the Ferns soon suffer.

Ferneries composed of rockwork arranged in an artistic manner with the plants turned out are often placed in positions where shading by means of blinds is next to impossible. In such cases the shading should be of the lightest kind, if really used at all (for in some instances none need be applied). All depends upon the distance from the glass, or whether climbers other than Ferns have been allowed to drape the roof. If the house be a tall one, there will be less danger of injury from scalding, while the climbers, as well as adding to the effect, also serve a good purpose in intercepting any possible ill effects from the solar rays. It is a somewhat popular notion that Tree Ferns require a considerable amount of shade, but this is a mistake in the case of most kinds. I can point to instances where none whatever is used, and where huge plants of *Dicksonia antarctica* thrive most luxuriantly. *Cyathea dealbata* and *C. medullaris*, also *Cibotium regale* and *Alsophila australis*, can be grown in large houses without shade with safety as long as they do not come into contact with the glass. *Dicksonia squarrosa* and a few other tender kinds are safer if shading is employed. Of the smaller growing Ferns, there are a few of the *Adiantums* which are very sensitive to the full exposure to the sun's rays, such, for instance, as

A. trapeziforme, *A. curvatum*, and *A. cardioclæna*. These should always be carefully looked after. On the other hand, exposure will in many cases intensify the beautiful roseate and bronzy tints peculiar to many Ferns, particularly the *Adiantums*, the shades of colour of which when the plants are shaded are not nearly so beautiful. It pays to keep all such Ferns grouped by themselves, the interest enhanced in their increased beauty being ample compensation for any little additional trouble. All Ferns which are grown more particularly for decoration either as plants or for cutting should be well exposed so as to ensure an enduring growth. One often hears the keeping qualities of the Maiden-hair Fern condemned when the fault more often than not is in its management. When grown cool, well exposed to light, and in an airy house or pit, it makes all the difference between lasting and fading; more so even when the precaution is taken to immerse the fronds for a time in water before use. In a mixed fernery the taller or tree varieties will often afford sufficient shade to those which may perchance require it without resorting to any artificial means whatever. Filmy Ferns of course require shading. These I would recommend to have that of a permanent character to avoid any risk of injury either from exposure or from sudden fluctuations in temperature, the one being as injurious as the other. *Gleichenias* are not nearly enough grown; these need but little shade. So treated, their fronds are far more enduring, although not perhaps quite so large in their parts, thus making most suitable plants for decoration. Neither the *Nephrolepis* nor the climbing Ferns will bear too much exposure. PLANTSMAN.

Establishing the Bracken.—Perhaps one of your correspondents will be kind enough to do me the service of saying whether it is, 'practically speaking, possible to get Bracken to grow in a park where it is not already self-established. I do not know either the season or the best method of starting a plantation, but believe that it is not a very promising enterprise to embark upon, even when everything is done in the best possible manner, the roots of the plant being rather intractable.—T. W. E.

* * There are two modes of establishing Bracken, by transplanting and by raising seedlings, the latter way being the better. Transplanting must be done in the early spring. You must, with a full-sized spade, dig up entire sods, enclosing the black underground stems of the Fern, and so transplant to a light loamy or peaty soil. You will not succeed if you pull away the roots, or rather the stems, without removing soil with them. Seedlings do much better than transplanted roots, and are in every way more satisfactory. If you will gather a handful of ripe fronds, those with spores (seed) on their fronds now, place them between sheets of dry paper, and keep them dry, the spores will soon fall out. They may then either be sown at once or kept till spring. Make up pots or pans of good loam, rammed firm; sow the spores not too thickly; cover with a piece of glass, place the pots in saucers of water in a cool shady position, and they will grow in three weeks or so. As soon as the young plants are large enough to handle, pot them off singly into small pots, and as soon as they have filled these, give them a shift into 4-inch pots; grow them on rapidly in a house or frame, and by the middle or end of July they will be large enough to plant out permanently. The progress which they make is quite astonishing if liberally treated. Plants in sods always take two years before they recover from removal, even if they do recover, which does not always happen; whereas these seedlings become quite established the first season, and the second season grow into good tufts, ramifying in all directions. A vast number of plants may be obtained from two or three pots. It is not absolutely necessary to employ pots or pans for common things of this kind. Take a sod of loam, turn it upside down in a saucer of water, and sow the spores all over it, and do not cover at all; they come just as well.—ED.

ORCHARD AND FRUIT GARDEN.

GOOD LATE PEARS.

Up to the end of December good Pears are usually fairly plentiful, but after that date the list of really good late varieties is very small. Even those that may be considered worthy of culture are far more fickle or variable than is the case with early and midseason varieties, though why this should be so I am quite unable to determine. It may be there are novelties on the way that will supply the much-to-be-regretted deficiency, but I know of none, and in any case we shall most probably have for many years to come to depend largely for our late supplies upon our friends in America and the Antipodes. Finer fruit, doubtless, will always be forthcoming from these favoured countries, but, as a rule, good home-grown samples are

JOSEPHINE DE MALINES is perhaps more popular than the foregoing, and is undoubtedly a very valuable Pear, though it cannot be kept nearly so long as the foregoing, being at its best during January and February, March being late for it. One of the best dishes of this variety I have ever seen was shown at the late Bath bulb show, and a good supply of such tempting-looking fruit would always prove of considerable value. It is from medium to small in size, roundish obovate, stalk long, skin smooth, light green in colour, changing to pale yellow when ripe. It is a very luscious Pear, but sometimes requires a little artificial heat to bring out its best qualities. It should be grown against moderately warm walls or as an espalier.

EASTER BEURRÉ, of which an excellent representation of a Californian grown fruit is given, is the finest of late Pears, but somewhat fickle. With me the fruits grown on trees facing other than the south or south-west scar and crack badly, not keeping well accordingly, but I have had excellent samples on healthy young trees in the more favourable positions. It is not altogether suitable for

never very attractive in appearance, being of somewhat round, irregular form, and changing from green to a dull yellow, russet being plentiful.

JEAN DE WITTE merits high praise, being one of the most serviceable late Pears I am acquainted with. With me it succeeds admirably on a high wall facing north-east, one tree being very large and remarkably productive, smaller trees also doing well. The fruits are decidedly small, nearly round, with a smooth green skin, which changes to a rich yellow when ripe or ripening, the stalk being fully an inch in length. It is in season during February, March, and April, the quality being excellent, such small varieties rarely being so buttery.

BERGAMOTE D'ESPEREN is another very serviceable and easily grown variety, the trees thriving and producing very freely in almost any position and under any form of training. It is strongly recommended as a pyramid, quite young trees on the Pear stock even bearing freely, but the finest fruit and of the best quality, too, is obtained from trees against west or moderately warm walls. The fruits should be freely thinned out, and those reserved will then attain a moderately large size, those unthinned being somewhat small and poor in quality. It is Bergamot-shaped, skin green at first, and changing to a dull yellow, while the flesh is somewhat yellow in colour, void of grit, and fairly luscious and sugary. In season from the early part of February till late in April.

OLIVIER DE SERRES, another medium-sized Bergamot-shaped variety, is alike suitable for orchard, open garden, or wall culture. This, again, should be freely thinned out and a good supply of late dessert fruit will then be had in most seasons. The fruits are of a russetty unattractive appearance even when ripe, but during March the quality is distinctly good, the aroma also being marked.

MME. MILLET is one of the best keepers there are, and in addition the fruit is larger than in the case of most other late sorts. In shape it is roughly turbinate, the skin being almost wholly covered with russet. It is in season during March and April, when the quality may be found fairly good. This variety is not at all profitable other than against warm walls, the best fruit I have yet seen being had from obliquely-trained three-branched cordons.

ELIZA D'HEYST is frequently recommended as a good late Pear, this ripening early in the spring, but not having had any experience with it, I cannot say much in its favour.

CHAUMONTEL grows and bears well under almost any form of training, the fruit also keeping admirably or till well through March, but with me it is never fit for anything but stewing, those that do soften somewhat not being pleasant eating.

WINTER NELIS always seems to ripen too soon, being available during November and December, whereas it is wanted much later on. Nor are Glou Morceau, Huyshe's Victoria, Zephirin Grégoire, and Beurré d'Arenberg often available after midwinter. Knight's Monarch I should like to be able to class as a good late Pear, but it is far too uncertain to be recommended. As a rule the fruits drop off wholesale when nearly fully grown, or at any rate before they are fit for storing, and for this there is no reliable cure. What few fruits are saved either prove very delicious in February or March, making one wish they had a few pecks of them, or else they refuse to ripen and simply shrivel up.

W. IGGULDEN.

Pruning Figs.—This is undoubtedly the best time to prune Figs out of doors, as it can now be seen which shoots are best furnished with young fruit, these being, as a matter of course, retained. Cut as many of the old shoots out as can be dispensed with, training those retained at from 6 inches to 8 inches apart on the wall, being careful to allow sufficient room in the shred loops for the individual shoots and branches developing themselves. By pruning the trees just as they are pushing into leaf, the risk of injury through bleeding incurred when the trees are pruned at an earlier date is avoided. I have followed the above practice during the past twenty years with very satisfactory



Pear Easter Beurré. Engraved for THE GARDEN from a Californian specimen.

superior in point of quality, and there are a few late varieties that I shall name which succeed well under garden culture, if not in the open orchards. Whether rightly or wrongly, I consider

BEURRÉ RANCE to be the best of all late Pears, and room for a tree, or, better still, several trees of this well-known and well-tried favourite should be found in every garden. I prefer to have it on the Pear stock, and never experienced any difficulty in bringing young trees into a good bearing condition, while strong specimens rarely fail to flower strongly, good crops depending upon the weather. The finest and best-flavoured samples are gathered from a young tree against a south-west wall; but excellent fruit, if smaller, may be had from trees on other sites, and in Essex I have seen very profitable crops taken from pyramid and standard trees. The fruit at first is of a deep green colour, changing to a dull greenish yellow, and is at its best during February and March, though it can be kept a month or more longer

the Quince stock, trees on the Pear even being liable to early become somewhat stunted. The variety is naturally very productive, the flowers, always freely produced, unfortunately being often early expanded and injured by only moderately severe spring frosts. The designation Easter Beurré is somewhat misleading, the fruit more often than not being at its best in February, not unfrequently becoming dry and mealy soon after.

NE PLUS MEURIS under good culture frequently gives great satisfaction. It is of free growth, yet very productive, succeeding well as a pyramid, but better still against a moderately warm or, say, a west wall. The fruits set in great clusters, but unless freely thinned out they do not attain their full size, and are worthless accordingly. Grown to a full size, equal, say, to a good sample of Bergamote d'Esperen, the fruits are luscious, sweet, and fairly melting; whereas undersized fruits are largely composed of core and are very gritty. It is at its best during February and March, but is

results in the way of crops. Of course, a judicious system of thinning and stopping the young growths during the growing period is essential to success. Lay in one young shoot between each pair of last or previous year's growths, stopping these at about 2 feet, and pinching all superfluous shoots hard back to allow of the light reaching those retained.—H. W. WARD.

SETTING GRAPES.

MR. IGGULDEN will not mind my making a comment upon a remark he has lately made when writing upon this subject. Speaking of artificial fertilisation (p. 341) he says :

The palm of the hand is quite soft enough for drawing over a bunch when in flower, and this practice has the effect . . . of removing the tiny globule of viscous matter often lodging on the stigmas, and which, unless either dried or removed, militates against a perfect fertilisation.

And further on :—

Alnwick Seedling, left to itself, fails completely to set, and those glistening globules of sticky matter must be removed, or the pollen is powerless. Black Hamburgh, in fact, most other Grapes in robust health also produce this spot of moisture, and in dull showery weather this ought to be moved with the hand, or the set may be imperfect.

The italics are mine. The production of this viscid exudation upon the stigmas is a sign of the robust health of the Vines, *i.e.*, that they are exercising all their necessary functions. For this stickiness is a natural provision for securing the adhesion of the pollen and for feeding the pollen tubes as they start into growth. This is so far recognised by hybridists that some have applied honey or sugar and water artificially to the stigmas of flowers with satisfactory results. In the case of Narcissi I have noticed that the stigma is surely in a receptive condition when this viscid condition of its surface is apparent.

Of course, the substance of Mr. Iggulden's article—which is practical and excellent, like everything that he writes—is not affected by his misunderstanding of the function of this exudation. For by "removing" or "moving" it he really does the right thing with it, *i.e.*, rubs the pollen into it and smears the mixture well over the stigmatic surface. And he unconsciously shows the value of this gummy secretion when he expresses doubts of the safety of syringing as a method of setting the bloom. A very light dewy spray may have the effect of mingling the pollen with this exudation and thus fertilising the flower. But if the spray is at all over-violent, it may wash the pollen and the exudation clean away, and so remove the greater part or the whole of the beautifully contrived apparatus for fertilisation.

Similarly, if the "globule of viscous matter" could be "dried" before it had received the pollen-grains, loss of fertility would result.—G. H. ENGLEHEART.

— Before replying to the remarks of "E." on p. 367 I waited to see the result of the practice that is followed here, and which was recommended by me on page 341. On the whole, our Muscats have set better than usual, and there are so many perfectly set bunches to select from, that it will be hard work to properly reduce their numbers. Not only am I loth to cut off such well-set bunches, but it will be a comparatively tedious matter to thin out those reserved, as they are quite as well furnished with berries having a good complement of stones as are the best bunches of Madresfield Court near at hand. Yet the night temperature during the flowering period never exceeded 65°, and more often than not was nearer 60°, owing to my dislike to making the pipes excessively hot during cold nights, and which were invariably

followed by clear days. Occasionally the day temperature reached 80° with air, but the latter was very cold, and we were obliged to ventilate with great caution. That was in the Muscat house proper, but I have a far more interesting and instructive experience to relate. In order to obviate the necessity for starting a permanently planted house with the Vines rooting solely in an outside border earlier than February, a few small Vines are usually fruited in an old forcing house, among these being two rods of the Muscat of Alexandria. Now, this old flat-roofed forcing house is past repairing properly, and though well heated, there is no such thing as keeping high temperatures whenever the wind blows from a cold quarter. When the Muscats were in flower, the night temperature rarely exceeded 45°, and very frequently was nearer 40°, the day temperature being also very low or not up to 60°, unless for a very short time. If, therefore, the theory propounded by "E." is correct, those Muscats ought to be a complete failure and the bunches of other varieties very feeble and small in berry. As a matter of fact, quite the contrary is the case, as anyone who cares to take the trouble can see for himself. Bunches were cut off that were beautifully set, while those reserved will be large, with berries of the first size. It must not be thought from this that I shall either adopt (or recommend others to do so) lower temperatures than even those given on p. 341, but the lesson that may be deduced from my experience is rather in the direction that a buoyant atmosphere is of the greatest consequence during the flowering period, low temperatures, coupled with stagnation, being most prejudicial to a good set. All the while the pipes are kept hot, a free circulation of air would really appear to do more good than harm. The extraordinary notion that high temperatures strengthen the foot-stalks will not bear criticism. Far more likely are they to weaken the bunches, and what the latter want are moderately high temperatures, plenty of daylight and a good circulation of warm dry air when in flower. I have for the past nine years cut the best bunches of Black Hamburgh out of the Muscat house, but it was not to high temperatures that I attribute their production.—W. IGGULDEN.

FORCED STRAWBERRIES IN MARCH.

DURING the last few years we have had several new kinds that when put on the market were to eclipse all others, but so far they have not made much progress in ousting well-known kinds. Noble I gave up after two trials, as fully one half of the fruit did not set and the other was abortive, only a small percentage finishing, these being deficient in colour. For later use it is excellent when brought on slowly in cold frames. This treatment improves the flavour, and the colour is also good. La Grosse Sucrée is an excellent variety in every way, but one that I cannot advise for fruiting in February or March. With me it will not throw its trusses sufficiently high enough, and the flowers will not part with the calyx, though brought on slowly and grown in a slight bottom-heat. My reason for mentioning this circumstance is that in some nurserymen's fruit catalogues I have found La Grosse Sucrée described as the best for earliest forcing. For later work to come in in April, it is one of the best varieties we have. I have given John Ruskin a trial this season, but have failed to produce fruit up to the advertised quality or in quantity. I will give it another trial next year. King of the Earlies is a miserable small fruit not worth attention if grown by the side of Vicomtesse Héricart de Thury, this in my estimation being the best Strawberry for early forcing. I have given Pauline a trial; it certainly is early, but its shape condemns it, and I cannot advise it for pot work. I have a better opinion of Competitor, but would prefer to give it another trial. I am pleased with its colour and flavour if it sets freely when hard forced. I do not think we have yet found a Strawberry to equal Vicomtesse for early forcing, and my note refers to fruits ripened in February or March. To follow this, Keens' Seedling will not

be easily beaten. It is an easy matter to get fine fruit of forced Strawberries in May, as when the difficulty of setting is taken into consideration, there is not so much merit as when a fair dish of Vicomtesse or any other is shown two or three months earlier. Another point is that many gardeners cannot devote much room to the plants, so that Strawberry forcing is carried on under great difficulties. One great advantage in growing Vicomtesse for early work is the way it finishes in small pots. It will also do in a moist house, and is less subject to insect pests than some kinds. It would be interesting to know if large growers succeed well with these new kinds. So far as I have seen, very few of them appear in the market till April comes in, some even later, so that I see little merit in them, as we have plenty of good kinds that come in at that period with ordinary forcing.

GROWER.

OVERCROPPING.

OVERCROPPING is a very great mistake, as it not only renders the fruit of poor quality, but also weakens the tree. I once called upon a gardener who had several vineries under his care, and the crop hanging was about the heaviest I ever saw, but the quality of the fruit was poor in the extreme. There were so many Grapes, that the gardener did not know what to do with them, and as marketing the surplus was not looked for, there was a considerable quantity on hand. Now if these Vines had only been allowed to carry about a third the number of bunches, the quality would have been higher and more satisfaction would have been given. Very often what appears an ordinary crop grows into a much larger one than the grower anticipated. A grower should be able at thinning time to gauge the weight of the crop the Vines will carry, and at this time cut off all superfluous bunches with the exception of one or two extra to a rod, these to be cut off as soon as the bunches have stretched well down and it is seen what the crop is likely to be. It is perfectly useless to overburden the Vines with superfluous bunches, and then at about the colouring stage to come to the conclusion that too many have been left on and commence to cut them off. Certainly lessening the crop at this stage makes the best of the evil, but the principal mischief will have been already done. What should constitute a fair crop will have to be gauged by the health and general condition of the Vines, length of rod, and so forth. The size of the bunches will also gauge the crop to a certain extent, and also the amount of feeding that may be given. As an argument for heavy cropping, it has been advanced that there are certain large growers for market who allow their Vines to carry very heavy crops, but at the same time feed heavily. As a rule, these Vines are growing in soil the most suitable for Vine growing, and also in a condition mechanically for receiving abundant supplies of what are termed artificial manures. Again, the rods are not expected to last long, and in the majority of cases the crop is cut as soon as fit; consequently the Vines are relieved of the load at once, and they also have a lengthened time in which to recoup their energies. This is quite unlike the majority of cases in private gardens, where the Vines are supposed to last a long time, comparatively speaking, and it behoves those who are in charge to crop the Vines judiciously, especially in the younger stages, the aim being to build up Vines which will be capable of supplying good regular crops for years to come. Occasionally we hear and read of sensational crops being taken from very young Vines, but this is no criterion that the

practice can be indulged in generally. Neither is it wise to do so.

The width apart the rods are growing makes a deal of difference as to what weight of Grapes each should carry. For instance, a Vine with the rods 4 feet apart is able to bring a greater weight of Grapes to maturity than another with the rods 2 feet apart. Taking varieties of Grapes as a whole, where the bunches range from 2 lbs. to 3 lbs. weight each, a bunch from every other lateral would be an ample crop. A greater weight of Alicante may be brought to maturity on a single rod than, for instance, in the case of one of Black Hamburg. This latter, although a fair number of ordinary bunches may be produced, will not stand overcropping, that is if the highest finish is desired. As is well known, Muscat of Alexandria and Mrs. Pince's Black Muscat are very impatient of heavy cropping. I never allow a rod of the latter to carry above five or six bunches, but then these are of a very large size. The Vines would have to be in the best possible health to bring even the above number to full perfection, size of berry and colour being taken into account.

Peaches and Nectarines are often decidedly overcropped. Small fruits either of Peaches or Nectarines are never looked upon with favour. Depth of flesh is lacking, and also lusciousness. As a rule, the larger kinds of Peaches should be thinned down to one to the square foot of surface, 9 inches for smaller kinds. Nectarines may range about 9 inches, and the trees being healthy the fruits will be brought to full perfection either for home use, exhibition, or market. For market it does not pay to produce small fruit even if there is quantity. Figs pay for thinning, especially where they appear too thickly or in clusters, or where there may be danger of the trees casting their fruit, especially the earliest crop. Melons, again, should not be too small. Fruits which will range from about 3 lbs. each are of good useful size. I allow our plants to produce from two to four or five fruits each. Plums under glass I also thin.

Y. A. H.

OUTDOOR FRUIT NOTES.

THE present season has a rain clearly demonstrated the value of spring protection, for a close inspection of wall fruits now that the bloom has dropped reveals the fact that by far the better average crop will be secured where trees had the benefit of some covering. Peaches, Nectarines, and dessert Cherries that, as mentioned in previous notes, get the first and best of the netting are safe and swelling away nicely, except in the case of the Cherries, where some of the bloom had pushed its way through the netting and had to bear unprotected the succession of frosts. Cordon Pears that were covered seem likely to set well, and late-flowering old trees are, I think, safe; but all expanded blossom was badly cut. I thought Plums would be very thin, but a closer inspection gives the crop as a fair average, all pendent flowers that were slightly protected by branch or foliage having set well. In occasional notes as to the chances of Peaches and Nectarines coming safely through a trying spring, the theory is sometimes advanced that success depends a great deal on keeping the trees away from the walls until the last possible moment, that is, they should not be nailed nor tied until the buds are getting prominent—the flower-bud, in fact, just showing its colour. I do not believe in the idea any more than that bud-dropping in Peach houses can be traced to non-exposure of the trees. Naturally, any outside trees that may require dressing, or if a portion of old wall has to be dressed, it generally happens that this work is left until early spring and the trees remain unsecured; otherwise they take their turn with others. We have a big stretch of wall to get

round, and the nailing up of the trees (starting at the end of November and finishing about Christmas) follows close on the heels of the knife. No ill results have followed this early nailing, and we have only missed a good outdoor Peach crop once in twelve years—I think in 1884, when we had 22° of frost the third week in April, and all the fruit was frozen through. The chief factors in successful Peach culture out of doors, besides effectual spring protection, are a fairly suitable soil, close attention to summer disbudding and pinching, clean trees, an early thinning out in autumn of any shoots not absolutely required for another season, and well-ripened wood, the last the natural outcome of the rest. These remarks, it must be remembered, treat of districts where outside Peach culture is practicable, or within a radius of seventy miles of London. Farther north than this, or in some parts of the west of England where there is a heavy annual rainfall and the atmosphere is for long periods heavily charged with moisture, Peaches are either not grown out of doors or the gardener is heavily handicapped in their culture. Writing of a particular part of Devon, I remember a friend bearing testimony to the fact that annual growth was so strong and gross, he was compelled to lift his trees every second year. We have Peaches and Nectarines some forty and fifty years old that have never been lifted, and certainly do not seem to require such treatment. Here an important factor towards success seems to be to get and keep the soil firm and solid, and I have found it a good plan to top-dress, say every second year, with a mixture consisting of three parts stiff road sidings and one part cow manure; the latter is added to bind the compost, as our natural soil is always apt to degenerate into at best a very sandy loam. This compost settles down fairly firm and hard, and is a great help to the trees especially in hot, dry summers. Similar treatment is decidedly advantageous in the case of other wall fruits, Apricots and dessert Cherries in particular. Just a few of the late Peaches and Humboldt Nectarine do not ripen up either wood or fruit as one could wish in cold, wet seasons; indeed, it is only in very favourable summers that these can be produced satisfactorily out of doors, and unless seasons and situation could be guaranteed, it is hardly advisable to plant later Nectarines than Violette Hative or Peaches than Barrington. I omitted to mention earlier in these notes that Morellos are, as usual, likely to be plentiful. It seems a pity this fruit is not more extensively grown, as invariably on all walls having a northerly aspect the crop is safe. A supply of netting is essential if the fruit is to hang late, and if trees are kept clean and free from fly until the netting is put up, a supply of Cherries can be relied on until autumn is well advanced; in fact given a season free from early frosts, I have had Morello Cherries until the middle of November. Strawberries have wintered much better with us than last year, Noble especially looking exceptionally well. Is it the general experience that this Strawberry must be renewed annually to do it well? Some sorts as Vicomtesse and Sir Joseph give grand results the second and third seasons from old forced plants, but Noble does not take kindly to this mode of treatment with me. It is far better to make a fresh plantation every year.

Claremont.

E. BURRELL.

Peach bud-dropping.—Several able gardeners have recently given their experience in the matter of Peach bud-dropping, but I am yet of opinion that Mr. Crump cannot be otherwise than dissatisfied with the outcome of his original remarks on p. 269. All overlooked the important fact that it was not Peaches generally that Mr. Crump complained of, but the Alexander Peach only. He evidently very well knows how to prevent wholesale bud-dropping in the case of the other varieties under his charge, but cannot prevent its taking place with the variety named. My experience agrees with that of Mr. Crump, and what he as well as myself wants to know is if anyone can enlighten us as to how to prevent the loss of so many buds. That the early American

varieties are much addicted to casting their buds there is no denying, and to judge from what appeared in reply to Mr. Crump's note of inquiry, no remedy for this unfortunate occurrence is known to any of the readers of THE GARDEN.—W. I.

ROSE GARDEN.

MARECHAL NIEL ROSE.

OF late, several very interesting communications have been published in THE GARDEN concerning this Rose. To a certain extent it still retains its peculiarities, such as uncertain growth in individual cases, and also in being subject to canker or wartiness, as stated by "R." (p. 390). Without discussing the question of special stocks, I believe the majority of cultivators are agreed that the Brier is the one on which it thrives the best. I have four plants growing in a large Rose house, and which during the past three years have been cut down after blooming with very satisfactory results. This last spring I cut several hundred beautiful flowers. Directly after the plants had finished blooming, the growths were cut hard back to within about a foot from where the growth started last spring. The growth as it starts is trained equally over the roof, and ripened up during the autumn with plenty of air. Not being shaded in the least, the growth ripens up splendidly. I think it is certainly a mistake to allow a great extent of old wood to remain after blooming, and which I am sure makes the plants more prone to canker and wartiness. The roots of the Brier are small in proportion to the top, and appear to be unable to withstand the strain which the old wood brings to bear upon them; hence the collapse, which appears earlier at any rate than where they are subjected to cutting back. When cut hard back, the young extending growth encourages the root action. There can be no question as to the advisability of subjecting the plants to a thorough rest preparatory to starting into growth. A degree or two of frost will not do them any harm as long as the wood is dry. In a greenhouse where the rest the plants should receive cannot be given owing to the other inmates of the house, Roses cannot be expected to succeed so well as in a well-appointed Rose house. Here their wants can be attended to as needed, the structure being both heated and ventilated to suit them. The growth starts away evenly and strongly without being excited too much. This season I applied to the whole of the Roses in the Rose house, and which are planted out, a dressing of burned refuse and night soil, which had been laid up for eighteen months and turned occasionally. Both the leaves and the flowers were finer and of better colour than I ever had before. This I attributed to the dressing. This was recommended to me by that clever amateur rosarian, the Rev. J. A. Williams, formerly of Aldermaston Lodge, Stratford-on-Avon, but now living at Beccles. I never saw Tea Roses grow better than in his garden. The dressing, I believe, he put on in the autumn. William Allen Richardson I treat the same as the Maréchal Niel, cutting it hard back after flowering. This and thorough ripening of the long shoots appear to be the secret of success. It grows the most freely when budded on a half-standard. I was not aware it was subject to canker, as stated by "R." (p. 390), but it is as well to be prepared. In my case, the stock itself swells more in unison with the scion than in the case of the Maréchal Niel.

Y. A. H.

Roses on walls.—On page 390 of your journal, Mr. D. T. Fish makes a few useful and interesting comments upon an article of mine. I fully agree with the bulk of his remarks. "D. T. F." mentions that the commoner Teas, such as Homère and Gloire de Dijon, are better on a north than a south wall. I admit that in the majority of cases this is so, and that the same may be said of all of our earliest varieties. What is the reason of this? Both of the kinds named by "D. T. F." are among

the earliest to break into growth when upon a warm wall, and consequently they are more liable to suffer from the effects of late frost. When growing upon a north wall, such early growth is considerably restricted, and the result is fewer of the bound and green-centred blossoms than we frequently see among the first crop of such kinds of Roses when growing in an early situation. I am still of the opinion that the best aspect for Roses on a wall or fence is due south. At the same time I agree with "D. T. F." as to the desirability of having Roses in all positions and situations, and, like him, have often been gratified to find a few grand flowers of *Maréchal Niel* and *Gloire de Dijon* as well as of other standard favourites upon north and north-west walls. Properly ripened growth upon all strong and vigorous Roses can, according to my experience, be better and more generally obtained upon a warm south wall than upon a north or north-west one. In the latter position, Roses will almost always continue in vigorous, sappy growth until severely checked by frost.—A. P.

NOTES ON ROSES.

We have seldom experienced a more trying spring for Roses than the present one has been up to this date (April 30), and there does not seem much prospect of improvement. For several mornings we have had from 5° to 10° of frost, and one morning there were 12°. Much of my Rose growth does not show any appreciable injury, but I am certain that many of the early buds upon such precocious varieties as *Homère*, *Sombreuil*, and others will result in green-centred blossoms, even if many of them are not too hard bound to burst at all. It has been trying for Roses in more than one way—there have been the severe frosts, which have been followed by bright sunshine during the early part of the day. It is these sudden and complete changes that work so much havoc among the early buds.

One advantage has come of it, however. I had already noticed a few maggots among the young growths of some plants upon a very sheltered wall. This was during the milder weather of a fortnight back. Now, however, I can see no maggots, and have no doubt but that the frost is responsible for their death. It is the few earliest of these grubs that do so much mischief, and so we have no doubt benefited to a slight extent in this respect. Those of my readers who followed my advice respecting pruning and left this operation until later than is usual in the majority of gardens are now reaping a decided advantage, as their Roses will be far more backward than would otherwise have been the case. Provided we get a favourable change in the weather soon, the latest pruned plants have still got a fairly good outlook; but I am afraid we shall have more green-centred flowers than usual, especially upon the earlier varieties. I have *Mme. d'Etienne* (Tea) and a few more upon a warm wall that are already showing colour. The late snowstorm has done much more harm among my dwarf-budded stocks than I anticipated. On looking them over carefully during the past week and removing the few suckers that were breaking from them, I found that considerable numbers of the Rose buds were broken out by the weight of the snow. In some instances, such as among *Gloire de Margottin* and a few others of the more forward varieties of Hybrid Perpetuals, there are as many as 10 to 20 per cent. that have broken out at the junction with the stock. These varieties were bearing young growths some 4 inches to 6 inches in length; later kinds do not appear to have suffered much. There is a great deal of work to be done among last year's budded stocks in the way of removing any suckers before giving them a slight earthing up and placing sticks to the young Rose growth. It is much better to do the staking early, as this will afford a great deal of protection against the wind, and you can go over your plants at intervals and secure the forwardest as they become tall enough to need a slight support against wind and rain. These dwarf maidens are much better if earthed up in much the same way as early Potatoes. By drawing the soil up to them on each

side you afford a certain amount of support and protection, and at the same time secure that the point where Rose and stock unite is kept more uniformly moist. This will greatly assist a strong and sound union, as under such circumstances the stock will swell more readily and so meet the requirements of the Rose growth, which last will increase in size much more rapidly than the stock would do unless covered with soil. There is another decided advantage in earthing up such plants, that is the encouragement there is for such to go off upon their own roots to a certain extent. The fact of dwarf Roses going off upon their own roots almost as soon as they commence growth has been pointed out as an argument in favour of this style of cultivation. My object is to secure the additional support afforded by such roots, and at the same time to retain those of the stock in good health and vigour, as the Rose will undoubtedly derive its chief support from such as long as these conditions are secured.

Towards the end of this month it will be well to decide upon whether you are to grow your maiden plants with the object of securing bushy, well-shaped plants, or to obtain a good flower or two from them the first season, with a consequent loss of size and shape in the formation of your plants. If you want good bushy specimens for planting next season, it will be better to pinch out the tips of the young shoots as soon as they reach a length of about 9 inches. In the case of climbing Teas and Noisettes, I do not recommend such treatment. These will break again from the base on their own account; besides, it is not compact growth that is required here, but long and vigorous shoots that will be formed early enough to become properly matured before winter is upon us again.

Care must be exercised in tying the young shoots to their supports, as if you draw them in too severely they are very apt to "fly" from the base, owing to the steady strain thrown upon this part by their quick growth, especially if they are drawn in too firmly. It is only a slight support that is useful at first—just sufficient, in fact, to steady the growth until Rose and stock have united more securely.

RIDGEWOOD.

PACKING ROSE BLOOMS.

For the past three years I have sent by railway a distance of 250 miles the produce of two houses that are principally devoted to the growth of Roses. My system of packing the blooms to travel this distance has been so simple, that I venture to think a short account of it may be useful. The only two Roses I grow in quantity are *Maréchal Niel* and *Niphetos*, both of which are forced early, so as to get the blooms to market before they become plentiful. I cut over 400 blooms of *Maréchal Niel* in the month of March. There is more judgment required in selecting Rose blooms for cutting early in the season than is the case later. In the summer it is not unusual to find a half-open flower cut in the evening fully expanded by the middle of the following day, but such a thing does not occur in the month of March. When placed in a lower temperature, blooms of *Maréchal Niel* when cut in a half-opened state are more likely to contract than expand. As a matter of fact there is difficulty in getting the flowers to open sufficiently without giving more heat than is desirable for the later blooms. Nothing less than 10° will get the blooms in a suitable condition. They will not expand even with that amount of warmth, but will remain in a half-opened state until they fall off. It is fortunate for the grower that the public are willing to accept them in that condition. For packing I use boxes 15 inches long, 12 inches wide, and 3 inches deep. In the bottom of the box I place a thin layer of fine clean Moss or paper shavings; on this I place a sheet of damp newspaper, and on this a layer of Rose blooms. With each flower I take enough of the shoot to secure two leaves, which are carefully wrapped round the bloom and placed close to the one that preceded it. The secret of packing the flowers is to place them close together, so that they do not move in transit. If the flowers get moved

from their bed they rub together, and the edges of the petals get disfigured. When one layer of blooms is placed in the box, another sheet of damp paper is laid evenly upon them, and then another layer of flowers is placed close together on the damp paper, as in the bottom. Two rows of blooms are quite as many as it is safe to send in one box. In every case a sheet of damp paper is placed next the flowers, and if there is any vacant space afterwards I fill it up with soft paper. When I have a quantity of blooms I tie two or more boxes together. In cold weather I take care to wrap each box separately in thick brown paper to exclude the air. Flowers sent so early in the year and such a long distance would be comparatively worthless if indifferently packed.

J. C. CLARKE.

THE BRIDE AND OTHER NEW ROSES.

I AM glad to hear, on the authority of "R." (page 318), that *The Bride* has left off its shy-growing ways and promises to flourish from this time onwards like its foster mother, *Catherine Mermet*. Possibly, however, it may have lost something of its vigour through its changes of colour. This hardly, however, seems to be the case with "R.'s" second favourite white Rose, fragrant as spotless, *Souvenir de S. A. Prince*, sent out in 1889, a sport from that finest and best of all our pale rose Teas, *Souvenir d'un Ami*. Another writer on page 319, referring to *Ethel Brownlow Rose* as illustrating the cause of the weakness and miffiness of so many new Roses at home or from abroad, says it is the excessive propagation of new varieties that brings about their deterioration for a time. It is a striking confirmation of the truth of such theories that neither *The Bride* nor the *Puritan* is yet in the catalogues of the most popular growers for sale. The evils of the excessive multiplication under forcing conditions of Roses and other new plants have often been pointed out. But they gain in precision and force by "Ridgewood's" re-statement of them on page 319. I can confirm his experience in regard to *The Bride* and *A. K. Williams*, and extend it by including the *Puritan* or even such a strong grower as *Her Majesty*, having received overworked, exhausted plants to start with. Not that in this latter case it mattered much, though it might have been and often was very much otherwise.

"Ridgewood" strongly insists on two points, that like will produce its like in constitution as well as in the character of a Rose and other plants, and that the only remedy we have for weakness induced by excessive propagation is to wait until the strain is removed. Fortunately, when the over-pressure ceases, the variety will resume its original vigour of growth, unless indeed the exhaustion has been carried too far. There is also this grain of hope in the matter, that while like as a rule will produce its like, viz., weakly buds and exhausted wood result in weakly, weedy growths, yet, according to the theories of Darwin and the experience of most practical rosarians, like will also at times produce its unlike, that is, a weakly bud produce a strong shoot. By this means, the period of waiting for the abnormal strength of new varieties is frequently shortened and reduced. Hence comes much of the infinite variety, in the experience of rosarians, with new varieties. Virtually they start with the same Rose, with constitutions as varied as the skill of the growers can make them, and it may sometimes take a dozen years before anything like a uniformity of growth and constitution gets generally established in the same Rose.

D. T. F.

Ayrshire Roses.—D. T. Fish does well to call attention to the value of these. When seen as we have them here—climbing over an old dead tree which stands at the edge of a large mass of shrubs and hanging over an ornamental pond, the free-growing shoots almost touching the water—the value of the Ayrshire Rose is apparent. In this position plants thrive amazingly for several years, but are not so long-lived as when placed in good holding loam. Last autumn I saw some that had been planted two or three years growing rampant

in a wild garden in West Norfolk. I do not remember "D. T. F." mentioning the plan of growing these intermingled with Ivy. For this purpose they are excellent. In this place we have the walls of a bridge covered with Ivy and Ayrshire Rose Dundee Rambler. The only attention they receive is clearing out of the old wood and laying in the new wood occasionally. A wall here 20 feet high is covered with Ayrshire Roses intermingled with Ivy, and when in bloom the Roses against the green Ivy are very effective.—DORSET.

Early pruning of Roses.—It is in seasons like the present that we see the mistake of early pruning. February and the first few days in March were warm; then came severe cold, which cut off every young growth. The continued cold through March kept them from starting again. But when April came the Roses again started into growth. This has now been killed by the severe frost on April 15. Luckily, I had just finished pruning my

leaves. It may be increased by division. *C. solida* is also in flower now, but neither so showy nor striking as the above. It forms curious tuberous roots, from which spring the leaves and flower-stems. The flowers are of a dull purple colour. This species should be planted in the woods. It is already naturalised in some parts of England, and as it stands both drought and shade well, I find it useful for planting near the trunks of deciduous trees, &c.

STOVE AND GREENHOUSE.

CAMPANULAS FOR WINDOWS.

THESE are very pretty and succeed admirably in pots as window plants. There are many very beautiful varieties, such as *C. Barrelieri*, a droop-



Campanula isophylla alba on greenhouse stage.

Roses. Often I had looked at them and thought I ought to do it, but resolved to wait until the second week in April. It may be said I am not yet out of the wood; but surely I have a better chance than if I had pruned early. With me, many of the back buds had not started when I pruned on April 13. I note that many of the Teas which were planted last year are coming away strongly, although cut to the ground.—WEST DORSET.

Corydalis nobilis is a distinct and extremely taking rock plant. It is, I think, the handsomest of all the Fumitories, of a robust habit, and yielding always an abundance of its striking flowers. It rarely exceeds 1 foot in height; the strong flower-stems, leafy to the top, rise from a mass of bright green, Fern-like foliage. The flowers are of a rich golden-yellow, with chocolate spots on the lip. It is invaluable for damp spots in the rocky or border, and does best in a light free soil, to which has been added plenty of rotten

ing kind with a profusion of star-like bright blue blossoms, its shoots hanging down for about a foot, rendering it very suitable for suspended pots or baskets, and *C. carpatica*, blue and white. *C. (Platycodon) grandiflora*, another drooping kind, but having far larger and more substantial flowers than *C. Barrelieri*, droops sometimes 2 feet, and is grand for hanging pots or baskets. *C. isophylla* and its white variety are delightful trailing pot plants for a window inside or out, and do well also if grouped on a stage in front of a window or in a greenhouse (see illustration). Campanulas delight in a light rich soil; equal parts of loam, peat and leaf-mould, with plenty of sand added, suit them well. Do not pot very firmly, and give plenty of water when in growth and in flower. Keep rather dry at the root during the winter, and divide and repot in the spring as soon as growth commences. The drooping kinds do best in slight shade.

A 5-inch pot is large enough for each plant of the drooping kinds, and the pots should be suspended by means of wires and the shoots allowed to droop over regularly all round.

T.

CINERARIAS.

WHEN I looked in upon the fine show made by the thousands of Cinerarias in profuse bloom which Messrs. James and Son had at Farnham Royal last week, I could not but think that these plants were in any case easily enough grown, or it would not have been so easy to have had some 3000 in bloom so finely and at the same time. No doubt in many of our market plant nurseries even double that number of Cinerarias is annually reared, but then they go off to market so rapidly, that what may be called a big show of bloom is seldom seen at any one time. At Farnham Royal the mass of bloom was remarkable, not only for its bulk and the exceeding dimensions of the flowers, but also because most of the plants were blocked into colours, selfs in one house some 110 feet long and 12 feet wide, edged or ringed flowers in another one of similar dimensions, and mixed forms in yet other houses. Pretty as a mass of mixed flowers may be, certainly the effect obtained from a big mass of flowers of one shade of colour is surprising. Especially was this found with the whites, deep reds and blues. This blocking is done for seed-saving and answers admirably, as the major portion of the seed so saved comes very true to character. Whilst some like to have seed in colours, others prefer it mixed, so that all classes are accommodated. The plants, as a rule, had a stout, sturdy habit and were carrying large broad heads of bloom at from 10 inches to 12 inches in height, there being very little variation in that respect throughout the whole lot. That shows that Cineraria culture cannot be difficult, and that what is easy in the case of thousands of plants should not be at all difficult when they are counted only by scores. Without doubt, Cinerarias like a light and rather low house, plenty of air, and to be kept as cool as can well be consistent with the sustenance of growth. There is, too, some judgment needed in getting the plants into the proper-sized pots, for if these be too small the plants become starved and dry at the root, inducing aphids to generate rapidly. If the pots be too large, the soil soon becomes waterlogged, and disrooting with loss of leafage follows, the plants soon dying off. I noticed that, with the exception of some fine clumps grown as specimens for exhibition, the bulk of the other plants was established in 7-inch pots. There was no evidence of starving or of damping off in these. Then it is very possible to have the soil too rich. That, too, is a mistake. Cinerarias really like a fairly stiff soil, or perhaps I had better say prefer to be firmly potted. Plenty of natural fibre, which endures, is better than too much manure or leaf-mould, which gradually decays and leaves the soil too loose and porous. Some growers of Cinerarias imagine that they have everything to be pleased with if their seedling plants develop very large leafage. That is not a desirable feature, as fine heads of bloom rarely follow after so much leaf-production. Very many growers have in the past been surprised to find how comparatively poor have been the bloom-heads from strong leafy plants. Soil moderately rich and fairly firm generates good foliage and later large dwarf heads of bloom, and that is the nature of the culture given at Farnham Royal, which enables Mr. James to produce plants of such sturdy, free-flowering character, that somehow we never see them excelled. The time for sowing seed must be governed by the requirements of the grower. It may be at any time from the 1st of May to the last of July, and where a succession of plants is needed over a long season, sowings may be made with advantage both about the middle of May and the middle of July. It not unfrequently happens, however, that one sowing gives early and late seedlings, and from these alone a good succession is obtainable. Some, too, may be accelerated in warmth, whilst others kept in a cool frame

will flower naturally in the spring. For seed production the month of April is the best blooming time. If too early, pollen is not always fertile. If too late, the summer warmth soon generates aphids and withers up the stems and flowers. Of course, few ordinary growers care to save *Cineraria* seed. They like to have the plants blooming to the latest in greenhouses, conservatories, windows, &c., and then throw them away, assured that a packet of seed will give them an abundance of plants later on. It is rare now that any small grower takes the trouble to propagate plants from side shoots. We have very few named *Cinerarias* in commerce, because seed stocks are so good, little is gained by keeping over old plants. Mr. James keeps some of the best varieties which he has produced from time to time, but solely for seed-producing.

A. D.

***Eranthemum albiflorum*.** This is less showy than some other members of the genus, yet it forms a pretty flowering plant, and one, too, that may be had in bloom at almost any season of the year. It is upright in growth, but does not grow so tall as many of the *Eranthemums*, for it will bloom freely when not much more than a foot high. The leaves of this are ovate in shape and of a very deep green colour, while the pure white flowers are produced in upright panicles. The very dark green leaves afford a marked contrast to the pure white blossoms. Like the rest of its class, cuttings strike root freely, but in growing them on, care must be taken not to overpot the young plants, as this species is much less vigorous than some of the others.—T.

THE WEATHER DURING APRIL.

THE weather in this part of East Anglia has, as in many other parts of the country, been very remarkable during April. The long spell of really fine and summer-like weather, with a high barometer, cloudless skies, magnificent sunsets, and entire absence of rain, which were experienced during the early portion of April is very uncommon. From all parts the cry was heard that summer had in reality set in. And this might really have been supposed to be the case, as from the 1st until the 11th what might well have been regarded as July weather, or at least such weather as we reasonably expect, but do not always get, in July, was experienced throughout the country, with a maximum temperature abnormally high for the early period of the year. The wind, however, in this part of the country still continued in the north-east, so although the days were warm, the nights were still comparatively cool. The maximum temperature in many parts in this neighbourhood was said to have been as high as 80° in the shade. This extraordinary spell of remarkably fine weather was, however, destined to be succeeded by a wave of a very different character. A very sudden depression took place on the 12th, accompanied by a considerable fall of snow, while snow fell also on the 13th and during the night, when the temperature fell to 21°, or 11° of frost. Snow again fell very heavily on the 15th and 16th, that of the latter when melted amounting to 0.29 inch. This day was also intensely cold, and was justly regarded in this locality as the most wintery day of the season. On the 19th the weather slightly improved, but still continued cold and unsettled to the end of the month. A somewhat heavy fall of rain occurred on the 27th amounting to 0.40 inch, while on the 28th there were severe hailstorms. Up to the 20th the wind here was mostly from north-east, and during the latter portion of the month it varied from north, north-east and north-west. During the month snow fell to a measurable extent during six days, and the rainfall of the month, including melted snow, amounted to 1.65 inches, which is 0.11 inch in excess of the average rainfall of the month of April at this station. This fell in the form of rain, hail and snow on ten days. The maximum temperature of the month here was 73° on the 4th, and the minimum or lowest was 21° on the night of the 13th. The warm and fine days

experienced during the early part of the month had, as might have been expected, the effect of inducing a very early leafing amongst forest trees of most kinds, and also of placing fruit trees in a dangerously forward condition. It is not at all unlikely that the very unfavourable change in the weather which so suddenly set in may, particularly in exposed situations, have inflicted considerable injury upon fruit trees and bushes, and the promise of very abundant crops may not be altogether realised. It is, however, as yet too early to attempt to verify this. I have lately examined some plantations of Gooseberry trees, which are showing great abundance of fruit. They do not appear to have suffered in any degree from the inclemency of the weather, but the situation in which the plants are growing is somewhat sheltered. P. G., *Bury St. Edmunds*.

— The month of April will long be remembered in fields and gardens as one of the most disastrous we have had. It is hardly an exaggeration to say that it laid its icy fingers on every tender leaf and bloom, and stopped their growth or blighted on the instant the fair promise of plenty. The season in advance of this bitterly severe wave of cold was late, but full of promise; the fruit crops, Roses, and other flowers, writing of them in the mass, safe; but now they are everywhere crippled, in thousands of instances it is feared utterly wrecked. Private gardens have also suffered severely in all directions. Almost every tender blade and sweet or delicate bloom are either bruised, battered or blackened. The news of disaster begins to come in from all quarters. Even such hardy plants as early Sycamores, Horse Chestnuts, and Rhododendrons droop and hang their heads as if their tender twigs or blooms had been dipped in hot water. Early Roses, daring to keep time by the calendar instead of local climate and conditions, have shared the same fate. Seedlings of the Brassica tribe and all Potatoes above ground are laid flat or cut clean off by the ground line as with a sharp knife, and the Strawberry flowers that were open have also been quite destroyed.—D. T. F.

KITCHEN GARDEN.

SCARCITY OF VEGETABLES.

It would appear that green vegetables are quite as scarce this spring as they were last year. I ought perhaps to put it they were at one time equally as scarce, but there are rather more Broccoli to be seen in various gardens than escaped frosts during the winter of 1890 and 1891. Even these have had a very rough time of it since they commenced hearting in, not a few being spoilt by frosts when about the size of a tennis-ball. It was not so much the severe frosts as the cold frosty winds that did the mischief among green vegetables, and this accounts for the survival of more plants in sheltered gardens than in the more exposed quarters and fields generally. More often than not the reverse happens, the more drawn and most delicate occupants of walled-in gardens being the first to suffer. Personally, I have been most fortunate with Broccoli, not more than a quarter of the plants put out being lost from any cause. As it happens, the bulk were raised late, the seed being sown about the first week in May, and being planted on firm ground before they became leggy, a sturdy lot resulted. The position, again, was in favour of hardiness, the highest quarter of the garden being selected for the bulk of the plants. According to my experience, it is those in the lower part of the garden that are the first to go, while those on high ground survive longer than any planted elsewhere. So much faith have I in this exposed quarter, that much of the ground now or recently occupied by Broccoli will have a good manuring and be re-dug

in readiness for Broccoli again. Scientific or the most carefully planned rotation does next to nothing towards causing a hardy growth, and I have long since ceased to trouble myself about it. Sturdy medium-sized to small Broccoli are the hardiest, and these may be grown for several years in succession on the same plot of ground. If extra fine heads are desired, then form furrows midway between the rows, and during mild weather in the winter, and up to the time they are nearly fit to cut, let them have plenty of sewage water or liquid manure of some kind poured between them. If any varieties of Broccoli are harder than others, this may safely be attributed to their sturdier habit of growth.

Brussels Sprouts and Borecoles in variety stood through the winter with me fairly well. The old leaves suffered badly from the cold cutting winds, but the stems survived, and have done good service in providing either sprouts or greens. Chou de Burghley and Savoy in variety had provided their quota of green food before the very severe weather was experienced, and these serviceable vegetables ought always to be grown extensively, as being more reliable than Broccoli, also being particularly good for the early and midwinter supplies. It is the spring Cabbage that is most missed. Good beds are very few and far between; in fact, in the majority of gardens hereabouts the plants have disappeared. With these again we have been most fortunate, as we lost only a comparatively few plants, and commenced cutting small, but perfect hearts at Easter, some being really fit before that time. As giving some idea of the neatness of these plants, I may say they were planted 15 inches apart each way, and yet might well have been disposed 3 inches closer together. We put out about 500 plants of Ellam's Dwarf Early Spring, and it is these that have done much the best, one or two other varieties having a tendency to run to seed prematurely. The seed was sown about the middle of July and the plants were put out on firm undug ground in close succession to Onions. They were thus well established before the winter, and yet were sufficiently sturdy to withstand severe weather.

We had our failures though as well as successes. For instance, Spinach was badly twisted out of the ground by whirlwinds that sometimes form between garden walls, and what survived through the early part of the winter were literally dried up by the cold winds of February and March. It is remarkable how well and quickly the plants recovered, and several good gatherings have been had or enough to carry us on to this week, that is to say, till the earliest spring-sown was available. Spinach is really a very important vegetable in many establishments, and pays well for any extra trouble taken with it. Early in February I sowed a good breadth of well-prepared ground with the seed of the Round-seeded and Victoria varieties, and, thanks to the sunny position assigned them, the former could have been pulled from or lightly thinned out and the thinnings used by the end of April. This would not have been the case if I had delayed sowing till the first Peas were also sown, nor if I had depended solely upon the Victoria. The latter is undoubtedly a very superior form, giving extra fine succulent leaves, being also slower in running to seed, but it is not of such quick growth as the better-known Round-seeded or summer Spinach.

Nearly all the Turnips left on the ground were also killed, this not often happening, and, what was more surprising and unexpected by me, Seakale also suffered. It was the newer Lily White that was most injured, all the crowns exposed being killed to just below the

surface of the ground. Luckily, not more than half the breadth of Seakale grown here was of this form, and a considerable number of crowns of that also had been lifted and forced early. Just now we are cutting stout, succulent, well-blanching tops from strong old plants that some time since were well mounded over with straw litter, this plan, which has been previously recommended in *THE GARDEN* by "S. D.," I believe, answering better, being also less trouble than moulding over. Onions, again, fared badly. Those stored kept none too well, and after the Scallions, or young green Onions obtained by early planting out old-started roots, are over, there is a probability of a scarcity. To make matters worse, those spring-sown grow very slowly, warm rains, or at any rate warm weather, being badly wanted. Turnips in the open make no progress whatever, but rather get less, and those who have been able to give slight hotbeds up to these and a variety of other vegetables will have good reason to be satisfied with what they have done.

Somerset.

W. I.

LATE CELERY.

THE supplies of late Celery must soon be taken into consideration, and at this season of the year places such as old spent hotbeds are available for raising this crop. I am well aware that it has been advised in warm districts to sow on an open south border for the last crop, but I do not advise this, as I get better results by getting the seed up as quickly as possible after sowing. To do this, a moist close place is essential, as in the open the seed-bed dries up quickly, and frequent supplies of water have to be given. If sown in a cold frame, it should be where the light can be removed as soon as the third leaf is formed, as it is necessary to get a short sturdy growth. As soon as the seedlings appear above ground, no time should be lost in thinning to give the seedlings room to develop. When sown in this way it should be on a flat surface, as if sloping, the moisture, so necessary to the well-doing of the plants, escapes. Some advise sowing in heat, but as far as my experience goes, for the late crop the less heat the better. A close place and enough moisture to cause germination are all that are necessary at the start, and there must be no lack of moisture as soon as the seedlings commence to form the rough or third leaf. I consider it one of the worst systems to sow these late crops in pans or boxes, as often through press of work the seedlings get drawn and weakly, and often a month or six weeks is lost before growth starts. If grown as sturdily as possible, they never suffer from their shift when planted out. When sown thinly and plenty of room can be given, there is no necessity for transplanting the late lot, as if given plenty of room the seedlings can be lifted with a good ball and planted direct into their permanent quarters. I believe much of the success of the plants depends upon the treatment in the earlier stages and the amount of moisture.

I find that seedlings lifted direct out of the seed-bed, provided they have been grown as hardy as possible with plenty of space, do much better than those raised in heat and transplanted. The Celery when planted as advised need not be so large as is often the case; indeed it is often too large. When raised as above, there will be no flagging, no shading, and no loss of outside leaves.

I only grow two varieties for late work, and find them most suitable on our light soil. To give a supply through January and February I prefer Sandringham Dwarf White, and find it excellent; it remains good to the last; and to carry on the supply till May Standard-bearer is my favourite variety—indeed, I find no other remain good so long a time without running. It may be had good till the middle of May with little trouble. Some may object to it for cooking on account of its pink colour, but as April comes in there is very little pink left. It is equally useful as a vegetable as the white kinds. I do not grow the large Celeries

for late use. I find them less useful, and after several years' experience of this variety I cannot fail to recommend it as the most useful I have grown. Celery, like other vegetables, differs in different soils, so that those who find a special variety succeed should not reject it for those they have not tried. The earthing up of late Celery has much to do with its good keeping. If earthed up too early, growth is arrested and premature decay sets in. To get hardy Celery to resist severe weather, earthing up must be delayed till the last moment. This allows the weather to harden the growth and there is never any check, as the longer the earthing up is deferred, weather permitting, the later the Celery will keep, and though the plants when grown on the surface may require a little soil to prevent the leaves going wide, earthing up should be avoided as long as possible. I have also seen too much manure placed in the rows for late Celery. I do not think it is necessary, as it promotes a soft, succulent growth, often causing it to run. I prefer a moderate quantity, and to give two or three dressings of fish manure during the growing season. The fish manure prevents slugs doing injury when the soil is placed to the plants. Salt is also good given in moderate quantities, placing it in the rows before watering. Plenty of water is necessary in dry seasons, and liquid manure when in active growth is also beneficial.

G. WYTHES.

Transplanting Parsley.—On page 403 "A. D." describes the practice of raising and transplanting Parsley as adopted by a market grower at Twickenham, and evidently is of opinion it is novel. As it happens, it is nothing of the kind. Twelve years ago I hit upon the plan of raising a stock of Parsley in a frame for transplanting, and have both practised and frequently advised others to do so in the pages of *THE GARDEN*. It was first suggested to me by seeing capital early plants of Parsley come up with Carrots on a hotbed, and soon proved what could be done in the way of raising in heat and transplanting a few hundred plants to open borders. By no other method can such even beds of excellent Parsley be obtained.—M. H.

French Beans.—It is not safe to sow French Beans much before May 10, and then only a part should be sown. A part of a warm south border should be given up for the earliest sowing. Seeds may be forwarded in small pots or boxes if needed. The soil for French Beans must be in a highly fertile state, and also well pulverised. For the smaller growing varieties the rows should be 2 feet apart, and for the stronger growers, 30 inches will not be any too far apart. The seeds must be sown thinly, or in double rows about 4 inches apart. The wisest course is to allow a few extra seeds to allow for thinning, especially for the earliest crop.—A. Y.

Dressing Asparagus beds with fish manure.—The old system of dressing with salt in damp, showery weather is not adopted so freely since the artificial manures have been so much used. The value of salt for the above in some soils is much greater than in others, but the time of applying it must be taken into consideration, as if wet clay land is dressed too soon, growth, instead of being assisted, is retarded. The best plan I have found is to dress the beds several times during the season of cutting. Asparagus is later than usual on our light soil, and very little has shown above the surface. This is no doubt owing to the severe frosts that we have had, keeping the ground in a cold condition. For early dressing I have found nothing to equal fish manure. It is an excellent fertiliser, and does not retard growth by keeping the beds in a cold wet state. I have great faith in fish manure, as I find it excellent for Celery, and equally good when applied to Seakale whilst making the summer growth. It is also reasonable in price. I do not advise a heavy dressing at first, but to dress lightly several times during the season, and in dry weather to wash it down to the roots by flooding with the hose. I use

fish manure largely for our permanent forced beds, and it is surprising the difference in growth when the beds are uncovered and a dressing of manure applied before the new permanent growth is made. Fish manure being very powerful, must be carefully applied. I have used guano and soot mixed with salt, but prefer the fish manure. Those who can utilise liquid manure from the cow-yard during the summer months will find it the best fertiliser during the summer, especially in hot, dry weather on raised beds in light soils.—G. WYTHES.

Mercury as a vegetable.—This plant is not much grown in this district, but in other parts of the country, notably Lincolnshire, it is in every cottager's garden. A few years ago I was ignorant as to its qualities as a vegetable. At this season when green vegetables are scarce it forms a welcome dish, and those who like Spinach will not object to it. This vegetable is useful on account of its hardiness, as it will live where Spinach is killed. It is not over-fastidious as to soil, but is worth good cultivation, and may be sown on good land well manured, giving it a warm position. The cottager generally gives it a warm corner next the cottage facing south, and thus gets early growth. When highly cultivated the shoots may be had of a good size, and if these are earthed up in the early part of the year with decayed manure or leaf soil, they are but little inferior to Asparagus, and may be served in the same way. The shoots must be used young, as the outside skin soon becomes hard. This if left must be removed from the older growth. The seed should be sown in April or May in rows 2 feet apart, thinning out the plants to 1 foot or even more on good soil. Plants may also be used. Division should take place as soon as the shoots commence to grow.—G. W., *Nyon House*.

Leeks.—To have these large and fine they require a long season's growth, and must, therefore, be sown early to get the plants forward and strong before planting them out. A good way of managing with them is to fill a shallow box or pan with fine rich soil and sow the seed therein, placing it in some warm house, pit, or frame to get it to germinate. As soon as the plants are large enough to handle, they should be pricked off or potted singly into small pots and be nursed on under glass till they are big enough and the weather is favourable for turning them out. To get ready for this, one method, and that the best, is to form and dig out trenches 8 inches or so wide and 6 inches deep, after the manner of those for Celery, and heavily manure the same, well breaking up the bottom and mixing it in, after which the Leeks should be planted a foot apart and be heavily watered, so as to thoroughly settle the soil about them and give them a start. For ordinary purposes very good Leeks may be grown in ground that has been trenched or otherwise well cultivated and enriched. If drills be drawn and large, deep holes made with a big dibber, into which the plants may be dropped or placed, so as to have only just the tops of the leaves standing out, and if a little soil is run in or water poured down into the holes, the roots will soon get a start and the plants grow quickly if kept free from weeds during summer. The hoeing requisite to accomplish this gradually fills up the big holes with earth, and by its means the stems of the Leeks become blanched and usable for a length of a foot or more without any trouble. Those in trenches, of course, require soiling, but that should only be done by degrees, and good soakings of liquid manure given whenever they become dry at the roots.—S. D.

Onions.—In cases where these were sown early or at the proper time they will soon be ready for thinning, and when they are so, that work should not be deferred, as when the Onions get at all large, it is next to impossible to do the thinning or pull any up without seriously disturbing the others on account of the multitude of roots each forms and the way they run amongst and interlace one another. If there are any gaps in the rows, these ought to be made good during the process, as Onions in their early stage transplant readily, and

the filling in may quickly be done by the aid of a dibble, the best time to carry the work out being when it is showery or just before rain, or on a dull day, as then the disturbed plants quickly recover. To avoid the loss and trouble too often caused by the Onion fly, precautionary measures should be taken, and one of them is the sowing of soot over the ground, and later on a sprinkling of salt will have a good effect, or the two may be mixed and sown together. The fly deposits its eggs on the sheaths of the leaves, and in about a week after the larvæ are hatched out and they then burrow or feed their way down the neck of the bulb and cause the base to rot and thus spoil the crop. Another parasite that is even more injurious and fatal than the fly or maggot is the mildew, that is, provided no remedial measures are taken, but the mildew may easily be stopped and got rid of by sulphur in one or other of its different forms. That most readily available or easy for use is the liquid preparation known and sold as penta-sulphide of calcium, which is very cheap and may be had of any chemist, a quarter of a pint being sufficient to mix with two gallons of water. It may then be applied as a spray by forcing it through a very fine rose of a syringe or the nozzle of one by any person expert in its use. Sulphide of potassium answers just the same purpose, and 1 oz. dissolved in a gallon of water is strong enough to kill the fungus, but every part of the tops of the Onions must be wetted, as it only kills where it touches.—S. D.

CUTTING ASPARAGUS.

STRANGE as it may appear, there is a great difference of opinion on what may appear to some people such a simple operation as cutting Asparagus. Cutting off the tops of any plant will exhaust it more or less, and, as is well known, it is the continual cutting off of the heads of any perennial weed or plant which will kill it in time, and which is adopted in many cases to destroy obnoxious weeds. The above illustration holds good in the case of Asparagus. Judging by the extent to which cutting is indulged in by many people, one would think that this homely vegetable was endowed with everlasting life. In scores or even hundreds of instances the languishing state of the beds is entirely due to over-cutting. In some instances employers are to blame for this, for they will keep on having Asparagus as long as possible. Often have I been called upon for extra dishes of Asparagus after cutting had been given up, but I have always been able to show how very unadvisable it is to cut late in the season, and that if cutting is indulged in late the plants will be weakened accordingly and possibly fail to give good heads the following season. Another reason for late cutting is that Cauliflowers and Peas are often late. If late Asparagus is looked for, the beds will have to be provided for the purpose and to be done away with when worn out or rejuvenated by foregoing cutting in alternate seasons. This latter is a capital way of imparting strength to weak beds. Unfortunately, it is only where there are few Asparagus beds that weak produce predominates. We leave young beds alone for two or three years after planting, so as to enable the plants to gain strength, and the principle holds good with other beds. Upon looking over beds where cutting has not long commenced, it is no infrequent occurrence to see young and weakly shoots growing ahead, the reason given by those who are responsible for the cutting being that they are left to give strength to the roots, as being weak they are not fit for cutting, and are left accordingly. This is certainly a very erroneous opinion. Leaving the smaller growths prevents others from pushing up, and instead of the weak stems gaining strength they do not add to this in the least. The best course is to

cut all as they appear until the time arrives to cease cutting, and then to allow all to grow ahead. Certainly, if there are any weak crowns, then these should have been marked and left uncut until they are in a sufficiently strong state to bear the strain.

Whether the principal part of the stems is required blanched or not is a matter of taste, but as a rule the non-blanched stems find the most favour. But whether the stems are needed blanched or not, some people when cutting appear to think that it is part of the routine to cut low down into the bed so as to procure the desired length of blanched growth, with the result that if they are not adepts at the work, with the constant wriggling of the knife they damage two or three incipient heads in the process. I daresay it will have been noticed that even if a good length of blanched stem is sent to the kitchen the greater portion is cut off and thrown away. The best way is to move a little of the soil with the knife at the base of the stem, when the length required may be easily removed. Earthing over the crowns above the surface with leaf-soil and sand is certainly the best method for procuring blanched stems. All that is necessary is to place small hillocks of the material over the crowns, and as soon as the tips rise above the surface, the soil can be quickly moved from the base and the stems cut off level with the surface. The stems also thicken more under the influence of the blanching material. A. Y. A.

Brussels Sprouts—During the last twenty years a number of varieties of this hardy and highly esteemed vegetable have been raised. However much may have been gained in size, it is questionable if we have made much (if any) progress as regards quality. For a long time past it has appeared to me that the Brussels Sprouts of my youth were much superior in flavour and appearance when cooked than those that come to my table at the present time. The sprouts furnished by the newer vigorous growing strains have a more Cabbage-like taste, and the larger they are the more they lack the true old Brussels Sprouts flavour. The striving after mere size in vegetables is a great mistake, for no increase in this way will compensate for loss of quality. When the Aigburth Brussels Sprouts became so popular some years ago I was charmed with the wonderfully vigorous growth it made. I put them on ground that had been trenched 2 ft. deep, and they made stems 3 ft. in height with immense foliage, and the sprouts were double the size of any I had ever previously grown. The members of my household, however, unanimously condemned their flavour, and from that time I have never cultivated the Aigburth. I fancy that many were disappointed with this giant kind, for it soon lost the popularity which its great vigour and productiveness apparently warranted. For some time I have been trying various newer varieties, all of which seem to have gained in vigour at the expense of quality, with the exception of one that I have grown for the last two years. This is grown largely in the midland and northern counties. The sprouts are said to make higher prices in the northern market than those of any other kind. Although I gave the plants good ground which had been deeply trenched, they did not run up to so great a height as most varieties do, and the leaf-development was not so exuberant. The yield of sprouts was, however, very large, and, what is even more to the purpose, their flavour left little to be desired.—J. C. B.

Potato blooms.—I was amused to read the note at p. 403 from Mr. Jefferies respecting the importance of picking of the blooms from Potato plants. Probably the writer's experience was limited to one of those rare varieties which seed freely. There are, however, so few of them in cultivation now that it is indeed a rare thing to see seed apples on Potato breadths. Wherever seed

apples are abundant, it is evident that pollen is superabundant in the flowers. Of all the varieties I have had experience of, the three most liberal producers of seed balls were Woodstock Kidney, American Purple, and Radstock Beauty, but then these were but three out of scores—nay hundreds of sorts which never naturally set a bloom. That some varieties will flower freely still is certain, but I do not believe for one moment that mere flower-production in any way detracts from the productiveness of the plants. In spite of the usually robust character and fine appearance of the flowers, pollen is so sparse that not one sets, and they soon fall. I always found it to be a remarkable circumstance in the case of these varieties, which if left to fruit freely and produce great quantities of seed balls, that natural seedlings from them were never seen; hence it would appear that the low temperature of our winters destroyed Potato seed exposed to the weather. All our best stocks of disease-resisting Potatoes are seedless. It is indeed very difficult in many cases to ensure the getting of enough pollen from other sorts to fertilise a few flowers. Even that exceedingly prolific variety Woodstock Kidney rarely gave progeny when its pollen was used for fertilising the flowers of other sorts that were productive of seed balls. There is no connection whatever between the free production of pollen and seeds and good constitution or disease-resisting powers; indeed it is rather the reverse, as I have found most free seeders to be readily affected by the disease. The suggestion that Potato root crops may be increased by preventing seeding comes rather late, as there are hardly any varieties in ordinary cultivation now that are seed-producers.—A. D.

GARDEN FLORA.

PLATE 857.

BOMAREAS.

(WITH A COLOURED PLATE OF *B. FRONDEA*.)

THE beautiful greenhouse climber represented in the accompanying plate is one of numerous species of Bomarea, the introduction of which we owe to Messrs. Shuttleworth, Carder and Co., of Clapham Park Road. *B. frondea* flowered in their nursery in 1882, when it was described and named by Dr. M. T. Masters. Under favourable conditions it is a robust climber, the stems attaining a length of 10 feet or 12 feet in a few months, and it blooms freely and continuously, in which character, as also in habit and foliage, it resembles the older and better-known *B. Caldasiana*. These two species have been in flower at Kew since November last, and they are gay with bloom still. No plants give less trouble and at the same time more satisfaction than these two Bomareas if only they are planted in a suitable position and the right kind of soil to begin with. *B. frondea* is perhaps the better plant of the two, as its flowers are larger and brighter in colour, and its leaves are a deep healthy green. The strongest stems produce heads of about thirty flowers, and as these are 2 inches long, coloured rich orange-yellow with a few crimson spots on the inner segments, and last a fortnight or three weeks after they have expanded, their attractiveness on the roof or against a pillar of a conservatory is of a high order.

* Drawn for THE GARDEN by Gertrude Hamilton, in the Royal Gardens, Kew, December 12, 1891. Lithographed and printed by Guillaume Severeys.



RANUNCULUS REPENS

Bomareas are not as plentifully represented in English gardens as they deserve to be. Several of the species have already been figured in the pages of THE GARDEN, and in Vol. XXIII., p. 84, and Vol. XXIX., p. 260, lengthy accounts of the genus as known in cultivation were given. The plants are a little awkward at first, as they do not bear disturbance at the root well, and small plants grow slowly even under the most favourable conditions. Still, when once established they will almost look after themselves. At Kew they succeed under the following treatment: They are planted out in a shallow-raised bed on the south-west side of a large house in which Agaves and other succulent plants are grown, and which is therefore never shaded. The Bomareas root freely in a horizontal direction, and as they like plenty of drainage, this shallow raised bed (it is really a brick stage upon which a layer of soil a foot in depth has been placed) suits them. The soil used is good turfy loam and peat, two parts of the former to one of the latter, with a good sprinkling of sand. The plants are watered liberally all summer and sparingly in winter. They ought not to be allowed to get dry at the root at any time. The stems are trained up wires until the terminal bud is formed, when a pebble is tied to the end to weigh down the shoot, so that when the head of flowers is expanded it



Full-sized flower of Bomarea Carderi.

hangs down conspicuously. The plants mature seeds freely under cultivation, and from these young stock is easily raised. They may also be propagated by division of the root-tuft. Bomareas are closely related to Alstroemerias, and they are like those plants and Liliums in producing stems which cannot be induced to branch; pinching out the growing

point means, therefore, the destruction of the stem so far as flower-production is concerned.

The kinds of Bomarea in cultivation now are as follows: *B. Caldasiana*, *B. Carderi*, a magnificent climber, with very large many-flowered heads, each flower being as large almost as a *Lapageria*, and coloured rose with brownish spots; *B. oligantha*, which is not unlike that here figured, but differs in having the six flower segments of equal length; *B. conferta*, now known as *B. patacensis*, which has umbels of from thirty to fifty flowers as large as those of *B. frondea*, coloured bright crimson with bluish anthers; *B. edulis*, a free grower and flowerer, with flowers an inch long, coloured yellowish green, spotted with claret-brown; and *B. salsilla*, also known as *B. oculata*. A plate of this was published in THE GARDEN, Vol. XXIX., p. 260 (1886), from a plant grown in the open border in the nursery of Mr. T. Ware at Tottenham, and flowered in June. It has small crimson flowers and is undoubtedly a pretty little plant. I question, however, if it will stand out of doors even in the neighbourhood of London unless protected from frost. Plants have been tried in the open border at Kew, but they have invariably succumbed to the winter's cold.

W. W.

THE WEEK'S WORK.

HARDY FRUITS.

PLUMS.—Varieties rather heavily furnished with strong leaves appear to be fairly well set with fruit, the latter being well protected by the foliage. In but few instances, however, will there be any thinning out of fruit to do, a long series of frosts evidently leaving but few districts untouched as far as Plum blossom is concerned. Doubled fish netting has been of but little service in warding off the frosts, especially where the spurs stand out well away from the walls, and the most fruit will be borne by young branches or single shoots laid in during the past two or three seasons, a fact that ought not to be lost sight of at the summer stopping or pruning. Young growths are also usually the most free-flowering, and the value of a wall tree may, therefore, be considerably enhanced by laying in a number of strong, well-placed young growths between or over the old branches, with a view to either destroying the latter or else of better furnishing naked portions with good bearing wood. The trees generally are growing strongly, and as yet appear to be quite free of insect pests. Thinning out or disbudding ought now to commence, the shoots on young branches being left from 2 inches to 3 inches apart. Those well-placed shoots required for furnishing blank space should be left unstopped and eventually laid in, the rest being pinched back to a length not exceeding 2 inches. Strong, fully grown trees are apt to grow very vigorously along the top of the wall, and it is there where the disbudding and stopping should be most closely practised, the aim being to divert the sap to parts standing most in need of it. Syringing the trees with soft soapy water is the best preventive of aphides and other insect pests, but if this is delayed till they are more established, stronger remedies will be needed and greater risks be run of injuring the fruit.

CHERRIES.—The crops of dessert Cherries will be very light indeed, especially in the case of most of the wall trees, though luckily the later-flowering Morellos are as yet only very slightly injured. A good syringing or drenching from a garden engine would do much towards clearing the dessert varie-

ties of dead flowers, and be a good step towards keeping them free of aphides. Strong young ripened shoots laid in to their full length will, during the growing season, become well furnished with close fruit spurs, and that, too, without any assistance from the cultivator; but old and much-pruned trees are apt to produce a superabundance of breast-wood. The latter ought to be thinned out where at all crowded, some of the best placed of the reserved shoots being laid in wherever there is either blank space or naked old branches, and the rest pinched back to a length of 2 inches or

*Bomarea Carderi.*

thereabouts. The Morello, unlike the foregoing, fruits principally on the young wood formed last season, and the requisite number of young growths should eventually be laid in, or, at any rate, reserved to their full length, as it is only on account of superior neatness that close training during the summer is desirable, those not required for furnishing being early removed. Seeing that the trees with abundance of surface root-fibres are invariably the most productive, firm rather than gross wood being formed, it behoves the cultivator to attend to them closely now, whether they are well furnished with fruit or not. Therefore, if not already done, loosen the surface soil of border, giving a good watering near to the wall if found at all dry at the roots, and then mulch with a mixture of decaying leaves and manure. Before many weeks elapse, the roots will be attracted up into this mulch, and this, coupled with the better retention of moisture by the border, will quickly improve the tone of the trees. The least that can be done is to mulch with strawy manure.

VINES.—These are late in starting, and in all probability this will have saved the crop. Too little sunshine or too short a summer is responsible for the majority of failures with the Grape Vine against sunny walls, and unless a few simple cultural details are closely attended to, failure is almost inevitable, let the weather be what it may. Thinning out the shoots should be the first proceeding, leaving one only to each spur, and that in a position to admit of its being early fastened back to the wall or roof trellis, wooden trellises laid on sunny tiled roofs suiting Vines well. Every shoot ought to be quite clear of its neighbours, and if the width between the rods is somewhat limited, stop at the first leaf, otherwise stop at the second leaf beyond the bunch in either case. Lay in young canes to take the place of worn-out old ones, for young rods are always the most productive, and also where wall or trellis space requires furnishing, stopping them

when about 6 feet long, laterals from these being pinched at the first joint. Thus treated, there is every probability of well-ripened canes being had. The selected leading growths on young Vines should be similarly treated, no more of these being laid in than are likely to attain a good thickness of cane. Stop reserved lateral growths at the fourth or fifth leaf. Open-air Vines seldom receive fair treatment at the root, a deep or unrestrained root action favouring a rank rather than a fruitful top-growth. Autumn root pruning and a mulching of manure and decayed leaves given in the spring would serve to keep the roots active and plentiful.

W. IGGULDEN.

PLANT HOUSES.

GREENHOUSE AND TEMPERATE HOUSE PLANTS.—Plants which have been started into fresh growth this spring after having been in a dormant state for some considerable time are usually given a genial growing atmosphere. This is as it should be, for if started in slight heat and moisture, as in the case of old stools of Fuchsias for instance, a better back break is secured; hence with repeated stoppings a more bushy plant is eventually the result. It will not, however, do to keep such plants in too much warmth when these desired results have been obtained; they should rather be cooled down about this time of the year to the normal greenhouse temperature. There should now be room in most places for plants that are growing apace so as to avoid overcrowding. Many of the hardier bedding plants will now be out of the way and the space they occupied will be most acceptable for the stock of such plants as are advancing for summer flowering. Fuchsias will not in many cases be required in bloom before July, particularly if a good stock of Pelargoniums has been grown to follow Cinerarias, Calceolarias and similar early plants. To flower Fuchsias early in July, there is still time to give them another stopping all over, so that the plants bloom in a simultaneous manner. Probably another shift will be required as well; it is best to attend to this before the plants are too much pot-bound. This refers to spring-struck cuttings as well. As soon as the plants become pot-bound the wood will also harden; hence such a free growth afterwards is not made. To the ordinary loam and leaf soil for Fuchsias some spent Mushroom manure is a great assistance. The potting for the last shift for this season should be done in a tolerably firm manner, allowing a good amount of room for watering. The only support that a Fuchsia requires is one stick or stake to keep it erect; the rest with good management can be arranged by ties. Where Fuchsias are being started in cool houses, stopping should also be done once or twice.

SOLANUMS.—Old stools of these plants that have broken freely after having been cut back will now be safe enough in a cool frame or pit; even out of doors with night covering they will not take harm. This will be found much better than keeping the plants in the houses to draw up spindly, for the best positions are hardly likely to be accorded them; besides if in any warmth at all, there is the liability to red spider and green-fly. The plants may be in need of stopping; young ones particularly require it the first season, whether from seed or cuttings, to form bushy plants. Those who have not grown the Solanum (berried varieties) as a standard would do well to give this style of plant a trial; with neat heads upon stems a foot or more in height, they are very convenient for grouping in the winter. In treating a stock of young plants it is possible to grow a few into standards without any difficulty. In a fortnight's time, old stools of Solanums can be planted out with safety, choosing ground that is tolerably good, but which has not of late been freshly manured so as to encourage too strong a growth. When planting out, it is best to shake the balls fairly or quite clear of the soil; thus treated, when lifted in the autumn, the plants will go into smaller pots. The roots may also be pruned at planting-out time with advantage.

BOUVARDIAS.—Old plants that have done good service for the past few seasons and which have been during past summers grown upon the planting-out system, should by this time be making a strong young growth. This should be frequently pinched, so as to ensure a close back break as early as possible. The plants should not now be subjected to any excess of warmth; if well advanced, a greenhouse will be better than too much heat. The treatment best suited is that of a temperate house or a pit which can be kept fairly close. Young plants struck this spring and which are growing freely will also require frequent stopping. There is always a tendency in Bouvardias to grow up rather long-jointed, more support being afterwards required if this desirable operation is not attended to. The young stock will still require more warmth than the older plants, but do not be led away by any undue amount of repotting into larger pots too soon. Plants can the first season be grown large enough almost for any purpose in 6-inch pots. Larger pots encourage a too sappy growth, which often fails to flower satisfactorily if not ripened in good time. Carnations struck this spring should be kept growing freely, but not in too close a house or pit; if well rooted in their present shift, a cold frame will be almost the best place for them. Any not yet potted off should, if safely struck, be potted without delay. Autumn-struck stock will now be making good-sized plants; these will chiefly consist of the tree varieties, whilst the spring-struck will be the dwarfier growers. The autumn-struck will now bear a liberal amount of exposure; any tendency to draw up the grass weakly and long-jointed should be studiously avoided, as no after-treatment can make amends for this, if ever so good.

JAS. HUDSON.

THE KITCHEN GARDEN.

PRICKING OFF CELERY.—It being very unwise to allow Celery to become stunted in its earlier stages, there should be no delay in pricking off the plants. Especially is this necessary where the seedlings are growing in pans or boxes, the plants in these being more apt to suffer from neglect than where growing in prepared frames. Some people recommend that the seedlings be planted direct into the trenches, but the system has nothing to recommend it. This only need be practised with the very latest plants, and then only where they have been sown thinly on a prepared bed, from which they can be lifted with small balls intact or with an abundance of fibrous roots. The best course is to prepare suitable quarters for the plants. Low frames are as useful as any, but any rough shelter will suffice, as long as there are low boards to form the sides, with cross-pieces of wood to keep the covering off the plants until they will bear exposure. In either case the bed must be formed on a level and hard surface, for if this should be at all loose the roots will penetrate too deeply; consequently the plants cannot be lifted with such a good clean ball as they should be. Over the bottom should be spread a layer of rotten manure to the depth of 2 inches, and over this a layer of holding soil. This latter is very essential, for if at all loose and sandy it will not hold to the roots when the time arrives for planting. The material must be pressed down firmly previous to pricking off the plants, which should be 4 inches apart each way. If kept close and sprinkled daily the plants will quickly become established.

PREPARING CELERY TRENCHES.—This may well be proceeded with earlier than it generally is—at least for the earliest plantings. Another advantage is that it may be done when other work is not pressing. When trenches are marked out, the intermediate ridges may be made available for French Beans, Lettuce, a row of Turnips, and such like. These by being sown now will be off in ample time, and will not interfere with earthing later on in the season. In small gardens this early preparation of the trenches is certainly the best to adopt, so as to economise cropping space. Choose an open position, and arrange the rows from north

to south, both sides of the plants being thereby exposed to the sun. There is nothing like having ample soil for earthing. Want of sufficient soil often results in endless and unnecessary work in continually protecting upon the least sign of frost. For double cropping the rows should be quite 5 feet apart, an extra 6 inches being all the better. Where the ground will not be so occupied, the rows require to be 4 feet 6 inches apart. The depth at which the trenches will be taken out must be gauged by the soil. As a rule, 9 inches to 12 inches will do, and the width 15 inches to 20 inches; the latter distance for accommodating two rows of plants. After taking out the soil, fork up the bottom, laying the manure on this and surfacing with the top fertile soil in preference to forking it in. On crude soils, a dressing of burnt garden refuse spread along the rows previous to placing in the manure will be an advantage. On cold heavy soils, bring up the rooting medium to within 2 inches or 3 inches of the top, a warmer root-hold being thereby assured.

SPINACH.—There is a vast difference in this crop compared with that of last year. Generally at this season we have made the sowings on a cooler site, but if the weather is still unchanged at the time this note appears, sowing should still be done in an open and sunny site, the only shade, if any, being that afforded between rows of Peas where these are far enough apart to allow of this being done. An east border could also be utilised. In either case the ground must be in a highly pulverised and fertile state. Where a supply of Spinach has to be kept up, frequent sowings should be made. The seeds should be sown thinly, and then the thinnings could be utilised at once, those remaining being left a little longer. In either case it is useless to allow the plants to remain in the ground after they show the flower-stems, the best course being to pull them up bodily as required for use.

BRUSSELS SPROUTS.—Every attention must be given this important crop. Weakly plants, which may have been brought to this stage through overcrowding, will never give satisfaction. Plants which have been raised in a cold frame will be found far the best. If raised in a frame, the plants are apt to become spoilt if allowed to remain until planting time, so the wisest course is to prick them out, allowing 4 inches between the plants with 8 inches between the rows. Shade and a light sprinkling may be necessary for a few days if the weather should be sunny and dry. Instead of planting out this important crop between rows of Potatoes, try by all means to set apart a separate plot. This should be deeply dug and well manured, so that all will be in readiness for planting when the time arrives.

A. YOUNG.

ORCHIDS.

SOME allusion has recently been made to the fact that if we could hit upon the exact treatment any particular species or even genera of Orchids really needs, there need not be any further difficulty with the plants; but in the case of some difficult subjects that all gardeners have to deal with, when we do come upon any well-grown plants, and their owner is free to give all the information he possibly can, the difficulty seems to be for some one else to go and do likewise. One cultivator is successful beyond measure with the genus *Phalænopsis*; another can grow *Vanda coerulea* year after year for a quarter of a century, the plants increasing in vigour and flowering every year. The other day I was delighted with a score of flowering plants of *Cattleya citrina* growing in the garden of the Rev. F. D. Horner at Lowfields. The plants are fixed to blocks, and year after year they grow strongly and flower freely. We know very well that plants of this *Cattleya* will succeed admirably for a few years after they have been imported, but that afterwards they decline in vigour. Mr. Horner had his first plants after they had been grown so long in this country that they had begun to decline, and they were brought round by his treatment. There is no secret in it. The plants

are hung up on the blocks over the path in a lean-to Orchid house, watered freely when growing, and the roots hang down abundantly from the blocks. Artificial heat is not used when the heat of the sun can be utilised, and in cold winter weather, rather than over-heat the houses, thick coverings are placed over the glass at night. Over-heating the hot-water pipes is certainly a great evil, and I am quite certain that covering the glass at night would aid to a large extent the heating apparatus, preventing the loss of heat and moisture by radiation.

We are now repotting the *Dendrobiums* which have passed out of bloom. Those with pendulous stems succeed best in baskets. It may be more convenient for dealers in such plants to pot them in small flower-pots, and they will grow very well the first year in them; indeed, we have plants in 3-inch pots of *Dendrobium Devonianum* which are furnished with four flowering growths, each from 18 inches to 2 feet in length. They have made much growth already, but not so many roots in proportion. I will as soon as they pass out of bloom place every one of them in teak baskets. *D. Wardianum* is also grown in baskets. We keep the plants of all these *Dendrobiums* rather on the cool side until the flowers pass away, when they are removed to the warmest house. Where plants are suspended in baskets from the roof of the glass houses, they should be in such a position that the drip from them does not fall on the plants underneath. Any plants of such things as *Dendrobiums* liable to be attacked by red spider should be syringed daily in hot weather; if this is done in the morning, the plants dry up before the end of the day. The *Pleiones* are useful for flowering early in the winter, but they will not do this freely unless the plants are well exposed to the light near the glass roof. Ours are planted in 5-inch and 6-inch pots, from nine to a dozen bulbs in each; they have now well-developed healthy leaves, and as roots have run freely into the potting compound, an occasional watering with weak liquid manure water is very desirable. The *Calanthes* are now growing freely, and they also, wherever the roots have begun to run down the sides of the pots, should have weak manure water. Partly decayed cow manure is as good as any other. The *Calanthes* succeed in a light position in the warmest house, but should not be exposed to sunlight. I wrote some time ago about the treatment of those interesting plants the *Bolleas*, *Pescatoreas*, *Batemannias*, *Warscewiczellas*, &c., and stated that they succeeded admirably in the shady part of the house, but yet at no great distance from the glass roof. The most satisfactory plants I have seen were in a span-roofed house with a north aspect. They do well in the intermediate house in summer and at the cool end of the warm house in winter. Most of these plants are collected in very damp localities, and where rain falls almost every day in the year. Following up this knowledge received from the collectors, we grow our plants in a moist atmosphere, syringing daily in warm, dry weather, and do not allow the plants to become dry at the roots. Exposure to sunshine is fatal to them. Those who can grow these interesting plants well and induce them to flower freely have solved a difficult problem in Orchid culture. The plants succeed best in a free open compost of peat and Sphagnum Moss, the pots quite half full of drainage. The evergreen *Calanthes* are useful plants and last a long time in flower, and I find they do best also on the side stage of the house, but at the shady side. Such species and varieties as *Calanthe veratrifolia*, *C. masuca*, *C. Dominiana*, &c., are now pushing up their flower-spikes, and very often with them are some of the aphid tribe, a yellow species of which is very troublesome. It is not easily killed by fumigation, as it runs down the flower-stems very rapidly whenever there are signs of danger. The green fly also attacks the blooms. The under sides of the leaves must be examined for brown scale, which at this season takes advantage of the increasing warmth and spreads rapidly. The scale can be removed by washing it off with warm, soft, soapy water, and the fly may be destroyed by fumi-

gating. I have seen it advised to put each flower-head in a paper bag, and fill the bag with tobacco smoke. I used to repot the *Calanthes* in winter at the time they started to grow, but they seem to do better when they are repotted immediately after they pass out of bloom. The best potting compound for these plants is good fibrous loam two parts, one part fibrous peat, and one part leaf-mould with the addition of a little decayed manure and sand.

J. DOUGLAS.

TREES AND SHRUBS.

CHOICE SHRUBS FOR BEDS AND BORDERS.

BEYOND the common tangled thickets of shrubs that are found in the majority of gardens, it is unusual to meet with any instances of special culture of the choicer things, which, if they manage to exist in the struggle with their rampant associates, have no possible chance of showing their true beauty. A general unsatisfactory appearance and lack of interest will always characterise our shrubberies until we alter our methods and realise the value of the many fine shrubs now in cultivation. The thick shrubbery should only be tolerated where it serves the useful purpose of providing a needed screen or covert. Even this need not be the dull, dreary, flowerless thing it frequently is, because vigorous trees and shrubs that are lovely and variable in leaf and blossom are plentiful.

The object of this article, however, is more to give a selection of choicer things, such as we might plant in groups in beds or borders either by themselves or associated with the vigorous and finer families of hardy flowering plants. Not a few would admirably adorn the larger, bolder rock gardens. In a large garden I once visited, all the dwarf choice conifers had been planted in the way here suggested, whilst the commoner types were also plentiful. The place was altogether overdone with vegetation of this kind. Had flowering and deciduous shrubs been planted in the same way, the garden would have been doubly beautiful and most interesting.

DAPHNES are certainly worthy of the best attention we can give them. The oldest, the best known, and most deservedly popular is *D. Mezereum*. To see this at its best, there should be a group of from six to twenty plants. It is lovely alone, but gains in effect if interspersed with the *Partridge Berry* (*Gaultheria*), which hides the ground, has ample leafage, and is altogether a charming foil to the profusely-bloomed, but leafless bushes of *Mezereum*. A trio of choice kinds exists in *D. Genkwa*, *Blagayana*, and *aneurum*. They need a little special preparation and some extra care, but such trouble is well repaid. The culture is simplified and good results are more likely to follow upon a plan of growing things like these in beds and borders, because the soil can be made up to their liking and there is no risk of other root-robbers coming in and devouring what was not intended for them.

AMYGDALUS and *PRUNUS*.—The practice of budding and grafting these on needless and unsuitable stocks, and the consequent interminable sucker nuisance, are doubtless responsible for the great scarcity of these, the most lovely of spring flowering shrubs. We want them upon their own roots, and then they are sure to make pretty bushes and handsome groups. The little dwarf *Almond* is quite one of the early shrubs, putting forth its glowing rosy blossoms in days often dull, cold and cheerless. Naturally it rarely attains a yard in height, but spreads and suckers freely, so is not difficult to increase. It ought to be a popular shrub. Later on comes *Prunus triloba*, with rosy rosettes

studding its slender shoots. Upon the Plum stock its life is a struggle, usually ending in death; but on its own roots we need not hesitate to plant a group. Beside it will come the little Chinese Plum (*P. sinensis*), a slender, graceful plant with flowers of the purest white, preference being given to the double-flowered variety, although both are highly ornamental.

GENISTAS.—Among these there are several species which are well adapted for the rock garden or choice border. They root deeply, and even in poor soils often do well. There is a lovely double-flowered form of the common *Dyer's Weed* (*G. tinctoria*), and it is grafted standard high on the *Laburnum*. It is infinitely better to plant a group in a bed or on a border. Beside it or near at hand would come *G. præcox*, which is one of the most charming dwarf shrubs of May. It grows into a dense spreading bush, and each season is literally sheeted with clear sulphur-coloured blossoms borne in racemes. *G. radiata* is another little-known, but pretty species. It is bushy in growth, with graceful arching shoots which are clothed with finely-cut leaves. The flowers appear in the axils of the leaves and are of a soft canary-yellow hue. Last, but not least, comes the Spanish Furze (*G. hispanica*). It is a low-growing kind, rarely exceeding 1 foot in height, but it is hardy, if small, and tenacious of life, rooting deeply if at all favourably planted. It flowers in June, and the little bushes are then covered with gay golden-yellow blossoms.

RUBUS.—The Rocky Mountain Bramble is a lovely shrub, needing a wall in some localities, but it can be grown as a bush in many places if planted on a sunny border. When so planted, it will probably not exceed a yard in height. Its great white flowers are each nearly 2 inches across, like single white Roses, and they have the additional charm of sweet fragrance. *R. odoratus* (the purple-flowering kind) also makes a pretty mass, but it is, perhaps, best kept separate, as it is rather vigorous. The Nootka Bramble associates well with it, for, though not quite so strong-growing, it can hold its own, and the two blend into a pretty mass, the fine single white flowers of this last species appearing in striking contrast to the purple ones, whilst the handsome foliage of both is worthy of admiration.

OLEARIAS are a numerous family from the Southern Hemisphere, and those that we know to be hardy are most ornamental, growing into neat bushes, and producing flowers so much like those of a Daisy, that they have been aptly called Daisy bushes. At present the actual hardness of several species is not known, and experimental planting with a view to testing is desirable, as we want all we can get of such lovely things as these. Concerning *O. Haasti* no doubt exists. It is a delightful shrub, always pretty as an evergreen bush, and during the latter part of summer as white with blossom as it often is when wreathed with snow in winter. Though dense and dwarf, it soon makes a good bush or group if planted where it has nothing to contend against. *O. stellulata* is better known under its original name of *Eurybia*, which clings to it, and is likely to be used, although botanists now classify all under *Olearia*. But whatever it is called, it is a shrub that many should try in a sunny spot upon the rockery or border. It has small crimped leaves and flowers considerably larger than those of *O. Haasti*, in size as well as shape resembling those of a Daisy. The flowers are pure white, and they appear quite early in summer, each one lasting for some time. A little trouble would be well repaid if it resulted in a flourishing group, and such shrubs as these merit attention and encouragement.

CISTUSES and *HELIANTHEMUMS* are well adapted for sunny, dry banks and borders. Of the first named, such species as *florentinus*, *formosus*, *creticus*, *monsipeliensis*, *salvifolius*, *ladaniferus*, &c., are some of the prettiest of flowering shrubs. Their liability to injury from cold in winter will check their general or extensive cultivation, but where they are found to thrive it would be wise to make them a feature. A slight protection helps them

considerably, and this is easily afforded if the best kinds are closely grouped. Upon mounds or banks they often thrive beautifully. *Helianthemum*s are quite hardy, but of lowlier stature. In the way of dense, dwarf-spreading, profuse-blooming shrubs nothing can surpass them. They are simply magnificent in the early summer, and the thoughtful planter would blend them into some striking associations. They give us single and double flowers and an infinite variety of shades of colour, from pure white and cream to the richest yellow and deepest orange, from palest pink to rich rose. They grow so freely almost anywhere, except in the shade, and they are increased so easily from division or by cuttings, that it is surprising we do not see them largely planted.

KERRIA JAPONICA (the Jew's Mallow) is another of the lovely shrubs of spring, and though we see it against a wall or fence, we do not see enough of it. It does not need protection, except in very cold districts, and, therefore, should be planted in a group. There are single and double-flowered kinds, the former being the more neglected of the two and undeservedly despised. It is decidedly pretty when seen growing and blooming under favourable conditions and away from needless restrictions.

HYDRANGEAS may be grown by many more than they are at present if they are planted out in a bed or border of good soil, which is well drained in winter, but open, sunny and comparatively sheltered. In a well-drained soil and a situation favourable to the ripening of the wood in autumn, *H. hortensis* will stand a considerable amount of frost and not be injured. The type is well known and there are several varieties equally fine, such as *stellata*, *Otaksa*, and *Thomas Hogg*. The Oak-leaved *Hydrangea* from America, too, is very uncommon, but beautiful, distinct in leafage, with handsome clusters of white flowers. Then there is the hardest kind of all the Japanese species, *H. paniculata grandiflora*. It should have a level spot, a deep soil, be annually cut down, heavily mulched and watered if very dry weather prevails in summer, and then during autumn a group will be one of the most conspicuous things in the garden.

VIBURNUMS are useful flowering shrubs and fairly popular—at least, the sterile form of *V. Opulus* is—but a charming and choice kind for grouping is *V. plicatum*, a native of Northern China. It is a shrub of great merit. It makes a handsome dwarf spreading bush, well clothed with leafage wrinkled like that of the Wayfaring Tree (*V. Lantana*), and in the early summer months every branch is wreathed in clusters of blossoms. Individually the flowers are larger and whiter than those of the Snowball Tree (*V. Opulus*).

FORSYTHIAS.—The loveliest of these is the slender, graceful *suspensa*. We value it as a plant for covering walls and fences, but many err in supposing it should not be planted away from support. It will make a bush and a pretty group if several are planted, its long shoots being as thickly covered with clusters of golden bells as they would be against a wall. *F. viridissima* is an erect growing species with yellow flowers similar to those of *F. suspensa*, and it would not be a bad plan to let the two mingle with one another.

PERNETTYAS are perfect shrubs for beds and borders. They are evergreen, always fresh and neat in appearance, pretty when bearing their waxy blossoms, but ten times more beautiful when laden with their profuse crops of berries. The variety is great and the value of the family proportionate.

GAULTHERIA has been mentioned casually in a suggested association with the *Mezereon*, but it is worthy of individual notice. There are two species, *G. Shallon*, which let alone grows a yard or more in height, and bears pretty white blossoms succeeded by berries. *G. procumbens*, as its name implies, is of procumbent or trailing habit. Both are choice, and may be planted with good effect.

RUSCUS RACEMOSUS, or the Alexandrian Laurel, is a pretty shrub to associate with other things.

It loves the shade, but is not particular as to soil or site, and would be found useful in many ways.

If we add to these the choice dwarf *Cotoneasters* and the *Mahonias*, and for fragrance include *Rosemary*, *Lavender*, *Southernwood*, the *Sweet Gale* (*Myrica*), and *Sweet Fern Bush* (*Comptonia*), we have a selection of great value. The flowering season of the things here mentioned begins in the early weeks of the year with the *Mezereon* and concludes with the *Hydrangeas*; while through the depth of the winter some things are bright with berries.

A. H.

Double-flowered Furze.—We do not sufficiently recognise the merits of this as a flowering shrub, for when at its best and laden with rich golden-coloured blossoms, there are few, if any, more showy subjects to be met with. The fact that it will both grow and flower well in sandy soils that are too dry for many things is also another point in its favour. This *Furze* is increased by means of cuttings, and plants obtained in this way will bloom freely when not more than a foot high. A mass or clump of it on a sandy knoll, provided it is in a sunny spot, will form a most bright and cheerful feature when in bloom.—T.

Kalmia glauca.—No mention of hardy shrubs that bloom during the early part of May would be complete that did not include this pretty little *Kalmia*, a mass of which is just now the brightest feature among the smaller growing *Ericaceous* plants. It is a little compact shrub, rarely little more than a foot high, with neat foliage, glaucous on the underside, and a great profusion of pretty purplish pink blossoms. The sharp frosts we have experienced this spring do not seem to have affected the blooms, while many subjects have been more or less injured. This *Kalmia* is native of a considerable district of North America; indeed, much the same remarks will apply to the other members of the genus. After the blooms of *K. glauca* are over, a second species, *K. angustifolia*, continues the display, while later on the larger-growing *K. latifolia*, known as the Mountain Laurel, unfolds its blossoms. *K. angustifolia* is a little upright-growing shrub, seldom more than a yard high, while it will bloom freely when much less than that. The leaves are each about 1½ inches in length and three-quarters of an inch broad, while the flowers, which are not more than half the size of those of the Mountain Laurel, are deeper tinted than in that kind. A variety of *K. angustifolia* even deeper coloured than the type is in cultivation, and is usually met with under the name *rubra* or *superba*. A dwarf variety (*nana*) forms quite a miniature shrub, which flowers freely, and is well suited for a cool, moist spot on the rockwork.—T.

Deep-coloured Flowering Currant.—There is a variety of the Flowering Currant known as *atro-rubens* in which the flowers are very much deeper in colour than those of the ordinary form. In *atro-rubens* both the individual blooms and the racemes in which they are borne are smaller than in the case of most of the others, but they are produced in such numbers and are so brightly coloured, that the difference in size is only noticed on close inspection. This variety is by no means common, though it has been known for many years; indeed, it is one of the few varieties mentioned by Loudon. In making a selection of the most distinct Flowering Currants, there may be noted, in addition to the above, *albidum*, with large clusters of bluish-white blossoms; *glutinosum*, whose leaves are destitute of down, and flowers of a pinkish lilac shade; *florepleno*, very interesting and pretty on close inspection, but at a little distance it does not present any particular noticeable feature, except that it is later in flowering than any of the others. The form known as *Gordonianum*, which is supposed to be a hybrid between the ordinary Flowering Currant and the golden-flowered *Ribes aureum*, must have a place among the best, as its orange-red flowers are distinct from those of any of the others. Lastly,

there is the golden-flowered Currant itself, some forms of which are superior to others, but when the best is obtained it is a really handsome shrub. The leaves of this last are deeply lobed and of a glossy green tint, so that it is throughout the season very ornamental. In the whole of these *Ribes* the foliage is retained well throughout the summer, and it is rarely attacked by insects.—H. P.

THE SPANISH JASMINE.

(*JASMINUM GRANDIFLORUM*.)

THERE are one or two points I would like to notice in your interesting extract from the *Revue Horticole* (pp. 379, 380, and 381) on the culture and perfume of this plant. Some mistake must be made as to the species if the following is to be accepted as literally correct: "The Spanish Jasmine cannot be grown permanently in the open air anywhere north of the region of the Orange tree, as it perishes when the winter temperature falls to 4° or 5° of frost," &c. This may be true of standard plants grown for perfume as bushes in the open, but can hardly be of those backed up against walls, for I have had magnificent plants of *J. grandiflorum* in the open air of East Anglia reaching to a height of 20 feet against a high stable wall. These have passed through a dozen or more winters safely until the frost touched zero and cut them down. It is a magnificent plant, growing much faster and blooming, if possible, more profusely than the common white Jasmine (*officinale*) or its enlarged type, with larger blooms, though still smaller than *J. grandiflorum*, *J. affine*. And then the flowers are quite as large again with more substance than those of the common white sweet Jasmine. I always thought the larger flowered species the more fragrant, but this arose from the larger size of the blooms presenting more scent, and it is certainly difficult to conceive of any flower more delicately or deliciously fragrant than the common white Jasmine (*J. officinale*) and its near and larger flowering ally, *J. affine*. The two last are perfectly hardy up to and beyond zero, and it is difficult to understand the extreme susceptibility to cold claimed for *J. grandiflorum*, or the French writer's authority for its Spanish title or origin. Two of these Jasmynes can be grown most successfully on any of our warmer buildings or walls with a southern or western aspect, and the larger flowering species might be expected to bloom freely for a dozen or more years on the southern wall or roof of a house, stable, or other building, and would yield enormous quantities of bloom. If allowed to run freely in the manner of unpruned untrained Figs in the open air, it might be worth while carefully to pick and bottle the blooms and forward them to the nearest perfumer. I have frequently seen thousands of the fragrant faded blooms of these Jasmynes littering the ground, which, in view of the enormous sums realised for them in other countries, seems a most prodigal waste of produce worth so many times its weight in gold. True, the odour is specially fugacious, and so are the blooms, but then they are easily bottled and corked down in air-tight bottles, and a succession of fresh flowers opens every morning for months.

Could most of the warm walls and outhouses of our cottages be clothed with these fragrant Jasmynes, they would prove the most powerful antidotes to some of the most dangerous nuisances of rural life, and might help to found or extend the profitable industry of the growth and preservation of perfumes so admirably fitted to most pleasantly employ and liberally remunerate the wives and daughters of our agricultural labourers and small farmers.

One point more in reference to the propagation of the Spanish Jasmine which has a common interest and importance that extend to all grafted and layered plants as well as Jasmynes. If the editor or writer in the *Revue Horticole* can further authenticate the following statement, it is impossible to exaggerate its effect on our future methods of propagating fruit trees and other plants. After stating that the large or Spanish Jasmine is propagated by grafting on the common

white, and also by cuttings and layers in September, he proceeds:—

It is a question whether grafting is the preferable operation; but in practice, layering appears to have the preferable claim to recommendation, as it has been noted that the flowers of this *Jasmin* when grown on its own roots retain their freshness for a longer period than flowers produced by the same species when grafted on the common *Jasmin*. It has also been remarked that plants of the Spanish *Jasmin* which have been raised from cuttings possess a much finer habit of growth and are more hardy than plants that have been grafted.

D. T. F.

BAMBOOS IN WALES.

It seems curious that Bamboos will thrive in soil which is fatal to most other plants. Last spring I procured several loads of what I believed to be peat from the top of a hill, but which proved to be very black bog earth. With this I mixed about one-fifth of very sandy loam and put in *Spiraea venusta*, *S. palmata* (red and white), *Ligularia argentea*, *Lythrum roseum*, *Saxifraga peltata*, *Gentiana pneumonanthe*, *Primula rosea*, *Ranunculus amplexicaulis* and a good many others. *Bambusa aurea*, *B. gracilis*, *B. Metake*, *B. falcata* and *Eulalia japonica* were planted in almost pure bog earth. The severe frost at Whitsuntide occurred about a week after the above were planted, and as many herbaceous plants were blackened, I was not much surprised to see those in the bog earth looking very sickly, particularly *S. peltata*, which was in flower. Shortly afterwards I left home for two months, and on my return, only a few withered stems were to be seen in the peat border, with the exception of *Gentiana pneumonanthe* (which flowered freely) and *Leiophyllum Lyoni*. As the Bamboos looked so flourishing and were making rapid growth, I still supposed the plants would eventually spring up again. However, in February last I dug them up, and though few were absolutely dead, the roots were almost entirely destroyed. The above *Gentian*, *Ranunculus amplexicaulis* and *Sisyrinchium grandiflorum album* were unharmed.

I then heard that the farmer who sold me the earth supposed I wanted it for a Carrot bed, for which purpose it is said to be excellent, and also for Potatoes. *Bambusa aurea*, which was quite

has been killed down almost to the ground. *B. Metake* has thriven well. *Eulalia japonica*, though the roots were apparently uninjured, made no growth, but is now starting in fresh loam. *Spiraea gigantea* was very nearly killed.

Good Dora, *Bellus-g. Good*.

E. C. BUXTON.



Bomarea oligantha (natural size). See p. 445.

Home-grown seeds of the Chilian Pine.—On page 401 "*Caledonia*" takes exception to my re-

mark about its requiring some six years to grow plants 1 foot high was not intended to apply to such exceptional care as "*Caledonia*" afforded his seedlings. My system of raising seedlings was to place the seeds in a cool pit, using a deep sandy loam, as *Araucarias* are particularly deep-rooted subjects, and suffer very much from any injury to their main or tap root. I raised many thousands in this manner, and, provided the seeds were sown by the end of September or October, *i.e.*, as soon as they were ripe, there were very few failures. Regarding the unfortunate fact of these handsome Pines losing their lower tiers of branches as they advance in age, I have found in every instance this was caused by the roots having got into an unsuitable subsoil. Provided the subsoil is favourable, I do not think *Araucarias* are more guilty of losing their lower branches than the majority of the genus *Pinus* when their roots have descended into soil that is uncongenial to them. Some years ago when the whole of the southern counties were visited by a strong blizzard-like gale, so much so that the salt spray from the channel was plainly distinguishable here—sixteen to eighteen miles from the coast—the largest and finest specimen of these Pines came in for its full fury. The consequence was, that, like the Oak and other hardy native trees, this specimen was very severely affected. In fact, it had many of its lower branches killed. To show how suitable the soil at Piltown is for this *Araucaria*, I may state that, although the gap in the lower branches was so large as to spoil the symmetry of the tree, even when the remainder were carefully tied into such a position as to hide the loss as much as possible, the plant has now put forth many new branches and has almost regained its original beauty.—R.

CHRYSANTHEMUMS.

NEW CONTINENTAL CHRYSANTHEMUMS OF 1892.

It is impossible to predict what the number of Chrysanthemums will be if the present alarming and unnecessary rate of increase be maintained. Within the recollection of many a young cultivator of this famous autumn composite, the annual number of new seedlings was somewhere about a score, and then, after a few years, as the flower increased in public estimation, the yearly output from the Continent alone soon ran up to nearly 200 supposed new varieties. This in itself was regarded as far in excess of our requirements, but still, in spite of protests and objections of all kinds, the French have never yet stayed their hands, but have steadily increased the distribution of their so-called novelties. The year 1892 will see a vast addition to the lists, if, however, the English trade deem it necessary, as they have hitherto done, to import all that are announced. At a modest computation the new flowers of the year may be placed at something like 400, and if to these be added the new English seedlings and sports and the host of others offered by American growers, there may indeed be some valid excuse for uttering a further protest against such lavish endowments, to our already overloaded lists and collections. It is worthy of remark that most of the well-known raisers are once more to the front, but besides them we have



Bomarea multiflora (natural size). See p. 445.

unaffected by the winter and is now growing freely, was found to have made an enormous mass of roots, which more than filled a large barrow. *B. gracilis*, slightly cut by the frosts, had sent out roots in all directions quite 3 feet in length. *B. falcata* made several shoots of over 12 feet in the summer, but

marks upon the relative hardiness of these plants when grown from well-matured home-saved seeds compared with imported seed. Many growers besides myself are very firmly convinced that there is much truth in the theory of acclimatisation, and that this is so is supported by many facts in the

one or two new competitors in the field, and of these no doubt M. Ernest Calvat will be the chief.

Among the new flowers for 1892 is to be found another substantial addition to the early-flowering section by M. Délaux, who, it will be remembered, sent out last spring a collection of 125 varieties of this somewhat promising race. The other sections having all been rather liberally dealt with, it seems that this raiser is making the most of his cultural skill to develop and perfect the early section before any of his fellow-countrymen get the chance of competing with him.

The French have so long had a monopoly of supplying us with new Chrysanthemums, that it becomes a matter of interest to record that an Italian is now actively engaged in pursuing this phase of cultivation, and has issued a list containing about forty of his new seedlings. There is no doubt that in Northern Italy the Chrysanthemum has caused a little stir, consequent perhaps on an exhibition held in Florence in November, 1890, and a special article on early-flowering varieties which appeared in the "Bulletino della R. Società Toscana di Orticultura" about a year ago. Besides this, only a few months since an Italian amateur, keenly alive to the beauty and utility of the Chrysanthemum as an autumn flower, wrote to the compiler of this paper inquiring where the best supply of seed could be obtained. If these are early indications of an attempt on the part of Italian horticulturists to compete with their French neighbours in obtaining new seedling Chrysanthemums, we may well inquire, where will it all end? Such facts do not tend to strengthen the view held by some of our English cultivators, that the culture of the Chrysanthemum has reached a climax and must speedily decline.

It is essential to observe that in the list appended to this paper the raiser's classification has necessarily been adopted. The French have a vague term *Pæony-shaped* or hybrid *Pæony-shaped* Chrysanthemums which can only be translated into English as Japanese, because varieties classified in the French way generally turn out to be what we understand by the now almost indefinite term Japanese. Where the new flowers are classed as incurved varieties due allowance must also be made for any eccentricity of opinion on this point that our foreign friends may hold. With very few exceptions, this term has been so loosely applied by them, that to an English grower it is almost valueless, and it may be taken to mean a flower of any sort between a loose, ragged, incurving Japanese and the strictly regular type of exhibition incurved exacted by the most fastidious of English Chrysanthemum fanciers.

In so far as nomenclature is concerned, there do not appear to be grounds for raising to so great an extent the same complaints as last year. The number of double-named flowers is not perhaps so large as usual, but there are many which to English people might have well been a little more intelligible.

Out of the new-comers, M. Ernest Calvat seems, as previously mentioned, likely to occupy the foremost place. During the past season he submitted some of his seedlings to the floral committee of the National Chrysanthemum Society, and as a result he was awarded two first-class certificates for his blooms. It is but fair to add that M. Calvat states that he only intends to supply the trade, and does not contemplate doing business with amateurs, who must apply to importers for any of his novelties they may want. This gentleman, it is worth mentioning, is the only French exhibitor who has ever been awarded a certificate by that society, and his blooms as shown were instances of exceptional cultivation. This is the second year he has sent out new varieties, but those of 1891 were not heard of because he was then unknown in this country. Another new French raiser, M. Crozy, having acquired a collection of good American sorts, has raised about 2000 seedlings from which his selection of 1892 has been made. Of these little can be said at present, because we are not aware what his knowledge of our standard of perfection may be, and apparently it is a first attempt on his part. We shall, how-

ever, feel some degree of interest in looking out for his flowers seven or eight months hence.

In the undermentioned list it has not been considered useful to enumerate the total number of the Continental seedlings of 1892, but only those which are believed to have been actually imported into England by our plant dealers. Had a contrary view been held, much of its value would perhaps have been destroyed, for all that is required is a record of such flowers as may be met with at the shows and in the trade collections during the coming autumn.

Abbi Margerin (Boucharlat).—Japanese; broad truncated petals, purple, amaranth-red, and gold.

Accolunabona (Crozy).—Lilac-rose.

Alphonse Baurier (Crozy).—Japanese; long drooping petals, old gold yellow.

Alphonse de Candolle (Reydellet).—Japanese incurved; dark brown, tipped gold, early.

Amère (Crozy).—Japanese; petals long and broad, rosy white, centre straw yellow, passing to white.

Anna Vidée (Boucharlat).—Japanese; long petals, white, glazed purple-rose.

Antoinette (Calvat).—Broad spreading petals, white.

Arcturus (Lacroix).—Japanese; long petals, dark chrome-yellow, edged narrowly with chestnut.

Aurèle circuite (Crozy).—White.

Baron de Buffières (Calvat).—Lilac, silvery reverse.

Belle Courrière (Crozy).—Japanese; long broad drooping petals, creamy white.

Briou (Calvat).—Pale yellow, reflexed brownish red.

Charles Gougnon (Calvat).—Orange-yellow, gold reverse, early.

Charles Sire (Audiguier).—Japanese; amaranth, slightly marked carmine.

Cimes neigeuses (Crozy).—Japanese; petals long and broad, snow-white.

Comat Venaisin (Boucharlat).—Japanese; broad petals, purple-violet, striped white.

Comte de Rancourt (Crozy).—Japanese incurved; carmine-rose, reverse glazed white.

Curiosité (Crozy).—Light purple, reverse silvery.

Demi-deuil (Reydellet).—Japanese; dark carmine, reverse silvery light mauve, rather early.

Déa (Lacroix).—Japanese; white, creamy centre, dwarf.

Dr. Gaché (Calvat).—Japanese; bright red, old gold reverse.

Dr. L. Tripper (Crozy).—Japanese; peach, shaded white.

Dr. Morry (Lacroix).—Japanese; pure white, occasionally edged light rose.

Dr. Puseil (Audiguier).—Pompom; sulphur-yellow, tips tinted red.

Edouard George (Reydellet).—Japanese; white, slightly tinted mauve.

Ernest Verdier (Boucharlat).—Japanese; dark crimson-red, lightened velvety flame colour.

Etienne Marcel (Crozy).—Japanese; purple-amaranth, reverse silvery.

Exposition de Grenoble (Calvat).—Japanese incurved; pale lavender. Commended N. C. S.

François Forestier (Reydellet).—Japanese; long petals, white, centre lilac-rose, passing to white.

Gabriel (Lacroix).—Japanese; broad petals, brick-red and chestnut, reverse bright yellow.

Généreuse (Crozy).—Chestnut, shaded purple, reverse ochre-yellow.

G. Halkins (Crozy).—Ochre and velvet crimson.

Grand duc Alexis (Sautel).—Incurved; Adrianople red, golden reverse.

Grand duc Nicolas (Boucharlat).—Japanese; crimson-red, lightened flame colour, shaded purple at tips.

Henri Soissons (Reydellet).—Japanese; bright scarlet-red, reverse light yellow.

Héroïne d'Orléans (Crozy).—Japanese; long stiff petals, snow-white.

H. J. Jume (Sautel).—Japanese; bright light carmine, reverse salmon-bronze.

Inceadie (Crozy).—Japanese; fiery red, passing to yellow.

Inspiration Trévay (Boucharlat).—Japanese; purple-garnet, tipped and spotted yellow.

Joland (Reydellet).—Japanese; reflexed; broad petals, dark carmine-rose, reverse silvery.

Josephine Hébert (Boucharlat).—Japanese; broad petals, dark red, shaded garnet.

La Sirène (Lacroix).—Single Japanese; long petals, milky white.

Le Chef (Reydellet).—Japanese; tubulated petals, vermillion and yellow.

Le Drac (Calvat).—Japanese; yellow, with reddish shade.

Le Grand Serre (Calvat).—Red, reverse yellow, tipped yellow.

Le Génie (Calvat).—Japanese; bright yellow, dwarf.

Le Verrier (Lacroix).—Japanese; burnt sienna, centre buff.

L'Isère (Calvat).—Japanese; salmon-white.

L'Éclat (Reydellet).—Dark bluish lilac, silvery reverse.

Louis Decorges (Reydellet).—Incurved; dark rose, tipped rosy white.

Louis Silhol (Boucharlat).—Japanese; dark purple.

Louise (Calvat).—Globular flower, broad incurved petals, lilac and pearly white.

Mme. Ad. Moulin (Calvat).—Carmine-amaranth, light reverse.

Mme. André Michal-Ladichère (Reydellet).—Japanese; poppy-red, lighter at tips, slight Anemone centre, tubes old rose.

Mme. Apprin (Calvat).—Lilac-white, similar to Pelican in style.

Mme. Arrioux (Calvat).—Creamy white, broad petals.

Mme. A. Roux (Calvat).—Brown-red, straw reverse.

Mme. Aug. Monég (Hoste).—Japanese; silvery lilac, flesh-white centre.

Mme. Auguste Perrin (Calvat).—Tubulated flower, pearly grey and lilac.

Mme. Baour (Délaux).—Japanese; violet dark carmine, striped white, golden red centre.

Mme. Calvat (Calvat).—Flesh-white, dwarf.

Mme. Camille Herrmann (Hoste).—Incurved; good form, creamy white.

Mme. Charles Capitant (Calvat).—Japanese; pale rose, slightly striped mauve.

Mme. Edouard Cruse (Délaux).—Single; bright silvery white, shaded rose.

Mme. Ernest Fierens (Fierens).—Japanese; white, striped carmine.

Mme. Etienne Rouvière (Boucharlat).—Japanese; broad petals, silvery white, reverse and tips rose.

Mme. Georges Biron (Calvat).—Pale mauve, tubulated.

Mme. Grosjean (Délaux).—Japanese; long petals, wax-like white.

Mme. Guesnier (Délaux).—Anemone; white, spotted crimson and carmine-violet-purple, centre darker, tubes yellow.

Mme. Henri Robert (Calvat).—Japanese; creamy white, striped pale mauve.

Mme. Isaac (Crozy).—Japanese; long broad petals, centre creamy white.

Mme. J. Nicolas (Crozy).—Japanese; carmine light rose, reverse buff.

Mme. la baronne d'Eichthal (Délaux).—Japanese; rose, long tubulated petals.

Mme. Linton (Délaux).—Anemone-Japanese; white shaded rose, yellow disc, dwarf.

Mme. Marius Ricoud (Calvat).—Japanese; lilac-rose, silvery reverse.

Mme. Maurice Verdet (Boucharlat).—Japanese; bright rose on sulphur ground, reverse slightly golden.

Mme. Perinel (Calvat).—Incurved; red, with golden reverse.

Mme. Oct. Mirbeau (Crozy).—Japanese; long petals, white and rose, edge amaranth.

Mme. Robert White (Délaux).—Japanese; amaranth-purple, base crimson, centre petals slightly silvery.

Mme. Silhol (Boucharlat).—Japanese; broad erect petals, purple-rose, reflexed carmine.

Mme. T. David (Crozy).—Japanese; white and rose.

Mme. Taulier (Calvat).—Dark amaranth, pale reverse, dwarf.

Mme. Virand-Moel (Calvat).—Milk white, broad petals.

Mlle. Claire Marion (Hoste).—Japanese; bright lilac, spotted white.

Mlle. Thérèse Rey (Calvat).—Japanese; creamy-white.

Mlle. Tourron (Audiguier).—Japanese; tubulated, sulphur-yellow.

Mlle. Wm. Fred Lawson (Délaux).—Japanese; pure white.

Mme. Thérèse Berthoin (Délaux).—Single, white.

Marius Héraud (Boucharlat).—Japanese; broad petals, buff, with reverse shaded purple.

Mathonet (Calvat).—Blood-red, reverse yellow, tipped gold.

Maurice Azam (Lacroix).—Japanese; dark purple-amaranth, reverse striped white.

Maurice Verdet (Boucharlat).—Japanese; broad petals, light brick-red.

Michel Millau (Audiguier).—Japanese; amaranth-yellow.

Miss Helyett (Lacroix).—Japanese; bright chrome yellow.

M. Alerieff (Sautel).—Incurved; velvety carmine-amaranth, reverse lined white.

M. Bourgeois and (Hoste).—Japanese; broad petals, orange, reverse red.

M. Daigremont (Lacroix).—Japanese; very broad petals, cream, striped rose.

M. de Laral (Boucharlat).—Japanese; long petals, dark chrome yellow.

M. Georges Neyt (de Meulenaere).—Japanese; brownish-red, reverse golden.

M. Gustave Henry (Lacroix).—Japanese; bright rose, reverse rosy white.

M. H. Johnston (Delaux).—Japanese; creamy white, edged soft rose, centre golden.

M. J. Aymard (Hoste).—Japanese; poppy-red, shaded velvet chestnut.

M. Jean Baptiste Romon (Sautel).—Incurved; coppery buff, shaded salmon.

M. Jean Lorton (Hoste).—Japanese; rose, shaded flesh colour, centre dull flesh white.

M. Joseph Azam (Lacroix).—Incurved; brick-red and chestnut, golden reverse.

M. Jules Biron (Calvat).—Globular flower, yellow, dwarf.

M. Jules Tassaint (Hoste).—Japanese; broad petals, dark red, golden-yellow reverse.

M. Lucien (Sautel).—Incurved; bright ochre-yellow, tips speckled light chestnut.

M. L. de Barmont (Sautel).—Incurved; light lilac, shaded silver, centre cream.

M. le Baron Lombard de Buffières (Hoste).—Japanese; velvety garnet-red.

M. Léonard Lille (Sautel).—Incurved; cream, outer petals light rose.

M. Lém Bourgette (Sautel).—Incurved; coppery-red, reverse lined buff.

M. Léon Gaillard (Sautel).—Incurved; light canary yellow, slightly tinted rose.

M. Léon Grosjean (Delaux).—Japanese; violet-purple, with dark crimson base, tipped and shaded silvery white.

M. Lém Hamel (Hoste).—Carmine-rose, shaded vermillion-red.

M. Léon Martin (Sautel).—Incurved; light lilac copper, passing to silvery salmon.

M. L. Granier (Sautel).—Incurved; light carmine-violet, silvery reverse.

M. Liard (Delaux).—Japanese; bright purple-violet, shaded crimson, lightened flame colour at base, speckled white.

M. Louis Allemand (Sautel).—Incurved; violet-carmine, centre pure white.

M. L. Parli (Sautel).—Incurved; citron-yellow, shaded carmine, tipped gold.

M. Parent (Boucharlat).—Broad petals, centre ones incurved, snow-white.

M. Paul Roche (Hoste).—Japanese; dark red, spotted yellow, centre dark yellow.

M. P. Martignat (Hoste).—Incurved; chroma-yellow.

M. Maunier (Sautel).—Incurved; bright chrome-yellow, reverse purple-chestnut.

M. Rabutot (Sautel).—Incurved; light canary-yellow.

M. Roland Julien (Sautel).—Incurved; flesh-white, passing to light rose, centre paler.

M. Tourni (Boucharlat).—Japanese; centre incurved, light violet, reverse sulphur.

M. Versen (Delaux).—Japanese; crimson-red, lightened reddish brown, spotted yellow, reverse old gold.

M. V. Lemoine (Sautel).—Japanese; dark velvet carmine, spotted white, reverse silvery grey.

Mont Richius (Calvat).—Pale yellow, edged brown, drooping petals.

Mrs. C. Harman Payne (Calvat).—Japanese; very large flower, mauve, silver reverse. First-class certificate N.C.S.

Newton (Lacroix).—Semi-double Japanese; bright orange golden yellow, lightened burnt sienna.

Noël (Boucharlat).—Japanese; tubulated petals, white with green shade, passing to pure white, late.

Olga Alexandrowna (Boucharlat).—Japanese; broad petals, rose, reverse silver.

Otto Ballif (Reydellet).—Japanese; dark rose, centre incurved, silver-white reverse.

Pauline Tarascon (Boucharlat).—Japanese; white.

Phénoménal (Hoste).—Japanese; satiny-white, darker centre.

Préfet Robert (Calvat).—Incurved; dark amaranth, silver reverse.

Président Barrel (Calvat).—Brown-red, lighter reverse, early.

Président Carrière (Calvat).—Crimson-red, reverse old gold.

Président Chandon (Crozy).—Japanese; carmine-rose, reverse rosy-white.

Président de la Rochetier (Crozy).—Japanese; white, edged amaranth, passing to peach.

Président Péronnet (Calvat).—Crimson-red, yellow reverse.

Reine des Abeilles (Audiguier).—Japanese; rose, passing to sulphur.

Satellite (Crozy).—Japanese; bright yellow, shaded chestnut on the edges.

Secrétaire Delaire (Crozy).—Japanese; ochre-yellow, passing to buff.

Secrétaire Triboulet (Reydellet).—Japanese; rosy mauve, tips and centre yellow.

Sénateur Benoist (Delaux).—Japanese; silvery violet, lightened amaranth, reverse silvery.

Sécrine Maignien (Crozy).—Japanese; carmine-rose, reverse rosy white.

Soleil des Alpes (Crozy).—Fiery-red, passing to old gold-yellow.

Souvenir de L. Blusset (Calvat).—Incurved; lilac, shaded rose.

Souvenir de Mme. Baqué (Audiguier).—Japanese; white, centre bright carmine.

Stephano Pogliati (Hoste).—Japanese; buff, shaded rose.

Tuillefer (Calvat).—Lilac, pale reverse.

Th. Denis (Crozy).—Japanese; garnet, shaded crimson, reverse buff.

Valjaffrey (Calvat).—Japanese; red, reverse yellow.

Van den Heede (Crozy).—Japanese; reddish brown, reverse buff.

Vice-Président Calvat (Calvat).—Japanese incurved; crimson-red, reverse old gold, broad petals.

Weja (Lacroix).—Japanese; white and rose, creamy centre.

William Herschell (Japanese).—Violet-rose, striped white.

CHRYSANTH.

Books.

FRUIT CULTURE.*

HARDY fruit literature has of late years been largely added to, several excellent and cheap works on the subject having been published, but there is yet good room for Mr. Cheal's capital contribution. After reading and re-reading his book, the only fault I can find is its brevity in places and the lateness with which so much excellent advice arrives upon the scene. Men of Mr. Cheal's stamp ought to be ahead rather than behind the times, and he could have given quite as much useful information six or more years ago, or at a time when so many stood in particular need of it, as at the present day. Had such a work as "Practical Fruit Culture" been available even two years since, many mistakes would have been prevented and in all probability much disappointment obviated. From first to last the advice is sound, and there are no exaggerations, that is to say, no arrays of figures demonstrating the certainty of fortunes being quickly made at fruit growing. Every encouragement is given to farmers and others to commence the cultivation of hardy fruit, and if the rules, very plainly yet most concisely laid down, are carried out in a fairly intelligent manner, there is no good reason why success should not reward their efforts. Irresponsible, inexperienced, and I may say reckless writers have painted such glowing pictures of what can be done in the way of fruit-producing, that it is quite refreshing to come across someone who both fully appreciates the position and studiously avoids raising false hopes. That there is a great and increasing demand for fruit is evident enough to the most superficial observer, and it is equally certain that there are serious difficulties in the way of both growing and distributing the fruit after it is produced. That they do things very much better in America we are all only too well aware, but it must also be borne in mind how much they have the advantage in climate. The fickleness of ours seriously militates against the efforts of British fruit growers, and must always be taken into consideration whenever estimates of future crops are made.

* "Practical Fruit Culture." By J. Cheal, F.R.H.S. London: G. Bell and Sons.

As Mr. Cheal points out, a great drawback to fruit culture lies in the present system of land tenure, and there is no doubt about its having prevented a considerable number of farmers, as well as a much more numerous class of small householders, from planting more extensively. Unless the land or garden is held on a long lease, with power to renew on equitable terms, there is always a risk to be run of either having the rents raised for the improvements effected, be it remembered by the holders themselves, or else of someone else stepping in and realising the fruits of the labours of previous tenants. Several such instances have come under my notice, and I am quite of opinion that the laws bearing upon the subject require remedying. Mr. Cheal suggests that landlords should provide the trees and the tenant do all requisite work in the way of planting at his own expense, the ultimate result being a greatly increased value of the property, a tenant anxious to retain his tenancy, and in any case no vexed question respecting valuation and compensation. An instance is given of land upon which the landlord expended £20 an acre in planting Apples upon land previously let for £1 per acre, soon after realising £4 per acre, and there are plenty of other cases where a thriving orchard has been the means of either selling or letting a property on good terms, when adjoining places could only be got rid of at a sacrifice. A few large landowners have long since realised the wisdom of planting orchards near to the farmhouses on their property, and they also very wisely raised their own trees and then subsequently replanted them properly. This is a far better plan than trusting to the farmers to buy and plant the trees, as it precludes the possibility of inferior varieties being selected, or rather taken on the word of an interested vendor, and also of haphazard planting. The advice to those about to start planting or their own account is particularly good, and I would strongly advise all such to purchase the book and mark well what is said on page 5.

A chapter is devoted to the selection of soil and situation, the composition of the former being fully discussed in a very instructive manner by Mr. J. Willis, of Harpenden. According to the figures given, Kent would appear to lead the way in hardy fruit culture, no less than 33,497 acres being devoted to it in that county, Devon coming next with 27,592 acres, Hereford being a respectable third with 26,175 acres under fruit; Somerset, Worcester, and Gloucester also having very respectable totals. Altogether there are 238,157 acres wholly or largely given up to fruit culture in this country, and this does not appear to be anything like sufficient to meet the demands for fruit, though a different tale may yet be told. About four pages are taken up in describing the preparation of the ground needed in most cases, much importance being rightly attached to the necessity for doing this in a very thorough manner. As might be expected, Mr. Cheal is very strong in the matter of selecting suitable varieties for all purposes, the selections being commendably brief, though containing not much that is novel. It is worthy of notice that Blenheim Orange is included in a list of twelve varieties for planting as standards in orchards, the remarks on it fully bearing out what I have repeatedly asserted as to the value of this the king of Apples. As Mr. Cheal states, "the greatest drawback to this variety is the length of time that elapses before it comes into bearing, eight or ten years being the usual period, but it is a variety that we cannot do without and can afford to wait for, there being plenty of others which step in to supply the gap during the period of probation." Winter Queening, or Duck's-bill of Sussex, is also included in the dozen best Apples, and this good old variety ought certainly to be given a trial. It makes a fine tree, crops heavily, and is in season from November to May, being available for either dessert or cooking. Selections of varieties of Pears, Plums, Cherries, bush fruits, and Strawberries are all limited and good, though the Pear Glou Morceau is scarcely a reliable one for orchard culture, the fruit being liable to crack badly.

Full instructions as to the arrangement of the

various trees and bushes, and the remarks upon the important operation of planting are plain and sound, the illustrations accompanying them plainly showing how unwise it is to plant deeply. Quite recently I inspected a newly-planted orchard in which not a tree was staked, nor did they apparently require stakes, for the simple reason that they were planted deep enough for the soil to steady them. Now, if orchard trees are planted properly, they require and must have the support of a strong stake, and Mr. Cheal's plan of fixing the stake and planting against it is much the best that can be recommended, as being the least likely to damage the roots. Pruning and other cultural details come in for a full share of attention, and the cost per acre of both planting and maintaining the orchards is duly set forth, with a rough estimate of the probable yield, costs of marketing, and gross return per acre of each kind of fruit. Chapters are devoted to "Renovation of Old Orchards;" "Gathering, Packing, and Distributing Fruit;" "Storing, Preserving, &c.;" and "Grafting, Budding, and Stocks," all of which contain much that is of a serviceable character to both the market and private grower of fruit; while the all too many insect pests to which the various kinds of hardy fruit are liable are ably commented on by Mr. J. Fraser, of Kew, various illustrations and the most effective remedies being given.

Thirty-six pages, or about a fifth part of the book, are devoted to the garden culture of fruit, but here the author is not so much at home with his subject as could be desired. For instance, has he never heard of whole lengths of high garden walls being blown down by strong winds and a valuable lot of trees destroyed—a catastrophe that would not have happened if the precaution of strengthening with piers had been taken? Either the most exposed walls must be strengthened by piers or buttresses, or else they should be extra thick and therefore very expensive to construct. Nor is he aware of the value of glass copings for assisting in ripening both the crops and the young wood of Apricots more especially, or he would not advise their early removal from the trees or directly the crops are well set. Revolving glazed copings are the best that can be had, and of these there is no mention. From a nurseryman's point of view, Mr. Cheal may be right in advising that comparatively old or trained trees of all kinds be purchased and planted, but in very many gardens the most profitable trees are those that were originally planted as maidens. Good selections of all kinds of fruit and for all positions are given, the cultural details being commendable. Altogether the work is highly creditable to the author, and should find a place in every garden library. W. I.

OFCHIDS.

THE TONQUIN LADY'S SLIPPER.

THE *Cypripedium* of the *C. niveum* and *C. concolor* types are quite *sui generis*, and possess qualities quite distinct from those of any other section. *C. concolor* is the earliest known, having been found in Moulmein by the Rev. C. Parish as long ago as 1859 at a place called "The Three Pagodas," where it grew in leaf-mould in chinks and crevices of limestone rocks. *C. niveum* has been found in islets of the Malay Archipelago also on coral limestone, and decayed limestone or old mortar rubbish should be used as drainage material for these kinds. Distinct as *C. concolor* and *C. niveum* undoubtedly are, if you examine the extreme end of each type, their characters are united or bridged over by the geographical forms more recently discovered. Of these, *C. bellatulum* is one of the most handsome, being a giant, or glorified *C. niveum* of larger size, and having more pronounced purple markings. It is also a far more easily grown plant, as is the intermediate form known as *C. Godefroyæ*.

Another variety introduced in 1885 from Cambodia by M. Godefroy is *C. Regnieri*, and there are at least two other forms known as *C. tonquinense* and *C. chlorophyllum*. As shown by the engraving, *C. bellatulum* is a very handsome and free-blooming plant, the flowers being not only of large size, but very thick and waxy in substance. As shown in the woodcut, they are grouped amongst Maiden-hair Ferns, and there is a subtle fitness in the association apart from the mere beauty point of view, for the Fern, like the Orchid in this case, is a lover of limestone, and although it is possible to grow both without any addition of lime in the compost, both can be grown very much better and handsomer if it be there. Those amateur Orchid collectors who have failed to grow *C. concolor*, or even *C. niveum*, should try this fine and more vigorous variety from the limestone rocks of Tonquin and Cambodia.

F. W. B.

Odontoglossum citrosimum roseum.—J. Marchant sends me a nice form of this variety, but not of his own growing, having received it from a friend, and he asks if he can grow it in the Cat-

tichous manner, so that the raceme is very dense. The sepals are white, tinged with rose and boldly spotted with bright cinnamon; petals broad, making up a good full flower, toothed at the edges, pure white, saving a tinge of creamy yellow towards the base; lip large, beautifully frilled, pure white, saving the yellow on the crest, below which is a large blotch of cinnamon and a few spots of the same colour round the sides of the crest.—W. H. G.

AERIDES.

I AM asked by Mr. C. H. Rushbrook to say something about this family. He says, "I have a considerable number sent me from different parts of India by my son, and I cannot succeed very well with them. I am afraid I cannot keep them hot enough; the temperature has not fallen lower than 68° through the winter." This is a section of the Orchid family for which I have a special liking, and I much regret that the prevailing taste for the cool house kinds has nearly driven them out of cultivation. One does not now see the fine specimens of *Aerides*, *Vandas* and *Saccolabiums* that existed in collections some thirty or forty years ago. There seems, however, a desire to



Group of *Cypripedium bellatulum*.

tleya house, that temperature being all that he can furnish it with. By the plant being now in flower I should imagine that it has been in the Cattleya house since it started. The plant would thrive in that heat during the growing season, but it would require plenty of fresh air and a large supply of water. When at rest you will need a house with a lower temperature than 58° or 55°.—H. G.

Epidendrum bicornutum.—From Mr. G. Cypher, gardener to Sir J. E. Dorrington, Bt. M.P., Lypiatt Park, Stroud, comes a fine spike of this plant. I am glad to find that Mr. Cypher and others are getting to understand this species better than was the case a few years ago. At one time it was with difficulty kept alive more than a year or two. It appears to require a great amount of heat and plenty of fresh air and atmospheric moisture. The flowers sent are as fine as any I have seen.—G.

Odontoglossum Alexandræ Warneri.—J. Toomer sends me a flower the exact counterpart of that of this variety, which was exhibited before the Royal Horticultural Society in the month of April just twenty-three years ago. It was named by Moore, who afterwards wrote a description of it when it was figured in "Select Orchidaceous Plants," ii., t. 23. The flowers before me each measure 3½ inches across, and I am told the spike carries eleven such flowers set in a dis-

once more take up their cultivation, but under the system adopted by Mr. Rushbrook success can never be attained. The house should be kept at 60° or 58° at the coolest end during the night, rising about 5° by artificial heat in the daytime, and if we should have any bright days, the temperature may run up higher, but more air should be given. In fact, I like to have some air upon the house by day and night at all times—of course, regulating this in accordance with the condition of the atmosphere outside. This will suffice for the winter months, and I know of one collection of these plants that is grown under conditions similar to those given above. Some kinds require more heat. Of these may be mentioned *Renanthera Lowi*, *Vanda Sanderiana* and *Aerides Lawrenceanum*. In the summer months the temperature with sun-heat may rise to 80° or 85°, but even at this season I should not keep the house higher than about 70° by fire-heat. The atmosphere must be kept well charged with moisture and the plants should be syringed lightly overhead twice a day. In the winter season much less water is necessary, and the syringe can be laid by until the warm weather comes again. These plants should never be dried to such an extent as to

suffer, as this only leads to a shrivelling of the foliage, causing it to turn yellow and fall away, leaving a bare and unsightly stem. The plants may be either grown in pots or hanging baskets. I prefer what are known as "Orchid pots" for the greater portion of the family. They should be well drained and the plants firmly potted in good, fresh Sphagnum Moss, which should be kept in a sound, fresh and sweet condition at all times. Should any signs of decay set in, the Moss must be removed and replaced by good living material. The plants should be kept in an erect position, care being taken to keep the foliage in its natural two-ranked fashion, as upon this depend in a great measure the beauty and ornamental character of the plants. Even the commonest and perhaps best known kind—*A. odoratum*—is a lovely plant when well grown and flowered. The following are a few of the best kinds:—

A. CRASSIFOLIUM is a somewhat slow-growing plant from Burmah; it has thick leathery leaves, each about 6 inches long. The leaves of some plants which I recently saw in a Belgian collection were much more. The plants appeared to grow more freely, and were certainly larger than I had ever seen the species in England. The spike is much longer than the leaves, and bears a somewhat loose raceme of large flowers, which are of a deep rosy purple and deliciously fragrant.

A. CRISPUM is a species from the Madras Presidency. It is a somewhat stout growing plant with a purplish black stem; the leaves broad, somewhat short, and deep green. The spike is mostly racemose, but sometimes it becomes paniculate. The flowers, which are very fragrant and amongst the largest in the genus, are white, tipped with rosy purple. In the variety *Lindleyanum* the peduncle is much-branched, the individual flowers being larger, but of much the same colour. The form known as *Warneri* is a more slender plant, the flowers also smaller than in the typical plant, white, tinged and tipped with rich rosy purple. This plant is often called *A. Brookii*, but Wallich's name was given before it flowered in this country.

A. FALCATUM.—This species, grown for many years under the name of *A. Larpentæ*, and which name, I think, ought to be retained, is a Burmese plant. It is more slender growing than the last named, and the leaves have a somewhat glaucous hue. The flowers, produced in dense pendent racemes, are large, white, tipped with crimson-purple. Several forms of this plant have appeared under the names of *expansum* and *expansum Leonie*, differing slightly in the colours of the lip.

A. FIELDINGI I have frequently imported from Upper Assam, but it was first brought into notice by the Messrs. Veitch through their collector Lobbi. It is well known in collections by its garden name, the Fox-brush *Aerides*; it is a stout growing plant, with long and broad fleshy, dark green leaves; the spikes are 2 feet long, in the best varieties branched, producing a dense raceme of showy flowers, which are white, dotted and stained with rosy purple. In the variety known as *Williamsi*, and now in the collection of Baron Schroeder, The Dell, Egham, the flowers are pure white, saving a few streaks of colour at the base of the lip.

A. LAWRENCEÆ.—This is a remarkable plant, having the same characters as the typical species *A. odoratum*, but its size is enormous. It was figured in these pages in 1889, t. 702. The flowers are white, tipped with deep amethyst-purple, the large spur tipped with green. It comes from Mindanao in the Philippines, as also does the variety known as *A. Sanderianum*, which differs only in having the ground colour creamy yellow.

A. MACULOSUM, introduced by the Messrs. Rollison, of Tooting, has a much-branched flower-spike bearing many flowers which are white, flushed and spotted with rich rosy purple. The splendid plant known as *A. Schroederi*, which existed in Mr. Schroeder's garden at Stratford, is said to be a variety of this.

A. LOBBI, from Burmah, has broad and long leaves closely set, the spike sometimes racemose, but usually with one or two branches and bearing many flowers, which are white, tinged and spotted with bright rose, the lip faintly tinged with violet.

A. ODORATUM.—The species upon which the genus was established flowered first in our gardens sixty-one years ago. There are many forms of the plant. The flowers are sweetly scented, white, tipped with rich rosy purple. It appears to be widely spread in India.

A. QUINQUEVULNERUM, from the Philippines, may be kept in a slightly warmer place in the winter with advantage. It has bright green leaves which are curiously folded together at the base. The raceme is pendent and many-flowered, white, tipped with bright rosy crimson. It is a very brilliantly flowered kind, and used to be much thought of.

A. SUAVISSIMUM.—This is nearly related to *A. odoratum*, but it is much looser in its growth and the racemes of flowers are longer. The flowers are white, tipped with pinkish-lilac. From the Straits of Malacca.

A. VEITCHI is a fine plant from Burmah, having long, curved, somewhat distant leaves, and producing a much-branched spike of flowers which are light-rose coloured, whitish at the base, and dotted with dark rose.

The above are the best of the species which have been seen in cultivation. These and the species of *Vandas* named by "W. J. B." and myself in last week's issue, together with some other species and genera, would make a house equally as beautiful as the cool house kinds. Everyone having the space should encourage the growth of these beautiful two-ranked-leaved kinds.

WM. HUGH GOWER.

SHORT NOTES.—ORCHIDS.

Chysis bracteata.—In the "Orchid Album," t. 446, is a good plate of a handsome old Orchid which was first flowered just fifty-two years ago. The flowers are thick and waxy in texture, the sepals and petals pure white. The lip is yellow within, streaked with red.

Cypripedium insigne Mooreanum.—This variety originated with Mr. B. S. Williams, and it is remarkable for the great size of the lower sepal, which is creamy white, spotted slightly on the veins. The dorsal sepal is also large, beautifully spotted with a broad border of pure white.—*Orchid Album*, t. 445.

Cattleya Skinneri Virginia.—This is a large and well-shaped flower of the purest white, saving a tinge of pale primrose-yellow in the throat and a slight tinge at the extreme end of the column of rosy mauve. This cannot be seen unless the throat is opened. The flower measures upwards of 4 inches across, and the petals are each upwards of an inch wide. It is now flowering in The Woodlands collection.—W. H.

Cattleya speciosissima (J. Looker).—The flower sent is a very nice one, and a plant with three leading growths, each bearing four flowers, must be beautiful. The flowers each measure 6½ inches across, the sepals and petals being of a pale soft rose colour. The lip in *Dawsoni* is of a deep rosy crimson, but in the flower before me this is stained with rosy lilac and thickly freckled with white. Yours is not the *C. Dawsoni* of Warner.—W. H. G.

Odontoglossum Halli.—T. Charlesworth sends me a flower of a remarkably fine form of this plant, which was first found by Col. Hall about fifty-five years ago. I have often heard it called one of the grandest species in the genus, but have hitherto failed to recognise it as such. The flower sent measures upwards of 4 inches across, the sepals and petals being nearly equal and of a rich yellow ground colour, spotted with chestnut, the petals broadly tipped with bright yellow; lip shorter than the sepals, broad, with a profusely toothed edge, soft yellow spotted with

chestnut, and having a deeper yellow crest. It is the finest form of *O. Halli* which I have ever seen. It does well in the cool house. I think it is seldom found below 8000 feet elevation.—W. H. G.

NOTES OF THE WEEK.

Tufted Pansies.—Mr. Forbes, of Hawick, sends us a collection of flowers of tufted Pansies which he grows so well, including many of the best known kinds and some not so common—*Buddleuch Gem*, *Distinction*, *Sulphurea*, *Max Kolb*, *Souvenir*, and *Bluebell*.

Polyanthuses from Gainsborough.—F. M. Burton, Highfield, Gainsborough, sends us a gathering of Polyanthuses of rich and varied colours. Everyone who admires simple beauty should grow largely the variously coloured Polyanthuses and *Primroses*.

Royal Horticultural Society.—The next meeting of the society in the Drill Hall, James Street, Victoria Street, Westminster, will take place on Tuesday, May 17, when prizes are offered for Indian and hardy Azaleas and Pelargoniums (zonals excluded). In the afternoon at 3 p.m. a paper on "Hardy Climbers and Creepers" will be contributed by Mr. W. C. Leach.

The Vernal Gentian, a great favourite everywhere, is a very difficult plant to deal with in the south at any rate. It does not like the heat, and probably gets too much fog and moisture during winter. The best way of dealing with it in our opinion is to raise a batch from seed every other year, growing the seedlings on ready to take the place of the flowering tufts of last year.

Severe frost.—In this district (West Middlesex) 10° of frost were registered on the morning of Saturday, May 7, doing further damage to the fruit crop. Some varieties of Chrysanthemums, too, had their leaves much blackened.

—We registered here on the morning of the 6th May 10° of frost, and the damage to the fruit crops in this district is very serious, more especially among the Gooseberries and Currants, the trees being completely stripped. On close examination I find the Apple blossom, though not expanded in most cases, is killed; Plums and Pears had gone before. What promised a short time since to be a most plentiful fruit season will, I fear, be one of the worst on record.—E. BECKETT, *Elstree, Herts.*

Polyanthus Border Maid.—I enclose a seedling Polyanthus for your opinion. It is a cross between Polyanthus Geo. IV. and a finely laced pin-eye. The individual blooms are larger than those of Geo. IV., the ground colour brown and the eye very smooth.—C. STUART, *Chirnside*.

*A very fine variety, giving a flower of the size of that of Geo. IV., with a black ground instead of a red ground. It will, we think, be gladly welcomed by growers for exhibition when put into commerce.—ED.

Ionopsisidium acaule (the Portuguese Diamond Flower).—This is the most chaste and lovely plant on our rockwork at present, though not the showiest. It was raised in heat early, hardened off, and planted in tufts of varying sizes in different positions, and now the pretty green leaves are nearly hidden by the tiny white and violet flowers glistening in the sun, fully justifying the popular name. It is one of the most charming little annuals for rockeries and similar places, and even a pot or pan of it in the house is not to be despised. It only grows about 2 inches high.—J. R.

Solanum jasminoides.—"H. P." (p. 420) has certainly not over-rated the beauty and value of the above so-called greenhouse creeper. I cannot, however, agree with all he says about its doing so much better indoors than out. I could show him immense plants here covering rough walls. They are growing between the stones of a rough pitched yard, and have roots showing on the surface as large as a man's wrist. These plants have stood out quite unprotected nearly twenty years, and during the last two winters we have several times registered over 20° of frost. They are never troubled with insect pests, and the quantity of flowers produced each season is enormous, continuing from June to December. The quality I have never seen

equalled under glass, being of good substance and nearly pure white. It is a most rampant grower, and should be left untrimmed for protection to the main stems through the winter, cutting the shoots back not earlier than the first week in April. Young plants put out should be protected for the first two or three winters; after that they will protect themselves and prove as hardy as Bays.—SANGUINEA, *Trelissick*.

Campanula rhomboidalis, one of the most prominent species in the alpine meadows in Switzerland, might be taken up and made into a really good plant. It is handsome as it is, but it shows a variable character, and this might well be worked on to great advantage. It is one of the few species that does well in Grass, and it may be planted with perfect security amongst even strong-growing kinds. A dampish spot might be chosen, and here it will be found to flower freely all through the summer and early autumn. A great deal might be done by judiciously planting the strong-growing semi-alpines by the woodland walk.

Tulipa Leichtlini.—The Tulips referred to in the last issue at page 419 as flowering at Long Ditton Nurseries are very interesting, although the description of *T. Leichtlini* would hardly lead one to suppose it was really a beautiful species, and one that should be in every collection. It is true that the flowers are partly pale sulphur, but nearly the whole back of each segment is of the brightest coral-red, which led us long ago to consider it as a form of the very variable and equally beautiful *T. stellata*. The branched species is *T. biflora*, also a variable plant, and, as a rule, one of the earliest to flower. Close by there are two forms of *T. undulatifolia* from Smyrna, one of which I have a strong suspicion was described a couple of years ago as *T. ciliatula*. Two other lots sent from Smyrna at the same time belong to *T. Hageri*, pale yellow with black eye, and dull, dingy purple-red with black eye, at best one of the least showy Tulips I know.—D.

Primula venusta.—There seems to be considerable confusion as to what this is, and I have seen no less than four very distinct plants in gardens under this name. J. Wood, in a note on page 418 of last week's issue, calls our attention to one of these forms, and a very beautiful one it is. It comes nearest to *P. alpina* or *P. arctotis*; whereas the true *P. venusta* of Hoste is a cross between *P. Auricula* and *P. carniolica*, a native of the Carinthian Alps, and a very distinct, though not an attractive Primrose. The leaves are not unlike those of *P. Auricula*, glossy green or occasionally mealy; the flowers small, and of a pale brown-chocolate colour, with a narrow white pasty ring near the eye. Every Continental nurseryman seems to have his own *P. variabilis*, another plant I am constantly getting wrong. The true *P. variabilis*, which is synonymous with *P. brevistyla*, is a hybrid between *officinalis* and *acaulis*, and, of course, belongs to the Polyanthus group. Only the other day I received under this name one of the commonest alpine Auriculas I have ever seen.—D.

Vio'a declinata.—A new Violet which we have just received from Transylvania promises to be a decided acquisition to our even large list of these lovely flowers. The flowers are as large as a florin, of a deep, bright blue with darker markings near the yellow eye. The leaves are stalked, glossy green, oval, and bluntly toothed. It is an extremely free flowering plant, with a tufted habit and grows very freely on the open exposed rockery. It is a good companion to another Violet we have in flower just now, *V. calcarata*, a common species on the high Swiss mountains, and one of the showiest in cultivation. We have never been able to succeed with this Violet until we tried it in old cocoa-nut fibre, which it seems to like, as it flowers freely and forms fine close tufts. This species formed dense carpets on the Furkahn, in a black peaty soil, moist, and fully exposed to the sun. *V. alpina*, a very dwarf, high alpine species, also does well planted out in cocoa fibre, with just enough loam and sand to keep it firm. It is a delightful little species, rarely exceeding a couple of inches in

height, and flowers abundantly from its dense tufts all through May and the early part of June.

Marsh Marigolds in damp shady woods, where they will be found to flower freely, are delightful, but it is by the side of a rippling streamlet where their charms are most apparent and their real beauty seen. The many varieties growing alongside the small stream in the rockery at Kew suggest a great future for these our native Marsh Marigolds, and if one takes up the numerous double varieties of all shades of orange, a most delightful and interesting group might be made in the wild garden. The double flowers, to our mind less attractive than those of the single-flowered forms, will doubtless be found best for planting in quantity; the flowers last much longer and give a denser body of colour, which will be appreciated, especially if planted at a little distance from the woodland walk. Many a little stream might well be made beautiful by a judicious use of our native water-loving flowers. Very many of our native plants equal in beauty costly exotics, and they are lying at our hands ready to use. All we have to do is to choose the proper place for them.

Narcissus triandrus (Angels' Tears).—The beautiful forms of Angels' Tears (*Narcissus triandrus*) are almost too delicate-looking to stand our cold east winds, yet they do so, and so far as we can find without injury. They are just coming on in the open air now, and, with *N. rupicola* and *N. juncifolius*, make an interesting little group. The *N. triandrus* forms, *pulchellus*, *concolor*, &c., seem to like a little moisture, and our experiment in planting them near a small stream has succeeded beyond our expectations. We do not, however, intend them to stand here all summer, but will take them up and dry them off, and plant again towards the end of August or early September. *N. rupicola* and *juncifolius*, on the other hand, we find thrive best close to a deciduous bush, such as a Weigela where the active roots keep the soil dry, and reduce the chance of the bulbs being hurt with excessive moisture, from which they certainly do suffer in the open. Try all the *Bulbocodium* forms on marshy ground and they will succeed better than in pots or dry borders.

Narcissus Bernardi.—In spite of the many beautiful forms of *N. Barri*, *N. Burbidgei*, and the finer *N. incomparabilis*, the wild hybrids known as *Narcissus Bernardi* have a charm quite their own. They produce cups of all shapes and sizes, from pale yellow to the most brilliant orange, some of them almost red indeed, and coloured from the base to the rim. Another charm of these forms of *N. Bernardi* is that they come into flower when nearly all the other forms are over, and they will continue from a week to a fortnight longer from now. There can be no question now about their staying with us, bulbs after four years' cultivation looking much healthier and stronger than on their arrival. For a few years longer it may be found necessary to lift the bulbs of *N. Bernardi* annually, giving them a good roasting and planting again when the roots at the base of the bulbs show signs of starting into growth. It is not wise, I think, to plant any bulb before it shows signs of active growth, and better a little late than too early.—K.

Rhododendron campanulatum. Several species of the Himalayan *Rhododendron* are now flowering in the outdoor collection at Kew, and more showy, perhaps, than any at present is *R. campanulatum*. This species forms a wide bush, in some cases 6 feet high and as much through. It has elliptical leaves of the darkest green on the upper surface and covered with a reddish brown felt beneath. The flowers are borne in compact, rounded heads of medium size, the corolla being bell-shaped, 2 inches in diameter and of a pale purple marked with a few darker-coloured spots on the upper side. Some of the older reputed species are now reduced to varieties of this. *R. ærginosum* is one of them, its chief distinction existing in the verdigris-coloured tomentum on the under surface of the leaves. *R. Wallichii* also differs in the same character, but its flowers are of a brighter colour than in the original *R. campanulatum*, of which, however, it is undoubtedly a mere form.

These varieties are all linked together by intermediate characters. Their value lies in their hardiness in the neighbourhood of London and in their flowering as early as April in the open air.

Muscari.—Two out of all the pretty species in flower just now strike one as specially interesting, one a very old, and the other a comparatively new species. We refer to *M. paradoxum* and *M. latifolium*. The former, though a very old, is an extremely rare bulb, and one does not often meet with it in collections now-a-days. It towers above all the other species, and with its broad, upright, dark green leaves and large, dense heads of deep purple-violet flowers is very effective as a small group among the alpine on the rockery. It seems to increase very slowly, and does not often ripen seed under cultivation. *M. latifolium* is quite a new type—at any rate it has the characteristics of *Muscari* in the bi-coloured flower-heads more marked than usual. The leaves are very broad, strap-shaped, and not at all like those of the Grape Hyacinth, while the flower-heads are large, the lower half deep violet-purple, the upper being of a very pale blue. Both are now in flower at Kew, as well as *M. flavum*, *aureum*, or *luteum*, under each of which names one may find it in gardens.

Pæonia corallina.—In the last issue of THE GARDEN at p. 418, "*Adolesenex*" describes the flowers of *Pæonia corallina* as dull-coloured and of no particular merit. I am a great lover of *Pæonies*, and think them all meritorious, especially *P. corallina*. "*Adolesenex*" must have a very bad form; the one I possess has bright crimson flowers of beautiful form, and one of the finest of our single *Pæonies*. The coral-red fruit is another great charm of this species, and to see a fine healthy specimen studded with the quaint follicles spread open and displaying double rows of corals, leaves nothing to be desired. I always recommend this species for the rockery where it does well on fully exposed situations, and flowers and seeds freely. *P. Emodi*, from the Himalayas, I have seen doing better in the north than around London. It invariably gets cut and spoilt by the easterly winds in spring, and is unsatisfactory in the open. I have at last succeeded, however, with it behind a north wall, and I am now satisfied that this treatment applies to several of the species. They will not stand the morning sun, and this fact should be kept in mind when choosing a place for them.—K.

SOCIETIES AND EXHIBITIONS.

THE INTERNATIONAL HORTICULTURAL EXHIBITION.

OPENING DAY, MAY 7.

If the display made on the opening day by several of the trade growers and by a few private gentlemen is to be taken as a criterion of what is to follow later in the season from time to time, the success of the efforts put forth by Mr. Milner and his supporters is at once ensured. The support accorded to Mr. Milner must, we think, have far exceeded his most sanguine expectations at this the commencement of a series of shows, and in this particular instance, it must be borne in mind, no classes were provided for competitive exhibits. Messrs. B. S. Williams and Son staged a large group of choice Orchids, particularly of the cooler sections and Cattleyas; with these were included numbers of their choice strains of *Amaryllis* in excellent condition, also several plants of the newer *Dracænas* and the same of *Nepenthes*, *Sarracénias*, and *Darlingtonias* with the distinct and promising *Epiphyllum Makoyanum*. Messrs. Laing and Son filled three tables of smaller size, but which were overflowing with Orchids, fine-foliaged plants and hardy flowers. *Odontoglossum vexillarium* and *Oncidium sarcodes* were particularly effective, their well-known types of tuberous *Begonias* being represented by some grand cut blooms. Several new plants were also included, to which first-class certificates were also awarded,

notably a fine form of *Oncidium sarcodes*. Mr. R. Dean, Ealing, had numbers of his splendid strains of fancy Polyanthus and coloured Primroses which he is this year exhibiting in fine condition. With these were included two new Auriculas, one named Duke of Connaught being a marked advance amongst the alpinas, with large, bold flowers of a dark shade; to this a first-class certificate was awarded. Messrs. W. Paul and Son showed two groups of Roses in pots, the dwarf bush plants being relieved in a most effective manner by the introduction of several standards amongst them, these latter being chiefly Teas of the best and newest kinds. Several boxes of very fine cut blooms were also staged. Tea Rose Corinna was here finely shown, receiving a first-class certificate. Mr. C. Turner, Slough, filled two tables, one with a large collection of show and alpine Auriculas of the best kinds, and another with small standard Azaleas of choice kinds in profuse flower. Messrs. C. Lee and Son showed a large group of early flowering Rhododendrons and Azaleas of hardy kinds interspersed with fine-foliaged plants, making a good display. Messrs. Lane, Berkhamsted, had also a large group of pot Roses, Rhododendrons, and baskets of the miniature Polyantha Roses, making in all a fine show. From Messrs. Shuttleworth and Co., Peckham Rye, came an imposing group of fine-foliaged plants, chiefly Palms, Cycads, Ferns and Dracenas, forming a good central arrangement. Messrs. Hugh Low and Co. showed another of their fine selections of Cape and New Holland plants, dwarf Ericas and varieties of *Aphelexis* being the most noteworthy, the former in most profuse bloom. Mr. Rumsey, Waltham Cross, showed remarkably well-grown dwarf Roses in pots in considerable quantity; these with several boxes of *Niphetos*, *Maréchal Niel* and other Tea-scented and Hybrid Perpetuals made a good show. Mr. Ware had a large space filled with choice assortments of early-flowering herbaceous and alpine plants, *Primula Sieboldi* in variety, *Cypripediums* and early Irises being amongst the most noticeable, with cut blooms of Daffodils. Messrs. Barr and Son had a large amount of tabling occupied with another of their representative collections of Daffodils and other spring flowers, making in all a brilliant display. Messrs. Cutbush and Son also showed Daffodils in large bunches of the best kinds and several good examples of Crown Imperials. Cinerarias were finely shown by Messrs. James and Son, the plants dwarf and in full flower. Messrs. Cannell and Sons staged a large collection of succulent plants, which they cultivate exceedingly well; with these were boxes of huge blooms of single and double tuberous Begonias, zonal and show Pelargoniums. Messrs. Hayes, Edmonton, sent a quantity of early-flowering Pelargoniums of the most approved kinds for decorative use, the plants dwarf and one mass of bloom. Cut-flower arrangements and other decorative material of an artistic kind were well represented upon two tables by Mr. Phippen, Reading. Messrs. J. Peed and Son showed a table of flowering and fine-foliaged plants. Amongst these was a fine example of *Cymbidium Lowianum*. From Mr. Leopold de Rothschild's gardens at Ascott, Leighton Buzzard (Mr. Jennings, gr.), came a grand lot of Malmaison Carnation, the plants in the most vigorous health, and bearing huge blooms highly perfumed, the pink and blush varieties both being shown. From Messrs. de Rothschild, Gunnersbury House, Acton (Mr. Jas. Hudson, gardener), came Black Hamburg Grapes from pot Vines. To all of the exhibits aforementioned medals were awarded. The beds of permanent exhibits in the covered garden were well filled by nurserymen, and to these allusion may be made at another time.

The Temple show.—On Tuesday and Wednesday, May 25 and 26, by kind permission of the Treasurer and Masters of the Bench, the Royal Horticultural Society will hold its fifth great annual flower show in the gardens of the Inner Temple. Last year over 10,000 people visited the exhibition, and it may be fairly assumed that the show this year will be in every respect at least as

successful and interesting as those which have preceded it if the weather be favourable. To enable gardeners—that is, *bona fide* employés in a private garden, nursery, market garden, or seed establishment—who are not already Fellows or Associates of the society to visit the show, the council have decided to allow them to purchase 2s. 6d. tickets for 1s. each, admitting at 10 a.m. on Thursday, provided applications for same, accompanied with stamped and directed envelope in addition to the price, be made to the secretary, 117, Victoria Street, S.W., prior to the opening of the show on May 25. Music will be performed each day by the band of Her Majesty's Royal Horse Guards (Blues) under the conductorship of Mr. Chas. Godfrey. A catalogue of the show will also be presented to every person visiting the exhibition. It will contain a short account of the society since its establishment in 1804, the names and addresses of all exhibitors, with plants, &c., shown, a programme of the music to be performed by the band, and various other particulars chiefly relating to the society's work in regard to horticulture.

OBITUARY.

Dr. Regel.—We regret to announce the death, at the age of 77, on April 27, of Dr. Regel, the Director of the Botanic Gardens, St. Petersburg. Dr. Regel's services to horticulture have been numerous and weighty. He devoted great attention to the botany of garden plants, and to the description of the numerous specimens collected by Russian travellers. He was the founder, and for many years the editor of *Gartenflora*. He has had much to do with the introduction of hardy plants to our gardens from Central Asia and other regions of the Russian dominions. The 16th volume of *THE GARDEN* was dedicated to him, and there a full description of his life with portrait was given.

Mr. John Allen.—Gardeners in Cornwall will regret to hear of the death of Mr. John Allen, which took place at Tregothnan on the 5th inst., at the advanced age of eighty-five. Mr. Allen was head gardener under four successive Lords Falmouth nearly fifty years; in fact, he had been in the employ over seventy years. As head of the Tregothnan Gardens for such a long period, Mr. Allen had the carrying out of the vast alterations and improvements that have made Tregothnan one of the most princely domains in the west of England. Tregothnan is perhaps unique for its extensive plantations of choice Rhododendrons and Camellias, especially the Sikkim varieties of the former, many of which have now attained enormous proportions and which were all planted under his superintendence. A few years ago he resigned in favour of his youngest son. He was then provided by the late Lord Falmouth with a pony and low comfortable carriage for driving around the estate to superintend its extensive woods, drives, and fences, which duties he carried out to within a few months of his decease.

PUBLIC GARDENS.

Brookwell Park.—As the chairman of the London County Council, the Earl of Rosebery will officiate on Whit Monday at the ceremony of formally opening Brookwell Park as a public recreation ground and open space.

Eltham Park.—At a recent meeting of the London County Council it was resolved, on the motion of Mr. Hood Barrs: "That, as this Council is informed that the Eltham Golf Club has put up notice-boards of the usual description in Eltham Park, forbidding the public to use paths which have been open for years, the clerk be instructed to communicate with the Commissioners of Woods and Forests, and inquire by what authority the notice-boards are erected, and to further ask that the negotiations with the Eltham Golf Club should not be

proceeded with until after the Council has had an opportunity to consider whether an offer for the purchase of the park shall be made."

An open space for Islington.—Lord Calthorpe has come to an arrangement with the Islington Vestry to present to the public as a park the open space, 300 feet long and 60 feet wide, between Colebrooke Row and Duncan Terrace, under which the New River flows. The ground has been an open area from time immemorial. Recently a proposal was made to let it for building, but a park will be much more acceptable to the locality.

Open spaces.—At the monthly meeting of the Metropolitan Public Gardens Association, at 83, Lancaster Gate, Sir W. Vincent (vice-chairman) presiding in the absence of the Earl of Meath, it was announced that the old burial-ground, Hackney Road, and De Beauvoir Square, Kingsland Road, would be open to the public in the course of the month; that the laying-out by the association of Spitalfields Churchyard and St. Ann's Churchyard, Soho, had been commenced, and that a satisfactory arrangement had been concluded with Lord Calthorpe regarding the open space in front of Duncan Terrace, Islington, which he had advertised for sale as a building site. It was decided to communicate with the Duke of Bedford with regard to the preservation of the trees on the vacant land south of Bedford Square; to negotiate with St. Thomas's Hospital for the acquisition of St. Thomas's Square, Hackney, which the local authorities were willing to maintain; to offer Bay trees in tubs in front of the National Gallery during the summer months, and for the same period to take charge of the churchyards of St. Katherine Coleman and St. Dunstan's in the East. A grant of £50 was made for seats for Goldsmith Square, and it was stated that the seats offered for Fulham Cemetery had been accepted.

Giant Sweet Chestnut's.—M. D. Guibeneuf, of Nantes, sends us two photographs of Sweet Chestnuts at St. Laurs. One tree, he says, is 55 feet in circumference, and the other 37 feet. We regret the photographs are not sufficiently clear to obtain good engravings.

Grubs in garden (R. B. Gill).—The grub which you have sent is, I believe, that of the common cockchafer, but it is not a full-grown specimen by any means. It may possibly be the grub of one of the smaller species which are nearly allied to the common cockchafer (*Rhizotrogus solstitialis* or *Phyllofurtha horticola*). Whichever it may be, its habits are the same—feeding on the roots of plants and doing much mischief. There is no remedy as far as I know but turning them up out of the ground; no insecticides are of any use.—G. S. S.

New or rare flowers for drawing.—Readers will kindly remember that we shall be greatly obliged for any specimens of new or rare plants, or information concerning them.

Names of plants.—J. Douglas.—1, *Sophranitis cernua*—certainly not *S. rosea*; 2, *Epidendrum ciliare*; 3, *E. tigrinum*.—C. Roach.—Send better specimens when fertile.—C. A.—*Lycaste plana*.—G. Bettridge.—1, *Oncidium maculatum*; 2, *Cattleya Trianae delicata*; 3, *Oncidium Marshallianum*; 4, *Brassia maculata*.—T. Thorn.—*Adiantum Farleyense*—suffering from cold and a dry atmosphere.—G. Aplin.—1, *Adiantum glaucophyllum*; 2, *Myriopteris elegans*; 3, *Davallia pyxidata*.—T. Beard.—Send another specimen and less shrivelled.—T. Goulter.—*Dendrobium primulinum*.—T. H. Syker.—*Dendrobium barbatulum*.—G. Abbott.—*Colys's spectra*.—M. Barendale.—Cannot name Tree Ferns from such scraps.—J. McInnes.—*Dietyopteris Camerooniana*.—Donald.—1, *Lycaste aromatica*; 2, *Dendrochilum glumaceum*; 3, *Cattleya Trianae alba*.—Helen Cockerane.—1, *Polystichum triangulare*; 2, *Nipholobus pertusus*; 3, *Selignea caudiformis*; 4, *Doryopteris sagittifolia*; 5, *Hypolepis tenuifolia*; 6, *Adiantum setulosum*.—H. Green-grass.—1, *Masdevallia Harryana* (good variety); 2, *Odontoglossum Rossi majus*.—T. Bewley.—A very good *Odontoglossum Harryanum*.—Wexford.—1, *Choisya ternata*; 2, *Grevillea rosmarinifolia*.—Stroud Nisbet.—*Justicia carnea*.—H. G. R.—The Mexican Orange Flower (*Choisya ternata*).—B. C.—*Calanthe* bulb.—Kirk.—*Coenilla Emerus*.

WOODS AND FORESTS.

NOTES ON POPLARS.

I HAVE lately noticed a number of Poplars, which, instead of being strictly confined to a single shoot, were allowed to develop three or four from the same root. Each of these shoots has now attained the size of a large pole or small tree, and what should have been a single bole is now quite a group. For such trees as the Ash, the Alder, and others, where wood of small dimensions would be marketable, such a method of growing may be quite admissible, and if growing the Poplar merely for ornament was aimed at, there would be no objection. Growing it for timber, which was the intention in the case I have mentioned, and must be the object in the majority of instances, will not allow of such a system as raising three or four small trees from a single root. With a tree of the nature of the Poplar, the chief point towards making it marketable is producing it of a good timber size. Small wood in the shape of poles—I am now speaking of such dimensions as 8 inches or 9 inches diameter—is a thing which is not wanted in Poplars. To grow three or four such poles from a single root, instead of confining the growth to a single stem, is, therefore, obviously bad management. I have no data to guide me with respect to these particular trees as to when and in what way they were planted; but apparently they have had no care since. From the habit of their growth, as the poles are pretty uniform in height and size, it is just possible that this young wood may have sprung from stools. The ground on which they stand is at the bottom of a railway embankment, so, if they have grown from the root of a tree which had previously been felled, the whole of the two crops could not have extended over more than forty or fifty years, as the soil has not been in its present position longer than that.

It is not, however, so much to this part of the subject that I wish to draw attention as to the fact that it is an error to allow trees which are of little value in a small size to grow on with four or five leaders from a single root. The removal of all but the most promising saplings can hardly be effected too soon. As the cultivation of the Poplar for ornament has been mentioned, another word respecting it may not be out of place. On the whole, unless where there is room for the full development of large and loose-growing trees—I am not now including the Lombardy variety—there are many more suitable selections than the Poplar. When, however, it does occur, and the space at command or the surroundings would make it undesirable for the tree to develop its full height and size, this mode of treatment, which is a defect so far as timber-production is concerned, may occasionally be adopted with some measure of success, as when in leaf the foliage of the group of saplings does not produce a bad effect. J. N. B.

Sowing better than planting.—When the climate will allow it is always better to sow than to plant. Sowing the ground intended for a plantation of hard wood with Acorns, Beech masts, or Ash keys, according to the tree determined on, is the best and most profitable way of raising timber trees. The plantations raised in this way will grow more quickly, produce straighter and more uniform shoots, and will be found in eight or ten years to outstrip those of the same age raised

in and transplanted from the nursery. Oaks grown from Acorns sown in the field, in which they are allowed to come to maturity, grow taller, and are altogether better in their growth than those which have been raised in a nursery and transplanted to their permanent quarters. The reason of this seems to be that there is no check put to the growth of the tap roots of the seedlings; they are, therefore, not only enabled to take a firm hold of the ground at an early period of their growth, but they also go deeper into the earth in search of food. Those which have been transplanted grow stunted and dwarf, throwing out lateral shoots for many years after they are planted.

Mixed plantations.—Whatever may be the ultimate verdict of practical foresters regarding the mixed planting of forests, every lover of forest scenery will greatly regret if it is necessary for the most profit to form plantations of a single variety of trees. A hilly range four miles or five miles in length, and covered to near its summit with Scotch Firs and Larch in about equal proportions, lay daily before the writer's view all the past summer and autumn. From the time that the Larch first put forth its leaves all through the summer, the contrast, or rather harmony, of the green of the Larch and darker green of the Firs was beautiful, and after the Larch began to assume its golden tint, it was a scene "once seen to be remembered." Let the time be far distant in British forestry when the beautiful and ornamental are divorced from the practical and profitable; let both be combined in the future, as in the past, and there need be no fear of the result.

USES OF THE ASH.

THE value of Ash timber is greatly increased by the rapidity of its growth; and, as in the case of the Sweet Chestnut, the wood of young trees is more esteemed than that of old ones. The texture of the wood is alternately compact and porous, and where the growth has been vigorous the compact part of the annual layers bears a greater proportion to the porous, and the timber is comparatively tough, elastic, and durable. In durability, however, and also in rigidity, it is inferior to the Oak; but it is superior to that wood, and to every other, in toughness and elasticity, and hence its universal employment in all those parts of machinery which have to sustain sudden shocks, such as the circumference, teeth and spokes of wheels, beams of ploughs, &c. The timber of the Ash is very elastic, so much so, that a joist of this timber will bear more before it breaks than one of that of any other tree indigenous to Europe. It weighs per cubic foot 61 lbs. 9 ozs. when green and 49 lbs. 8 ozs. when dry. Since the use of iron became so general in the manufacture of instruments and machines, the value of the Ash is somewhat diminished, at least in Britain; it still, however, ranks next in value to that of the Oak, and is held even to surpass it for some purposes. It is much in use by the coachmaker, the wheelwright, and the manufacturer of agricultural implements. It is highly valued for kitchen tables, as it may be scoured better than any other wood, and is not so liable to run splinters into the scourer's fingers. For the same reason, it was formerly much used in staircases; and in old houses (for example, at Wroxton Abbey, near Banbury, the seat of the Earl of Guildford) the staircase is entirely formed of this wood. Milkpails in many parts of England are made of thin boards, sawed lengthwise out of the tree, each rolled into a hollow cylinder, with a bottom affixed to it. The roots and the knotty parts of the trunk are in demand by cabinet-makers for the curious dark figures formed by their veins, which have a singular appearance when polished. Evelyn says that "some Ash is so beautifully cambleted and veined, that skilful cabinet-makers prize it equally with Ebony, and call it green Ebony." It makes excellent fuel, burning, even when newly cut, with very little smoke; and it is said to be the best of all woods

for smoke-drying herrings. It makes excellent oars, and also blocks and pulleys.

Few other trees become useful so soon, it being fit for walking-sticks at four or five years' growth, and for handles for spades and other implements at nine or ten years' growth. An Ash pole, Nicol observes, 3 inches in diameter, is as valuable and durable for any purpose to which it can be applied as the timber of the largest tree. It is particularly valuable for Hop poles, hoops, crates, handles to baskets, rods for training plants, forming bowers, for light hurdles and for wattling fences, and also for walking-sticks. In Staffordshire, in the neighbourhood of the potteries, the Ash is cultivated to a great extent and cut every five or six years for crate-wood, which is in great demand for forming crates to pack up the articles manufactured in the potteries. In Kent and in various places in the neighbourhood of London, the most profitable application of the young Ash is for walking-sticks, plant rods, hoops and Hop poles. For the latter purpose, coppice woods are cut over every twelve or fourteen years, according to the nature of the soil, and, for the former purposes, every five or seven years. The ashes of the branches and shoots of this tree afford a very good potash; the bark is used for tanning nets and calf-skins; the leaves, in some places, for feeding cattle in autumn, and in others in spring, and for adulterating tea. The leaves and shoots, eaten by cows, are said to give the milk and butter a rank taste, but this does not appear to have been considered a great evil by the Romans, as they recommended the leaves of the Ash, next to the leaves of the Elm, for fodder. In moist pastures, interspersed with or surrounded by numerous trees in hedgerows, the leaves, after dropping in the autumn, communicate a bitter taste to the water both in the ditches and ponds, and possibly also to the milk of cows; but this does not hold good more with respect to the Ash than to other trees; indeed, the most objectionable is the Oak, the leaves of which, in autumn, give a decidedly bitter taste both to water and milk.

Ash in plantations has been objected to on account of the injury which it does to everything that grows in its shade; but, though we admit that this and its love of shelter, constitute a decided reason why it should not be planted in hedgerows, or where it is expected to make profit from plants growing under its shade, yet it affords no argument against planting it in masses, where the object is the production of timber or coppice wood. As the tree, when standing singly, forms a most ornamental object on a lawn, and, though it may impede the growth of the Grass, yet does not destroy it, there is no reason why the Ash should not be admitted into pleasure-grounds, as well as the Cedar or any other dense Evergreen, under which Grass will not thrive. It has been observed that female and hermaphrodite trees, from the quantity of seeds which they produce, never exhibit such a handsome clothing of foliage as the male trees; and hence, in some situations, where an ornamental Ash tree is wanted, it may be desirable to make sure of a male by grafting.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols., price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

Hardy Flowers.—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

No. 1070. SATURDAY, May 21, 1892. Vol. XLI.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

ROSE GARDEN.

BRIER CUTTINGS AND SEEDLING BRIERS.

LIVELY discussions have long been waged as to the merits or demerits of these two for certain classes of Roses. Some adhere closely to the one, others to the other, and yet others more catholic in theory and practice show their friends how happy their Roses can be either on seedling or cutting Briers. Like the Wars of the Roses that raged over the colour of a petal, this one is waged over the form and size and character of the roots of cuttings and seedlings respectively. The most mysterious thing in the battle of the stocks is, that while Brier cuttings are held to be the best for Teas by some famous growers, others consider them best for Perpetuals, and yet others will use nothing else for any of their Roses. Others, again, turn the argument topsy-turvy through ignoring all cuttings for all sorts of Roses, and use only seedling Briers for stocks; while yet more growers declare their preference for seedling Briers for Perpetuals only. Of necessity, almost the majority of tall standards, whether Perpetuals or Teas, are worked on seedling or sucker Briers, the latter probably, so far as the roots are concerned, being the worst of all. And then, too, there are Briers and Briers, as all rosarians know, and the botanists and collectors assure us, varying very much indeed in strength and other qualities, those with brown bark being preferred by practical men, while green-barked Briers will hardly be accepted as a gift. The brown-barked Dog Rose fills a larger space to-day as the main or chief root force for Roses than it ever did before. The one question then for rosarians is, Which is the best form of Brier to use, that raised from seeds or from cuttings? Some preliminary questions need to be put and answered first, and this is one of them. How far are the Rose stocks in dispute the true types of their modes of propagation or of culture? In other words, are all seedling Briers so much alike as to be accepted as true to type, and as sure or likely to modify the growth and blooming of the Roses worked upon them independently of the raiser's methods of raising, growing, and working the seedlings, and of his soil and his culture of the Roses grown on or through the same? The same question might be asked in reference to Brier cuttings. This question can hardly have a sweeping answer in the affirmative, or how could such a distinguished grower as Mr. Prince, of Oxford, and others grow all their Roses on the seedling Brier? These are by no means all alike in different seasons, soils, nurseries, nor even in the same soil, season, and under the same management. And this suggests the very practical inquiry whether seedling Briers may not be brought up or down, according to the grower's estimate of the merits of the two, to the level of Brier cuttings through culture, skill, soil, &c.

Returning to the question of which is best for most of our Roses, and assuming for the purpose of argument and also on the law of probabilities that Brier cuttings may make the best Rose stocks, the pertinent question "Why best?" will spring to the lips of every rosarian. The answer would be, Because they

form different, better, more roots. Another strong argument in favour of Brier cuttings over seedling Briers was used the other day by two distinguished rosarians in succession. It was to the effect that the Brier cuttings carefully disbudded produced few or no suckers, while seedling Briers produced plentiful crops of these right up to the very end of their lives. I would most earnestly and respectfully invite further information from other Rose growers and exhibitors on this very important point. As to my other point that the roots of Brier cuttings are different, better, and more numerous than those on seedling Briers, the first batches of Brier cuttings contrasted with the seedling Briers will prove these points beyond all cavil. The tap roots of the seedling are changed into masses of fibrous roots on the Brier cutting, and it is almost certain that the superior qualities of cuttings to seedlings have their origin in the changed character and greater abundance of their rooting force. More evidence, however, is greatly needed on these points. Different rosarians of almost equal eminence have solved the difficulty for themselves by declaring that they will only grow this or that class of Roses on seedlings or on cuttings. But this is no solution for others. For myself, for example, I am extremely sceptical and very much in the dark as to Brier cuttings being always and everywhere better for Teas and worse for Perpetuals than seedling Briers, or as to the reason of such a fact, supposing it to exist. All such testimonies of success in Rose culture on certain stocks and under certain conditions are valuable as records of local or personal success; but we want wider knowledge before we can afford to dogmatise as to what stocks certain definite classes of Roses will or will not bloom best upon. And yet there are few points on which rosarians are so positive and dogmatic. A grower assured the writer the other day that he could not keep his Teas alive unless on Brier cuttings. He was equally emphatic that Brier seedlings were the only stocks on which he could grow Perpetuals to perfection. And he shrugged his shoulders incredulously when assured that Tea Roses had done remarkably well worked on either, and also on Banksians and Manettis as well as on their own roots.

CALEDONIAN.

Trellis-trained Roses.—"D. T. F." in his note about the trellis Roses at Claremont, seems to have inferred that the varieties named were of my own selection instead of being what I found there. Very likely were Mr. Burrell about to plant a similar Rose house, he would employ now some other varieties. I, however, seriously contest the statement not only that Homère is not often grown under glass, but that the colour is against house culture. I had at Bedford, and left there, worked on Brier stocks and trained up under the high span-roof, two strong plants of Homère, and I always found the blooms to open slowly, and presenting in the half-expanded state perfect gems both in form and in colour. For a button-hole Rose, I thought Homère could not have been excelled. The colour was of a soft pink-flesh, very beautiful and sweet. I have thought few varieties better merited the title of Perpetual than did Homère. It would flower early in a cold house, bear every bud being cut on long stems, then break and be cut again often four times during the season, the latest, however, usually being a little too late; but I am sure, were a little warmth furnished, that the Rose would have gone on and bloomed perpetually. In my own judgment, Roses under glass are best when worked on strong-growing stocks and planted in outside borders. These borders should, however, be composed very largely of stiff soil, for when the heads are under glass and wood ripens so freely, the roots need

good holding soil to enable them to discharge their functions. It is often lamentable to note the wretchedly poor, stunted growths seen on house-trained Roses, but those at Claremont were marked exceptions.—A. D.

CLIMBING ROSES AFTER FLOWERING.

AFTER the main crop of blooms has been secured from this most useful section, and which has already been realised in the majority of cases under glass, it is very important that the plants receive proper and careful attention during the remainder of the spring and early summer months. Unless this amount of care be expended upon them, they cannot possibly flower so freely next season. Our finest climbers are often condemned, when the fault really lies in neglecting them as soon as their present crop of flowers has been secured. When any plant has finished blooming is one of the most critical periods of its existence, and yet, strange to say, in many cases it is at this very time it receives the least attention. It is just the same with Azaleas, Camellias, &c.; in short, there are far more plants receive irreparable injury from bad treatment at this time than from any other cause. No sooner have their present charm gone than they are ruthlessly thrust on one side and neglected. In the case of climbing Roses after their flowering period is over, it is more than ever necessary to afford them careful attention, as upon the treatment they receive now will depend, to a great extent, the amount of pleasure and usefulness derived from them next spring; not to say anything of the pleasing feature of healthy growing plants all through the present spring and summer.

It is when these Roses are going out of flower that they make their first strong sucker-like growths, and these are the rods that will bear the finest and greatest quantity of blooms during the following season. If the plant is neglected at the very time it is producing these shoots, there is necessarily a great deal of harm done, the chief results of which are not seen until the next flowering time comes round. In many cases where such strong growing Roses are planted out, and in all instances where they are grown in pots or tubs, it is very necessary that their water supply should not fail them at the very time when the plant most requires it, and during the more drying atmosphere of summer; they will also benefit a great deal from somewhat liberal applications of liquid manure. This should be liberal in quantity, not in strength. It is here that so many make a mistake; they apply far too strong a solution of animal or artificial stimulants. It is not more than the Rose can assimilate, but it is given in such strong doses, that the young and actively growing roots are seriously injured, and so fail to reap any benefit. Had the same amount of stimulating material been given in two or three applications, the plant would have received considerable assistance; whereas, it was probably checked in growth and soon put on an injured appearance, its leaves turning yellow and falling off.

Few things are more annoying than to discover one has been over-generous to his plants. Provided the plant is growing in suitable soil, very little after-assistance is necessary excepting in the way of keeping the roots supplied with sufficient water. It is also of great importance to maintain a clean growth. Such enemies as green-fly, scale, mildew, and red spider must be battled against as assiduously as ever. If you have kept these pests well in hand up to the present, it is surely the height

of folly to allow them to increase now simply because the present usefulness of your plant is over. Early and healthy growth can be easily ripened previous to the return of winter, and when this end is gained the flowers for the coming season are practically secured. It is useless to expect a satisfactory crop from partially ripened and badly grown wood. I find that a good syringing early in the morning and again at night is very beneficial to strong-growing Roses. It affords rest to and allows the foliage to recuperate itself after a hot day. Roses, like many other plants, derive a great deal more nourishment from atmospheric feeding than is generally supposed, and a moist atmosphere will allow of the temperature rising much higher than would be at all acceptable if the air was dry. Dry air is also very conducive to the spread of many insect pests, as well as mildew. When the growth is completed, or, failing this, when the end of the summer is drawing nigh, ripening of the wood must be secured. This is best done by keeping the plants somewhat dry at the roots and affording them all the light and air possible. I do not mean that the plants should be allowed to show signs of drought, such as drooping, &c., but that they should be kept moderately dry and receive liberal syringings; these last will prevent undue shrivelling of the wood. Such measures will not be necessary in the majority of instances if the plants have been kept growing healthily from the first, as in that case they will have arrived at maturity earlier and in a more natural manner.

RIDGEWOOD.

NEW ROSES.

MOST of the English raised Roses pass into general cultivation, and this will no doubt happen in the case of the four following varieties, blooms of which have been sent me by Messrs. W. Paul and Son, of Waltham Cross:—

SALAMANDER, although one of last year's kinds, is to most people still new. Before long it will figure prominently on the exhibition stand, and, it is to be hoped, in the garden as well, for it has that robust habit, freedom of growth, and richness of leafage that, combined with free-blooming qualities, go to make a Rose valuable beyond the mere production of a few fine flowers. The flowers are of a vivid crimson colour, whilst the thick broad petals make up a handsome massive bloom. We shall not much longer regret that A. K. Williams is not a good variety for grouping, as Salamander promises to be good in the one respect wherein this otherwise grand Rose fails.

PINK ROVER likewise is not exactly new, but its merits have yet to be more widely known. It belongs to the Hybrid Tea section. It is a Rose of great vigour, with large leaves, lovely buds, and still more beautiful blooms. The scent is very powerful and the colour most delicate, pale flesh externally, deepening into pink. In its particular shade Mr. Paul compares it, and not inaptly, with the old Maiden's Blush, and it is a decided gain to have such a tint in a flower of fine form and remarkable sweetness. A perpetual bloomer with a vigorous, almost climbing habit of growth, it should be found very useful in the garden.

SPENSER is now offered for the first time. It is an addition to the type of which Baroness Rothschild and Merveille de Lyon are such good examples. Like these kinds, it has the same compact sturdy habit. Like the Baroness, it lacks scent, but it is a flower of exquisite colouring—a soft pink, clear and pure, shading almost to white on the edges of the outer petals. The form is perfect, quite up to the exhibitor's ideal, and in the garden it will be a grand Rose for grouping beside those above named, to which in all respects but that of colour it can be so admirably compared. The magnificent bud and full expanded

flower sent further testify to its adaptability for forcing.

CORINNA is a new Tea Rose which created a very favourable impression when exhibited by Mr. Paul last year, and it will doubtless be seen again during the coming season, but it will not be put into commerce before next year. The flowers sent are paler than those I saw last year cut from plants in the open ground, but very pretty nevertheless, the buds being large, long and full. The colour is almost indescribable, for yellow shades into copper and flesh-pink into rich rose, with a faint suffusion of white—a harmony of colour as charming as it is uncommon except in Tea Roses.

A. H.

Rose Marechal Niel.—On p. 439 "Y. A. H." favours us with a few notes upon the above Rose, and I fully agree with the remarks he makes upon night soil as a first-rate stimulant for Roses generally. For many years I have made a practice of giving my plants a few doses of this in a liquid state, and have always found such assistance wonderfully beneficial. Much better, stouter, and more highly-coloured foliage is secured by using night soil than from any other stimulating mixtures I have ever tried. For such strong growers as *Marechal Niel* and *Wm. Allen Richardson* this is really an excellent fertiliser, its only objectionable quality being the unpleasant odour. At the same time, where one is growing the Rose for profit and using this manure, the odour may be kept down considerably by frequently syringing with clear water; this will cleanse and purify the atmosphere to a great extent. Respecting the liability of *W. Allen Richardson* to canker, I may say that I have had quite as high a percentage of this variety suffer from that disease as of the *Marechal Niel*; indeed, I think that if there be any difference it is in favour of the *Marechal*. I have also known of more than one instance where the disease of canker has been retarded in its development by the system of removing the older wood, as recommended by "Y. A. H." The *De la Grefferaie* is a splendid stock for these two grand Roses, and will swell to meet their requirements more freely than the Brier. My finest plants, and those most free from canker and wartiness, are upon the *De la Grefferaie* stock. I also have such rampant growers as *Mme. Bérard*, *Reine Marie Henriette*, and others upon this stock, all of which thrive quite as well as those worked upon the Brier. For very strong climbers and in somewhat light soil, I prefer this stock to the Brier.—R.

Rose The Bride.—There is a slight error in the remarks of "D. T. F." (page 440) upon this Rose. While agreeing with me that over-propagation of our finest new varieties is injurious to their constitution, he mentions as a proof of such theories "that neither *The Bride* nor the *Puritan* is yet in the catalogues of the most popular growers for sale." There is evidently a slight oversight here, as I venture to say that every trade grower of any note has *The Bride* catalogued in his list. I am induced to reply to the remark because *The Bride* is one of my favourite Roses, and as such I would be sorry for any of the readers of *THE GARDEN* to have an impression it is at all difficult to obtain. It may be purchased at the same price as other standard favourites, and is undoubtedly one of the finest white Roses in existence. My experience points to *The Bride* as being of equal, if not superior, vigour to *Catherine Mermet*.—RIDGEWOOD.

Own-root Roses.—"Ridgewood" makes some very interesting remarks in *THE GARDEN* for May 7 (p. 426), but I cannot allow some of his statements to go unchallenged, particularly when he says "There are but few Roses that recommend themselves to me for own-root cultivation." All the strong-growing Hybrid Perpetuals will thrive as well on their own roots as on any other stock after they get well established. This, I admit, takes a year or two longer than when the plants are worked on the *Manetti* stock. One, however, ought to be able to wait when he can look forward to the plants lasting a lifetime. There is, I am glad to say,

every indication of plants that I raised and planted twenty-five years ago doing so. At the time of which I am writing I had no experience to guide me. I took cuttings wherever I could get them—from the weak as well as the strong growers. I was not long, however, in finding out that all of them were not suitable, and that the greatest number of failures was amongst those bearing dark flowers. The best of the varieties then available were *General Jacqueminot*, *Charles Lefebvre*, *Maréchal Vaillant*, *Duke of Wellington* and *Mme. Charles Wood*. Amongst the light-flowered varieties I may mention *Baronne Prevost*, *Anna Alexieff* and *centifolia rosea*. I proved years ago that vigorous-growing Hybrid Perpetuals will thrive in positions where those on the *Manetti* failed. My limited experience of the close-pruning system on own-root plants certainly leads me to think that it is not suitable for them. This, I think, is the reason why "*Ridgewood*" sets so little value on them.—J. C. CLARKE.

ROSE NOTES.

OWN-ROOT ROSES.—The only way to conclusively prove whether or not own-root Roses have merits beyond those upon foster roots is to make a trial of both side by side. It would have to extend over several seasons and must embrace the different sections of Roses. The experience or observations of one or two seasons will not suffice, because at the start the plant upon foster roots has a decided advantage in its favour. An idea expressed to me by someone interested in own-root kinds is that, although apparently weak at the start, they might grow stronger each year. If they will attain to that degree of vigour denoted by the same kind upon the roots of the Brier, then it is a decided gain to have them on their own roots. We are free from all risks of disaster, through death of the stock, and are not troubled with suckers. It must, however, in truth be admitted that these risks are now reduced to the lowest minimum if we confine ourselves to one stock, and that the Brier. In regard to some Roses we gain nothing by working them on other roots. Most of the vigorous climbers, including the old Cluster Roses and the modern Dijon Teas, are as fast growing, vigorous and free blooming upon their own roots as when worked. More difference is apparent, however, among the dwarfed growers, and what few trials I have made point to the conclusion that own-root plants of those kinds that will thrive, do not become so vigorous. "*Ridgewood*," in *THE GARDEN* of May 7 (p. 426), mentions *Marie van Houtte* as one of the free-growing kinds on its own roots. For the past three years I have been observing a group of own-root plants of this kind growing beside a group of worked plants to see if any difference resulted under conditions exactly alike. It is true the own-root plants have grown freely and made nice little bushes, but they have not, and apparently will not ever become so strong as the worked plants. They do not send up those strong shoots from the base of the plant as thick as one's finger, and the growth is altogether weaker. I think a sufficient time must have elapsed for them to have given some indication if they were going to be equal in vigour to the plants on Brier roots. A few other kinds were tried in a similar way, but not so extensively, one or two plants struck from cuttings having been planted beside the original group, and in no case was anything proved more than is here stated in regard to *Marie van Houtte*. "*Ridgewood*" seems rather at variance in his opinions when he says that in most cases, that is in gardens with light soil where own-root Roses

would thrive, better results may be obtained by planting those worked on the Manetti or the cutting Brier stock. The trade growers that I know who favour the cutting Brier do so because they have a heavy soil to deal with, and claim that this form of stock is more surface-rooting; hence advantage arises from this fact.

ROSES ON THE WALLS.—These, profiting by the amount of shelter afforded when closely trained to a good wall, are now getting very forward, and we will not have long to wait before they are in flower. Now, more than at any time, the careful cultivator is able to assist production and materially improve the quality of the flowers produced by plants on walls. In many cases they are overlooked, or do not get a fair share of attention other than the annual pruning and training. It is not always possible from the positions they occupy to mulch them with manure or even to water them frequently with liquid of this kind. But, like the plants in more open quarters, they need additional food at times, and there is no better nor less objectionable way of applying it than by and through the medium of some of the concentrated manures. Some are made and sold especially for Roses, whilst others, such as bone-meal and guano, can be used with marked benefit to the health of the plants. If the surface of the soil is at all hard, it should be loosened by lightly breaking it up with a fork. The manure may then be applied and washed down to the roots with a liberal soaking of water. This watering also will serve a double purpose in helping to ward off attacks of mildew. Dryness at the root is one of the most frequent causes of mildew upon outdoor plants, and the roots of Roses planted close against a wall are often much drier than we think them to be. The soil in which they are is, perhaps, only really moistened by prolonged rain in winter, and must become very dry in summer unless we prevent it. At present the growth of the wall Roses is very clean and strong, but from henceforth a sharp look-out must be kept for insect foes, which come all too readily.

GENERAL PROSPECTS.—If any number of reports upon this point could be collected, they would doubtless be of a very variable character, for frosts of great severity have been disastrously prevalent. They have accentuated the wisdom of deferring pruning as long as possible. Although a few warm days in March or April cause buds to burst upon wood that will be cut away, and we are inclined to regard this premature start more as the wasting of vital energy, yet safety lies in waiting. If we endeavour to check this apparent impatience, we run great risks, as we cannot stay the flowing sap, and to prune early is to concentrate its stimulating force upon the remaining buds, and consequently they start. Apart, therefore, from climatic influence and effects (adverse or otherwise), the cultivator has much under his control that will make or mar present prospects. In more than one case that has come to my knowledge, the risks were run and the full penalties have been paid. No second start, however encouraged, will give shoots as strong or flowers as fine. I pruned no Tea Roses till about the middle of April, and in my case risk is small, because their situation is above the line of most spring frosts. They are now breaking strongly, and if a little later, doubtless the first flowers will appear nearly as early as in previous years. A. H.

Indoor Roses trellis-trained.—In answer to the query on page 425, Homère does well under glass, and is our earliest Rose. We cut some hundreds of blooms annually and a malformed bud is

unknown. Outside on a south-east aspect in our natural soil (sandy loam) it is grand; on a south-west aspect in a stiff compost I had to cut it out not one bloom in twenty came good. It is much paler under glass—a white slightly suffused with pink, a deeper pink at the edge of the petals. Why is the colour of Cheshunt Hybrid against it as a trellis-trained indoor Rose (p. 426)? We get some very fine blooms. Catherine Bell is fine in the bud and one of the sweetest of Roses. Other varieties are Bouquet d'Or, Reine Marie Henriette and Rêve d'Or, the last covering a space 30 feet by 20 feet.—E. BURRELL, Claremont.

Rose Reine Marie Henriette.—This fine Hybrid Tea was a great favourite of mine at Bedford on a south wall, where I had a score at least of very strong plants. The blooms came early and were of a deep red hue until the sun gained power; then they faded somewhat and lost much of their beauty. It was quite remarkable to note how colour came into the later buds if two or three dull cloudy days prevailed. I think, on the whole, that the best place for this Rose would be a west wall, or where somewhat shaded. I had it originally worked on the Brier stock in a large span house where it had ample head-room, but it grew too strong and flowered sparsely. It strikes freely from cuttings—no Rose, perhaps, more readily, and therefore so soon as a stock of young plants was secured, I cut back the heads in the house and worked upon them Maréchal Niel, which produced fully four flowers to one of Reine Marie Henriette. This latter variety, like John Hopper, General Jacqueminot and some other strong growers, would make a capital variety for pegging down, as it throws up suckers freely and very stoutly from own-root plants.—A. D.

NOTES OF THE WEEK.

Rubus arcticus, a dwarf creeping species with pretty rosy purple flowers, is an excellent rock plant in damp shady spots. A small piece will soon form a large mass if the soil is free. It is then very striking and flowers freely and regularly. The fruit when produced in quantity is also ornamental.—D.

Gentiana verna.—In the College Gardens at Dublin there are just now several fresh and healthy tufts of the vernal Gentian growing on a flat rock edging, apparently as happy as if on the native turf in Clare or Galway. One dense clump, about the size of a tea saucer and now bearing 110 flowers, is a mass of the purest and deepest blue. Moisture at the root seems the essential point in its culture on limestone soil.

Leichtlin's Aubrietia (A. Leichtlini) and the variety rosea are both charming additions to this variable class of plants. The type is brighter in colour, but we prefer the soft tone of the variety and it goes better with other plants near it on the rockery. These were both raised a few years ago by Herr Max Leichtlin from, we believe, A. violacea. The advance towards red is most marked and that colour should very soon follow. It is needless to say they are both indispensable rock plants.

Iris paradib, a cross between paradoxa and iberica, raised by Dr. Foster, is one of the most charming Iris hybrids we have yet seen. It seems to partake more of the paradoxa character in the standards, intermediate between the two in the falls, which have a bluish grey ground, with purple lines and a deep velvety purple spot or blotch near the apex; the standards are purple with darker lines. It is altogether a great acquisition, and we are much indebted to Dr. Foster for his past work among Irises, well named the poor man's Orchid, and fully borne out by the present hybrid.

Hardy flowers from Forest Hill.—Messrs. Laing and Sons, Forest Hill, who have lately taken up the cultivation of hardy flowers, send us a gathering of the best now in season. Among them are Trollius europæus, a very fine form of Iberis gibraltarica hybrida, the beautiful Aubrietia Leicht-

lini, A. purpurea, Ranunculus Gouani fl.-pl., the double-flowered Cardamine, Ranunculus monspeliensis, Trillium erectum, T. grandiflorum, and several varieties of Phlox setacea, &c.

A fine Rhododendron.—I bring you a fine Rhododendron flower. Twelve years ago Mr. Mangles gave two small plants as a help to the New Wisley Garden. They grew well, but did not flower. At last we planted them among thick garden Rhododendrons; one flowered last year, but the plant from which the flower was taken bloomed this year for the first time; it has several trusses. Mr. Mangles told me that the plants had been sent to him by a skilful hybridiser in Devonshire, and I understood were crosses of Sikkim with a garden Rhododendron.—GEORGE F. WILSON.

* * A remarkably fine flower, dark pink, very large. The truss sent carried eleven blooms.—ED.

Phlox subulata, an old plant which is, or should be, on every rockery, has been very much improved of late years. Some of the varieties are as brilliant in colour as they are varied in tint. A mass of this old species as a carpet to a bed of Daphne Mezereum struck us, the other day, as being very effective. The mass of pale green foliage above intensified the brilliancy of the Phlox and made a very charming picture which might be multiplied *ad infinitum* in the flower garden and pleasure grounds. No bare space under trees or shrubs need be left with such accommodating plants at our disposal. Another good subject for this purpose is Asperula tinctoria, a creeping plant a few inches in height, forming a carpet of the brightest green, relieved in summer by pure white flowers.

Saxifraga Mertensiana when in the bud stage is more curious than beautiful, but when the flowers open, they are in such quantity as to make a pretty show. The plant has a very graceful habit. It forms rosettes of large, kidney-shaped, dark green, serrated leaves, and the stem, which is slender and arching, is profusely branched. In the axils of all the branches dense clusters of reddish bulbils are formed, which are all young plants capable of being grown into fine specimens. These often produce quite large leaves before becoming detached, and then the effect of the pretty white, pink-stamened flowers is really fine. This species is a native of North America, and though by no means rare, it is a much scarcer plant than it ought to be. It requires a peaty soil in a slightly shaded bed or border, and is quite hardy in England.

Polemonium Richardsoni.—Long has been the controversy whether or not this is the plant described by Graham, but without raising this question now, all growers will, we think, agree that it is one of our very best early hardy herbaceous plants. Its neat compact habit and numerous purple-blue flowers make it an acquisition in the rock garden as well as the flower border in spring. It is extremely free, and seems quite indifferent as to soil if fairly rich and moist during summer. P. reptans has under cultivation very short or no creeping stems, although a most useful and very free-flowering species. The flowers are darker than in P. Richardsoni, the habit freer and more robust. P. humile in poor soil is distinct, but in rich soil it comes so near P. Richardsoni, that we confess to being often baffled to distinguish the two. The dwarf form of this, however, called pulcherrimum, is a choice plant, a free grower, and abundant bloomer, and should find a place on every rockery.

Linum arboreum has this year curiously enough withstood the cold much better than L. luteum. It has passed the winter in the open border untouched, and is just now a blaze of bright yellow. This we have found a really useful rock plant; its dense tufty tree-like habit, its evergreen leaves, and abundant flowers in early spring give it a charm possessed by no other species, except, perhaps, L. capitatum, with which we just a few months ago became acquainted. L. arboreum strikes readily from cuttings in early autumn, and if these are potted on and kept in a cold frame during

winter, they make sturdy plants ready to put out in spring. *L. luteum*, or *flavum*, is a deciduous species, and this year has done very badly. It is, however, a lovely plant, and, as a rule, as easily managed as *L. perenne*. We often find *L. flavum* in gardens under the name of *L. campanulatum*, an Italian plant, which if really distinct has not been in cultivation to our knowledge. *L. narbonneuse*, a fine large blue-flowered species, and *L. monogynum*, a white-flowered form from New Zealand, are both worth an effort to secure.

Cytisus Ardoini.—For a beautiful flowering shrub for the rockery we have rarely seen an equal to this. It is a creeping or procumbent species of graceful habit, and just now every branch is a beautiful golden-yellow rod, so dense are the flowers and so pure the colour. It may be readily struck from cuttings. Seeds would be the better means of ensuring a stock, but unfortunately they do not often mature with us. It is a native of Southern Europe and is quite hardy in the south. Another species of equal hardiness and with beautiful purple-rose flowers is *C. purpureus*. This is said to be one of the parents of the lovely *C. Andreanus*, and if so, the latter is likely to prove quite hardy and flowers freely in the open air. *C. purpureus* has an upright habit, but as it is not a very strong grower, it is a very suitable and very charming shrub for even small rockeries. *Genista anglica* is also a good dwarf trailing shrub for rockeries. Just now it is a sheet of the brightest golden-yellow flowers, which continue for nearly a month. It seems to want a little more water than the others, and should be planted near the base of the rockery to trail over a boulder.

Ranunculus montanus, as we have it in the dwarf mountain form, is one of the most delightful rock plants in flower at the present time. Its very dwarf habit, dense and tufty, its carpet of pale green leaves, and sheet of golden-yellow flowers all recommend it to the lover of rock plants. It is besides one of the easiest plants to manage we have, a rich, free, gritty soil on an eastern exposure suiting it admirably. It does not seem to mind moisture during winter, so can be planted low down. This is the form one so rarely sees in gardens. If you ask for *R. montanus*, you generally get the semi-alpine or valley form which in many cases is quite as coarse and not more beautiful than the common Crowfoot. To see the true alpine form at home, carpeting the turf with its pretty tufts, giving a bright golden colour to a whole mountain-side, is one of the sights that linger with one a lifetime. A good companion to the above is *R. alpestris*, of a similar habit, but with white flowers. They do well together and bloom about the same time.

Notes from a Worcestershire garden.—Never in an experience extending over nineteen years have I known so disastrous a spring as that which is now fast passing into summer. The winter was trying, but until the first week in March all seemed safe; it was not until the middle of this month that the real extent of the damage done was manifest. Here Evergreens have been destroyed by the cartload, and rock plants which had passed scatheless through the far more severe winter of 1890-91 have perished by the score. Only the smallest and youngest plants of *Lithospermum prostratum* exist; all the larger specimens are now tinder. *Iberis jucunda* has disappeared, and indeed the rockeries generally are bereft of their choicest ornaments. The value of a sheet of glass as a protection is illustrated by the fact that *Androsace glacialis* and *A. sarmentosa* thus protected have in every instance survived, and are now coming nicely into flower. Next year I intend to adopt Mr. Ewbank's advice and cover *Soldanella alpina* with glass, in the hope of getting it to bloom as well as grow. What a blessing it is that some of our noblest plants are truly herbaceous, and die down below the ground line until danger is past. Thus *Trillium grandiflorum* is now the fairest ornament of my garden, over 2 feet high and 2 feet 6 inches across, with about 100 blossoms on it. Lilies, too, are coming up strongly; whereas Pentstemons,

Wallflowers, and Snapdragons are either dead or sorely crippled. *Anemone alpina*, raised from seed gathered in Switzerland in 1890, promised to bloom beautifully, but the blossom was sadly marred by spring frosts when just approaching perfection. *Gentiana verna* from seed gathered at the same time is growing freely, and seems to be taking kindly to its new home. This has been here on my light soil a wretched year for Daffodils, which have been very deficient in vigour of growth and substance of flower. A few more winters and springs like this, and I shall devote myself to Orchids, over whose well-being it is possible to exercise some degree of control. Apricots, Pears, and Plums in this garden are likewise a total failure.—H. M.

Aster bessarabicus.—Anyone desiring to increase his stock of this valuable early autumn flower may do so now to any extent by means of cuttings, particularly where a slight warmth, such as that afforded by a manure frame or greenhouse, may be accorded the cuttings for a fortnight or thereabouts. This variety, and with it may be included *Amellus* and *Townshendi*, have a rather distinct woody root-stock, and from this the young growths issue freely in spring. By severing these from the parent with a heel attached and inserting in sandy soil without more ado, a good stock may easily be raised. Few of this family are more useful or acceptable for massing in large beds, where it may, in association with other suitable subjects, remain permanently. The young plants would not, of course, make any special show in the first season, so that it may be best to plant them when well rooted in good rich soil in nursery beds, removing them to permanent quarters later on. The plant is only 2½ feet high, much branched, very freely flowered, and self-supporting. Its flowering season is September and October.—E. J.

The Carolina Lily (*Nymphaea odorata carolinensis*) is a new hybrid which originated in 1890 in the Lily pond of H. T. Bahnson, M.D., of Salem, North Carolina, U.S.A. It has been named in honour of the State. This is a chance seedling, and while the parentage has not been determined, indications point to *N. o. rosea* and *N. alba candidissima* as the probable progenitors. The leaves in form are midway between the two varieties, the opening being entirely closed. The veins are very prominent, as in *N. odorata*, while the rhizome resembles that of *N. alba*. The charm of the plant, however, is in the beautiful flowers. These on well-grown plants are 7 inches in diameter and very double. The stamens are bright yellow, and the petals of a most delicate shade of rosy-pink. The peculiarity of the colour is that it does not seem fixed, but shifts and changes in different lights as if a reflection, not a suffusion. In certain lights the reflection from the stamens causes the flower to take on salmon tints. Dr. Bahnson, who is an enthusiastic lover of aquatic plants, has been fortunate in securing several new seedlings, but none so charming and promising as this.—J. GERARD, *Elizabeth, N.J., U.S.A.*

Cattleya iricolor.—The Orchid shown by Baron Schröder at the Drill Hall, Westminster, on May 17 under this name was to many, no doubt, the most interesting exhibit there. This could not, however, be described as altogether due to its beauty, for although it is certainly pretty and very distinct, it falls a long way short of many kinds of *Cattleya* now flowering throughout the country. Its value and interest lie in the fact that it is unique and the only plant of its kind ever introduced. It has short pseudo-bulbs about 4 inches high, the leaf, which is 8 inches to 10 inches in length, being in proportion unusually large. There were three flowers on the scape, each of them measuring 3 inches in diameter. The sepals and petals are narrow, with the edges turned back, whilst the sides of the lip curl inwards over the column, rendering it tubular and about 1½ inches long, with a slightly spreading apex. The sepals and petals are entirely of a milky shade of white, the lip being chiefly of the same, but curiously marked near the middle with two sets of diagonal

purple stripes, between which is a conspicuous patch of orange. These colours show through on the outer surface of the lip, although not so distinctly. Nothing is known of the origin or native country of this *Cattleya*. Its only history is that it was bought by Messrs. Veitch at an Orchid sale in Stevens' rooms about twenty years ago. The name *iricolor* was given to it by Reichenbach in 1874.

Cordyline australis in bloom.—As a rule this plant is seen from a foot to 8 feet high, being grown in pots for house decoration and similar purposes. As it does not bloom, except in rare instances, until more than 8 feet high, the striking and handsome appearance of a flowering plant is an uncommon sight to many horticulturists. In the extreme south of England, however, it is a fairly common plant, thriving admirably out of doors; how effective it is in the gardens there may be judged by an engraving published in *THE GARDEN* a little over a year ago of a fine specimen at Bosahan, in Cornwall. Two large plants in the temperate house at Kew are carrying a large head of flowers on each of their several branches. They are in the form of pyramidal racemes, between 2 feet and 3 feet high by about half as much in diameter at the base, standing erect above a rounded head of sword-shaped leaves. The flowers individually are small and of a creamy white. The taller of these plants is considerably over 30 feet high, and standing clear above the surrounding foliage has a very striking and tropical aspect. The species is found in New Zealand, and has been known in British gardens for seventy years.

Cypripedium Evenor.—The prettiest as well as the most striking of three new hybrid Orchids shown at the meeting of the Royal Horticultural Society on May 17 was one to which this name has been given. Its parents are *C. bellatulum* and *C. Argus*, and it makes a valuable addition to the comparatively few hybrids which have been raised from the group of Lady's Slippers to which *C. bellatulum*, *concolor*, *niveum*, &c., belong. Sir Trevor Lawrence showed a hybrid (*C. Laurebel*) on April 12, one of whose parents was also *C. bellatulum*, but it did not show the influence of this species so much as *C. Evenor* does. The latter bore a spike 6 inches high carrying two flowers, each of which measured 3 inches across. The petals are an inch in diameter and of a creamy-yellow, dotted (but not so conspicuously as those of *C. bellatulum*) with black-purple dots. The lip has the somewhat elongated, compressed form as in *C. bellatulum*; it is of a duller yellow than the petals and is dotted minutely with deep purple. The foliage is handsomely marbled with a paler shade of green on a very dark ground. This hybrid is an addition to the multitude of successes gained by Mr. Seden in the raising of Orchids.

The Tulips in the London parks are worthy of note, as we have seldom seen flowers of greater excellence, notwithstanding that at one time this promised to be a very poor year for this hardy bulb. In Hyde, Battersea, and Regent's Parks the beds have been, and in many cases still are, aglow with colour, and in Hyde Park the principle of massing each variety by itself in a distinct bed has been more closely followed than in the other open spaces. Such varieties as *Keizer Kroon*, *La Belle Alliance* (a very brilliant scarlet single kind), the *Pottebakker*, *Joost van Vondel*, *Dussart* (a very showy crimson variety), *Comte de Mirabeau* (white), *Proserpine* (a glowing carmine shade), *Yellow Prince*, and many others have made a gay display. In Regent's Park the variety *Keizer Kroon* is exceptionally beautiful and several of the combinations are striking, a double white variety mixed with a double scarlet kind being brilliantly effective. In Battersea Park more has been accomplished in getting away even from the distinct ranges of colour, the Tulips being mixed with other early hardy flowers with excellent results. It is evident that the system of planting the bulbs in cold, hard, formal lines has had its day, and a freer, more graceful plan of planting adopted with better results.

FLOWER GARDEN.

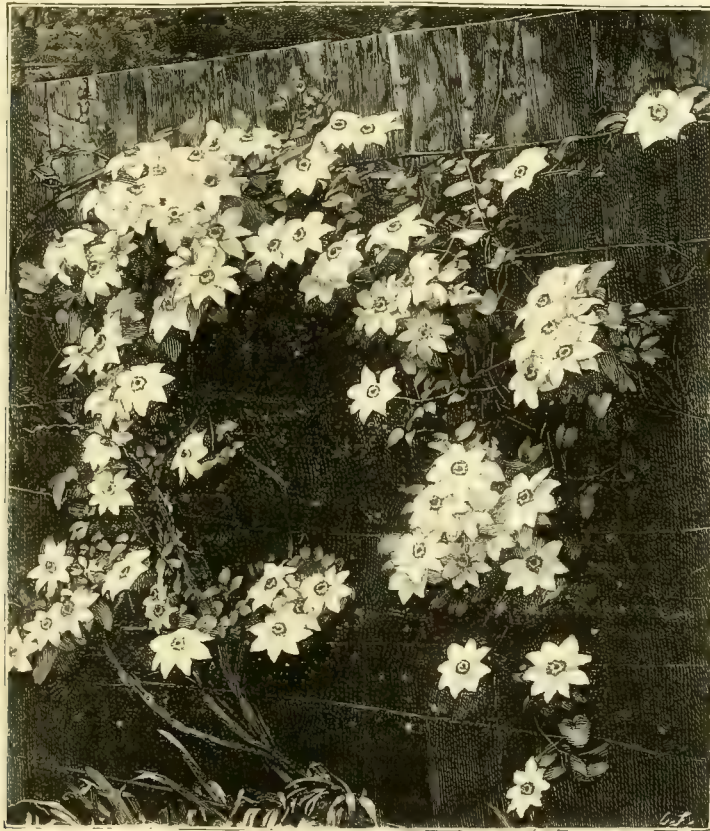
LARGE FLOWERED, OR HYBRID CLEMATIS.

THE accompanying engraving shows the effective beauty and interest that a good variety of Clematis may possess when well grown and not too much restricted or trained. A wreath of silver stars like this enforces our admiration, even although the background be only an old black fence of tarred boards, a few wires being strained across it to keep the plant from falling down.

Seeing how bold and lovely these larger hybrid Clematises are when vigorously grown, the wonder is that we so seldom see them used in places almost over-done with the forms of *C. Jackmanni*. Such noble varieties as Lady

of severe frosts is past, say the middle of May. In obtaining these plants, one should be careful to find out if they have been lifted from open-air plunging beds, or whether they have just been taken out of a warm greenhouse temperature. A practised eye will see this in a moment, but an amateur might not notice the difference, and in the latter case injury to the plants or actual loss would follow their being at once planted out of doors before May or June.

Another drawback is that nearly all these plants are grafted on roots of wild or common kinds, and the union is often so slight, that they are easily broken by a touch or in transit. Wherever plants of the best sorts are established, it is quite easy to root their branches by layering them under a large flattish stone, and plants so propagated are the best, albeit the process is a slow one.



White Clematis on fence.

Caroline Neville, lanuginosa, lanuginosa nivea, Lady Bovill, Symeiana, Henryi, Standishi, Stella, or Vesta can scarcely ever become too plentiful. Some of the double-flowered kinds are also very handsome when well established, especially Lucie Lemoine or Mme. van Houtte, and I know a fine old specimen of *C. Sieboldi* that is a picture every autumn when covered with its purple-centred rosettes of a soft straw colour. Other good single kinds are Miss Bateman, Mrs. Bateman, Othello, Lord Lonsborough, Fair Rosamond, and Fairy Queen, and a good double-flowered variety of a rich purple colour is the well-known Countess of Lovelace. As wall or trellis climbers all the best varieties deserve notice, but it is necessary to be careful in planting, or failures will be numerous. Good strong plants in pots are best to begin with, and these should be planted out in the position selected for them after all danger

On light and warm sandy or gravelly soils these plants enjoy a top-dressing or mulching of short well-decomposed manure every spring, or manure water may be applied with advantage after growth has begun.

F. W. B.

Seedling double Daffodil.—I have now (May 10) in bloom a seedling from the old double Daffodil, which appears to me to possess some merit. The flowers do not expand until those of the parent have been past nearly a fortnight. This late-blooming character is certainly quite fixed, this being the third season of its life, and the time of its expansion has never varied. The blooms, though not identical with those of the old double, are perhaps scarcely distinct enough to warrant giving it a name, although there is as much difference as exists between the poeticus varieties. The old double Daffodil is so showy and reliable, that growers generally would be glad to lengthen

its blooming period. The flowering of this seedling exactly coincides with that of Emperor, and, planted in a shady position, it would give good bloom up to the middle or end of May. The number of single Narcissi is being rapidly augmented, but as regards doubles, we seem to be at a standstill. Seeing that the culture of this flower has become so popular, it is rather strange that double forms should not more frequently crop up either as sports from existing kinds or among the numerous seedlings now being raised. The double varieties now in cultivation are much valued, and it is a pity that we have so few of them. I have proved that it is possible to raise double Daffodils from seed, and others have had a similar experience, but all that have been hitherto obtained in this way too much resemble the parent plant.—J. C. B.

COLOURED PRIMROSES.

I DOUBT if there is any garden flower that varies more from seed than the Primrose. Judging from my own experience, it would seem almost impossible to overcome this tendency to variation, the only way of obtaining a stock of plants of any particular colour being by the slow process of division. This is a pity, for now and then one gets a distinct and telling shade of colour that would be of great service for massing if it could be had in sufficient quantity. Two years ago I selected a rich crimson with a vigorous, but compact habit, very free-flowering, and which would be useful for spring bedding. I potted it and kept it under glass through its blooming time, carefully fertilising every flower with its own pollen. The season happened to be late for Primroses in the open, sharp frosts cutting off the blooms as they expanded, and I had none in the near vicinity of the glass-house. Under such circumstances one would naturally have supposed that the majority of the progeny of this highly-coloured variety would closely resemble the parent, but this was by no means the case. Not more than 2 per cent. came true to colour, the remainder exhibiting almost every shade that is to be found among coloured Primroses. The experiment was repeated the following season, the seed being sown as soon as ripe, and with identical results. If this tendency to vary and deteriorate will show itself so strongly in the case of a plant so isolated as to be out of reach of the influence of foreign pollen, what can be expected when the various shades of colour are in intimate association? There is a constant tendency in bright-coloured Primroses to deteriorate and produce a large percentage of pale-hued flowers, but what seems very strange is that even if seed is taken from bright coloured blooms alone a certain number of pure white-flowered plants are almost sure to come from it, with an occasional one not in any way differing from the common wild Primrose. It is easy to understand that there should be a marked tendency in the highly-coloured strains to hark back to the paler-coloured forms from which they originated, but there is something of a mystery in the fact of their reverting under any circumstances to our native kind. Even if the white varieties came from it, it is certain that those who have made our coloured strains of Primrose what they are can never have used our native species in their work. The tints most difficult to obtain are those that nearly approach crimson, blue, and that bright shade of red in which there is a suspicion of scarlet. Shall we, I wonder, ever get a Primrose that may without exaggeration be called scarlet? Perhaps not, but there is no doubt that we shall in time obtain colours much more brilliant than those already existing. It is wonderful what rigid selection carried on through a period of some years does, as may be seen in the case of the blue-flowered varieties raised of late. But a few years ago it would have been thought impossible to obtain a Primrose so nearly approaching blue as Oakwood Blue and Blue Gem, and seeing how great an advance has been made with this colour, one may reasonably expect that equal progress will be made with the brightest tints. As regards dark-coloured flowers, it is almost impossible and wholly unnecessary to

deepen the tint, for we have them within measurable distance of black.

The first thing to do is to make sure of getting a good strain, and, having this, to keep it from deteriorating. This can only be done by careful selection of seed-bearers. It must be borne in mind that Primroses are liable to die out in the ordinary way of growing them, but that their lives may be indefinitely prolonged by means of transplanting and division. Every now and then one gets a plant with blooms above average quality either in form or colour, and this should be marked with a view of taking seeds from it or for preservation. I have a reserve ground in which any plant possessing special characteristics finds a home and gets some special treatment, so that it is secured against misfortunes. Unless one adopts some such method the strain is sure in time to degenerate, for it is always the best varieties that are most difficult to keep under ordinary garden culture. The lighter shades of pink are the most vigorous of constitution, and yield seed most freely and without rigorous selection of seed-bearers. One soon loses some of the more beautiful and telling colours. In a general way it is not advisable to save seed from the paler mauve-coloured flowers, as a certain proportion of them are sure to come from the highly-coloured varieties, which also give birth to rich plum and purplish shades, these being among the most attractive of the many tints which distinguish garden Primroses of the present time. Naturally, if one wishes to increase the blue tinge found in some of the mauve-coloured flowers, these latter must be made the seed-bearers, but for one good bloom obtained there will be hundreds of very pale-hued ones. These mauve tints are, I find, much less weather-proof than those with pink and crimson shades. They suffer more from a heavy rainfall and are very susceptible to the effects of frost and cutting winds. They are, in fact, more delicate of constitution; at least, that is my experience of them. There is a great advantage in planting Primroses in various positions in the garden, for it is noteworthy that whilst in one place the blooms may be badly cut by frost, in another, and not fifty yards away, they will quite escape its effects.

It is vexatious after a week or two of fine weather, that has brought Primroses out into good bloom, to get up one morning and find that their beauty is gone for a week or more; but by planting in various positions some are almost sure to escape. I would strongly urge putting a portion of the stock on a north border. Not only are the blooms less liable to damage from frost, but they last longer in perfection through being screened from hot sunshine, and, coming late into flower, they prolong the blooming season.

J. C. B.

NOTES FROM LONWOOD, SUSSEX.

DAFFODILS are now over here with the exception of the late-flowering poetical (single and double). It has been a short rapid season, the hot sun bringing them out with a rush, and their blooming period for the same reason was only short. The high-coloured varieties, such as C. J. Backhouse, Nelsoni aurantius and others, were much wanting in colour, as is usual in a dry sunny season. Of new varieties bloomed here for the first time, Ajax G. J. Baker, incomparabilis Mabel Cowan, Barri Flora Wilson, Burbidgei Beatrice Haseltine are all good and distinct. Ajax Galatea, a very early-flowering white Daffodil, raised by the late Captain Nelson, is a splendid flower, tall and of good substance, and Captain Nelson and John Nelson are certainly amongst the finest of Ajax Daffodils. In reference to the remarks of "K." under "White Daffodils" in THE GARDEN of May 7, I am completely at variance. How can anyone compare Mrs. J. B. M. Camm with Mme. de Graaff? I have both growing side by side. The blooms of the latter stand high above those of Mrs. J. B. M. Camm, and hold themselves well up compared with the drooping habit of the other. The two flowers are totally distinct, both good, but Mme. de Graaff is at present the undoubted queen amongst white Ajaxes. The

whole flower is so exquisitely proportioned and modelled and has the most beautiful recurved brim of trumpet quite distinct from Mrs. J. B. M. Camm. Mme. de Graaff is also undoubtedly of robust constitution, as although the white Ajax Daffodils do not, as a rule, flourish here, the growth, flowering and increase of this are most satisfactory. The only thing about Mme. de Graaff is, that classed amongst the white and sulphur varieties, the blooms open of a deeper sulphur hue than almost any other variety I am aware of, although gradually passing off to nearly pure white. I would like to note what first-class early spring flowers Anemone blanda and Muscari azureum are. Both were in bloom here soon after Christmas and withstood 12° of frost. The former seeds itself all over my rockery, and although in bloom weeks—I might almost say months—before Anemone apennina, almost outlived the latter. Narcissus minimus, cyclamineus and triandrus albus have done well on the rockery. I have never seen Gentiana acaulis so full of bloom as it is this year. Amongst early-flowering Saxifrages, Burseriana major and sancta have been particularly happy, and particularly so that gem amongst the encrusted Saxifrages, Boydi. Just now Myosotis rupicola, Anemone Robinsoniana and a lovely mass of Arnebia echioides are particularly striking, although Phlox amœna, P. Nelsoni alba, P. Vivid and wide patches of Cheiranthus alpinus and Marshalli with other things are rapidly becoming sheets of beautiful and delightful colour.

M. C.

BORDER CARNATIONS.*

WHEN, some years ago, I first commenced to take an active interest in the cultivation of the Carnation, I was sanguine that I should be able to produce from the open border blooms which should rival, if not surpass, those cultivated under glass. My anticipation was, of course, as you must all know, a mere piece of presumption, a seedling from enthusiasm crossed by ignorance or want of experience. I do not, however, now regret that my aim was somewhat loftier than I could hope to realise, as it taught me, at any rate, to be dissatisfied with anything but the best, and encouraged me to seek that best by all means in my power. I feel it as a compliment, altogether beyond my deserts, that I have been asked to-night to open the discussion upon this subject, and I feel that I cannot do better than give, in as simple words as I can, the result of my own experience.

The first and most important fact that I learnt, and one that has subsequently been confirmed by many disappointing experiences, is that all Carnations are not suitable for open air cultivation. This is one of the points upon which I hope to hear some remarks this evening; I state it as a conclusion to which my own experience has led me. Do not understand me to call in question the hardness of the ordinary Carnation (of course I am not speaking of the Malmaison type). No doubt all Carnations will live, and all will bloom more or less without shelter of any sort. But one variety will give eight or ten good blooms in the open border where another will give but one or two, and those very inferior to what the same variety would produce when cultivated under glass. The first thing to be decided, therefore, is what varieties should be grown. It is impossible, or rather I should say it would be useless, to give names, for I have found Carnations singularly sensitive to the influences of soil and climate, and that varieties which will do well in one garden will by no means necessarily thrive in another, even though it be but a few miles distant. For instance, I have several

neighbours at Hayes, one in particular some 2½ miles from me, in whose garden the old Clove Carnation flourishes magnificently, whereas with me at Hayes they all, year after year, perish miserably from spot, until I am almost forced to confess that I cannot grow them.

The first essential, to my mind, in a border Carnation is that it should not be what we call familiarly "a burster." All Carnations will at times, and in certain seasons, show a tendency to this weakness, as we know only too well; but certain varieties with short, round, flat-headed buds always must burst their calyx; the very form of the flower-bud necessitates it; and such varieties should never be planted in the open border, for the weather, the bees and the earwigs will spoil every bud before it is well open. There are certain characteristics required for all border varieties. They must be of vigorous habit and free-flowering, preferably of dwarf rather than tall growth, and they should be inclined to make hard and wiry rather than "sappy" grass. There is no doubt that this matter of the nature and character of the growth is of much importance, and that there are many varieties apparently of extremely vigorous type which will not stand great vicissitudes of weather in the winter. About four years ago I raised two or three varieties of apparently very vigorous habit, with which I was much pleased. They had the foliage of the Clove if not almost of the Malmaison—that is, succulent and sappy. They did famously the first year or two, but the winter before last killed every one of them. I tried to recover them from friends to whom I had given them; but they were all gone—finished off by the same winter.

Again, border Carnations should be of erect habit—that is, should hold their flowers up to look you in the face. Half the effect of flowers in the open border is lost when they have a pendulous habit, and present to the spectator only the back of the bloom. It is also tedious to have to stoop and turn up every flower that you may wish to examine. As I have said, my experience is that Carnations are very sensitive to peculiarities of soil and climate, and for this reason I have always counselled friends who are starting Carnations in the open to commence with varieties which thrive in their own vicinity, and to extend their stock gradually by experiment.

One peculiarity Carnations have, and I fancy it is the same with all flowers, and that is the commoner the type, the more freely and vigorously do they flourish in the open border. There is herein a temptation to gardeners to be satisfied with such flowers in the open, and to grow their finer varieties exclusively under glass. This is the very thing I have always set my face against, for I believe absolutely in the unlimited capabilities of the Carnation to adapt itself, with time and cultivation, to all circumstances. I think, indeed, that up to a few years ago we had got altogether into a wrong groove, and by growing Carnations almost exclusively under glass were running a serious risk of developing for ourselves a delicate class of flowers. Fortunately, however, good gardeners found out their mistake in time, and returned, with sound reason, to the harder treatment which was given to these flowers by our forefathers. Everyone now repudiates the idea that the ordinary Carnation requires coddling, but harm has been done, and we do possess beautiful and highly valued varieties now which can only show their best when protected from the weather. Perhaps the most effective display of these flowers in the open border is made by masses of self Carnations, and I should be

* A paper read by Mr. Martin R. Smith at the last monthly conversation of the Horticultural Club, May 3, 1892.

inclined to say that at present, as a class, they are freer, more vigorous, and better adapted to the open border than the majority of the flakes, fancies, and bizzarres now in cultivation. I should like to hear the opinion of others upon this point.

With regard to the border, my experience is that nothing is so suitable to the growth of the Carnation as fresh virgin loam, not too heavy, and certainly not too light. Nothing in the shape of manures, or artfully and ingeniously devised composts, will produce the same rich vigorous growth and the same wealth of bloom as fresh loam. The latter and a liberal addition of thoroughly well decayed manure, say from old hotbeds, are all that is required. You may add road scrapings, bones, charcoal, lime rubbish, sand, what you please almost, and they may do good—at any rate, they can do no harm if the foundation of your border is sweet fresh top spit. My own system is to remake my Carnation border every September as soon as the layers are ready for removal. When we are satisfied that this is the case we put on the whole strength of our staff and set to work. By the side of the border are cartloads of fresh soil and well decayed manure, some crushed bones, and lime rubbish. The layers are lifted for some 20 feet, the portion of the border from which they were taken is well trenched, and the surface raised with the fresh loam, manure, and other materials. The whole is then trodden fairly firm, and the layers are at once planted, the number and position of each variety having been previously decided on, the same process being continued until the work is completed. I adopt this system, as I am compelled by want of space to use the same border year after year for my plants, and I find that if I am stingy with my fresh loam I get a correspondingly inferior result. Had I room, I should prefer to occupy fresh ground every year for my flowers, and thus be able to prepare the ground at my leisure.

I have frequently advocated this liberal use of fresh loam, and am constantly assured that though it may be good it is not necessary, that the expense is too great, or that the material cannot be obtained, and am confronted with the fact that many growers, notably my friend Mr. Rowan, produce their beautiful blooms without the annual renewing and remaking of the borders which I have recommended. I can only reply that skill and experience will do wonders, but that fresh loam is to the majority of mankind more easily obtainable than either one or the other, and will produce the same result. Fresh loam, like charity, covers a multitude of sins—sins of omission and commission, sins of ignorance and carelessness. I look upon the matter of pure sweet fresh soil as the great secret of successful growing of the border Carnation. You all, doubtless, knew it perfectly well, as you all knew the other great secret, which is early autumn planting; but thousands of people who grow Carnations do not know these simple facts, and hundreds of gardeners who ought to know them do not act upon them. This early autumn planting is, perhaps, more important than anything. Plants established in their flowering quarters before the cold season sets in will, as a rule, laugh at any weather. Losses, no doubt, there must always be from maggot, wireworm, and other causes, and I find it necessary to keep a reserve of layers in 3-inch pots, from which I fill the vacancies in the borders at the first moment after the middle of February when we are favoured with open weather. My experience is that the sooner this is done after the middle of February the better. I generally remove at the same time any plants

that look sickly, for Carnations are like pigs, it is very little use to attempt to doctor them; when once they get ill you may as well kill them.

As I have acknowledged, the Carnation grown out of doors cannot compete in beauty of bloom with those grown under glass, and for this simple reason we cannot give to the plants in our borders the protection overhead afforded to those in pots. They are at the mercy of heavy rain storms, of bees, of earwigs, and of slugs. I am sure last year I had many hundreds of blooms decay by rain before the buds were half open. You may do something towards keeping down earwigs, and ought to be a match for the slugs; but the bees, especially the bumble bees, are too much for anyone. Thrips, too, are a very serious trouble out of doors, and my plants suffer much from them. They cannot be killed by fumigation as in a house, and syringing with any composition you may like to mention I have found a very inefficient remedy. It must be allowed, then, that blooms from border Carnations cannot compete with those grown under glass, but only because it is impossible to protect them at the critical moment of the opening of the buds. Apart from this, I believe that they will produce blooms fully equal to those raised in a house.

Before concluding I should like to say a few words, and to ask for the experience of others about yellow ground varieties out of doors. I find at Hayes that they are distinctly, as a class, less vigorous and free than the ordinary Carnation. At times I get lovely blooms, but the plants are as a rule poorer and weaker than their neighbours in the same border. The best doer, so far, with me is certainly William Threlfall; but it is not a variety that I care much for, as the flowers with me are generally rather thin and poor. Our old friend, Pride of Penhurst, certainly gives me the best yellow blooms; Germania is a comparative failure; Benary's Mme. van Houtte promises to do well with me, and Agnes Chambers last year proved both vigorous and free. I confess, however, that either I do not understand the yellow grounds, or that my soil and climate do not suit them. Do what I will I cannot get them to thrive as a class. Here and there I get a good vigorous plant, but as a rule they can be unfailingly picked out from their neighbours by their less satisfactory appearance. However, I am encouraged by a fancy that the varieties I have had for some time are improving, and my hope and expectation are that they are acclimatising themselves. My garden lies rather high, and the only soil that I can get within reasonable distance is rather too light and hot.

It is a great pleasure to me to see the daily increasing interest which is attaching to the cultivation of the Carnation. I have in my own vicinity at Hayes ample evidence of the fact, for many of my neighbours appear almost as keen about them as I am myself. We have already scores of lovely varieties well suited for border cultivation, and I look with confidence to a considerable increase both in the number and beauty of such varieties during the next few years. To this end I exhort all my friends and neighbours to raise seedlings. Apart from the fact that there is nothing so lovely in this world in the way of flowers (to my eyes at least) as a bed of well-grown seedling Carnations, with its wealth of bloom of every shade and variety of colour, it is also certain that a patient and intelligent perseverance in this most delightful pursuit will be rewarded sooner or later by the production of varieties greatly in advance of those we now possess, more vigorous, freer flowering, still more exquisite in form and colour, and tho-

roughly well able to withstand all the rigours of our most detestable climate.

Double white Primrose.—The more I see of this grand old Primrose the more I like it. Plants of it on a north border, screened from sun and drying winds, have given abundant blooms of unsullied purity. The flowers of this Primrose, though perfectly double, are free from the lumpy appearance which characterises many double flowers. Fortunately, it is a free grower and may be had in quantity in any fair garden soil. Were this Primrose as capricious as the Crimson Velvet, it would probably take a much higher place among hardy flowers, but being by reason of its good constitution a cottage garden flower, it is often excluded from the gardens of the wealthy. I lately saw in a cottager's garden a wonderfully fine show of this Primrose. A hundred or more plants laden with blooms in perfect beauty, nestling among abundant leafage, with the May sun lighting them up, was a thing of beauty that, once seen, passes not easily from the memory.—J. C. B.

ORCHARD AND FRUIT GARDEN.

NOTES ON MELON CULTURE.

NOT a few experienced gardeners doubt the possibility of setting a succession of fruit on the same plant, or say much the same as Cucumbers are produced, yet it is by no means difficult to accomplish. According to the old order of things, it is considered absolutely necessary to fertilise a good number of female flowers as nearly as possible on one day, or otherwise a good crop cannot be had. It is certainly very annoying to see one or two fruits take the lead and all the rest either fail to make any progress or else stop swelling after they are near the size of large Plums, but who or what is to blame in the matter? In very many instances it is thought that the fruit which refuses to swell properly is insufficiently fertilised at the outset, and at times there may be some truth in this conclusion. Other cultivators are of opinion that what few fruits take the lead completely rob the rest of what is needed to support them, and an early removal of one or two somewhat advanced fruits is not unfrequently the means of re-starting those apparently dormant. The latter occurrence fully bears out the idea that it is for want of sufficient strength in the plant that only a light crop is often obtained, but it does not seem to occur to many that the simplest way out of the difficulty is to feed the plants liberally much earlier than is usually practised. Starvation does not suit Melons during any part of their brief life any more than it does Cucumbers, and, in fact, if they were more often treated, as far as the roots are concerned, similarly to the latter, fewer partial failures would occur.

In order to be better understood I will define what I consider starvation treatment, and then describe what I consider a far more rational method of culture. Whether Melons in houses are grown on hotbeds or only on a bare staging with bottom-heat pipes, the start is usually much the same. Either a narrow ridge or only mounds of poor loam are formed, these in many cases being rammed as hard as a road when the plants are put out. For a time all may go on very well, the plants growing strongly and showing plenty of fruit in good time. When, however, they stand in the greatest need of assistance, the ridge of soil is already exhausted of much of its fertility, and in many cases becomes far too dry under the surface to keep the roots alive even, while those that reach the outsides quickly succumb. Once those ridges, whether added to or not,

become dry, they cannot be properly remoistened. Small wonder is it that light crops of poor-flavoured fruit are the order of the day, especially seeing how much starved plants are over-run by red spider. In the next house probably to which the Melons are thus badly grown, Cucumbers are treated on a most liberal scale. They receive a richer compost at the outset, frequent top-dressings afterwards, mulchings, and plenty of water and liquid manure, for all of which they amply repay.

There is nothing to be said against starting Melons in small heaps or ridges of soil, but there is no sense in confining them to the poorest of poor loams. On the contrary, they ought to have some of the best loam procurable, or say any which may be cut from immediately below turf thinly pared from pasture land. If of a clayey nature, and such suits Melons well, then add a sprinkling of newly-slaked lime, or just enough to whiten the heap, and plant in that. Poorer loams should have a little lime rubbish, bone-meal, or some kind of special manure mixed with it at the outset, a 6-inch potful of bone-meal to every bushel of loam being none too much. Directly this is well occupied by Melon roots, top-dress freely with more of the compost, and continue this practice till at last a good nearly level bed of soil is provided to a depth of 1 foot and not less than 3 feet across. Immediately about the collars of the plants there should be nothing but the soil in which they were originally put out, high planting and keeping the collars perfectly dry being desirable as a preventive of canker. As the new soil is added this becomes rapidly filled with hungry roots, or even more quickly than is the case with Cucumbers similarly treated, and the bed being nearly level, all the water given reaches the roots. Not content with these top-dressings of soil, we are in the habit of frequently giving light surface sprinklings of either bone-meal or special manures, such as are advertised in the horticultural papers, and for which the roots appear to have a great liking. With a view to preserving the surface roots, a mulching of short manure follows the last top-dressing of soil, this saving them from the effects of strong sunshine. All this sounds far more formidable than is really the case, and the Melons are not ungrateful subjects. Nothing we do militates against productiveness, plenty of fruit invariably showing, and, what is more to the purpose, setting freely. At one time I thought it was necessary to grow the Melons more on the extension system—a single plant receiving as much room as is usually accorded four—in order to secure a succession of fruit swelling off at the same time, but further experience has demonstrated the fact that plants put out 2 feet apart will also behave equally satisfactorily. For instance, I can point to plants, occupying a roof area of 3 feet by 3 feet, carrying six fruits in three different sizes, some being three parts grown, others a week later in swelling off, and others near the size of Victoria Plums. This is solely the outcome of high culture, and has never yet been equalled in the case of plants grown in what may be termed the orthodox manner. A great point in favour of the practice of feeding the plants and keeping them constantly supplied with moisture at the roots is the superiority of the fruit produced. Not only are they large, but they net beautifully, are very thick and solid, and properly managed are of high quality when cut.

Loose brick walls are of the greatest service to the Melon grower, though not often used. If instead of leaving ridges of soil exposed to full sunshine or a considerable amount of the latter and thereby rendering it impossible to

save the roots that reach the outside, a loose brick wall is formed for enclosing the soil, the result will be all in favour of the cultivator. A 4½-inch wall can quickly be put together with loose bricks, and it is surprising how strong it will prove, or quite sufficiently so to enclose a bed of soil. They can be partly or wholly pulled down at any time, either for the purpose of examining the state of the soil and roots or for enlarging the bed, a shift—that is to say, a fresh wall of soil—being given when the old bed is getting crowded with roots. These walls admit of the soil being watered as easily and surely as in the case of plants in pots, and the bricks appear to be peculiarly attractive to the roots. Especially would I recommend their use where any difficulty is experienced in either setting or growing a good crop of Melons.

W. IGULDEN.

Value of a Cherry tree.—A question as to the value of a Cherry tree has just been decided at Niederlahnstein, in Germany. The ground whereon this Cherry tree stands is required for the widening of a railway station at that place. The owner of the tree put in a claim for £150, which he said was the amount he obtained yearly for the fruit the tree yielded. After some spirited contention on both sides, says the *Kölnische Zeitung*, the owner somewhat reluctantly consented to accept £120.

Absence of green-fly on Peach trees.—I certainly cannot but envy "J. C. F.'s" immunity from these pests on his Peach trees, for here I see no difference nor diminution in the visits of this plague. Now that so many and so easy facilities for dealing death to insect pests of all kinds are available, there is no excuse for allowing our Peach and other trees, especially under glass, to get over-run and injured through neglecting to use them. My custom here is to fumigate the houses just prior to the trees blooming whether a fly is seen or not. A second has generally to be given after the fruit is set, and owing to the constant attention the trees require at this stage in the way of disbudding, thinning fruit, &c., it is difficult for green-fly to gain much footing before it is observed or can do any permanent damage.—J. R.

Apple Newtown Pippin.—I think the observations regarding this Apple by "D. T. F." (p. 422) will come as a surprise to many, and none more so than to our transatlantic cousins. To be told that their ideal Apple, which is supposed to succeed only really satisfactorily in the Far West, is likely to be supplanted by produce grown in this country, will certainly create alarm amongst them. I certainly was not aware that the growth of the Newtown Pippin was such in this country as to need dwarfing stocks, root-pruning, &c., so as to cause it to fruit, or that the growth was luxuriant. I have tried it on the dwarfing stock in the open, as an espalier, and also against a wall, and the results obtained led me to the conclusion that it was useless attempting to try to cultivate the Newtown. As a cordon it succeeds no better, and even under this system of growth, my experience with Apples generally has led me to the conclusion that if they will not succeed under other phases of culture, they will not under this.—Y. A. H.

Gooseberries and caterpillars.—I am pleased to see Mr. T. Thompson mentioning as a simple preventive the placing of a Furze bush in the centre of the tree. I remember some thirty years ago when in Yorkshire being in a garden in Wharfedale where there was a big plantation of Gooseberries, and seeing in the centre of each a good-sized bunch of Furze. The trees were remarkably free from caterpillars, while in surrounding gardens where the Furze bush was not applied to the trees they were much affected by them. I was informed that the owner of the garden, and his father before him, had practised the method for a number of years and always with success. Mr. Thompson is quite correct when he states that the bare mention of the fact excites ridicule, but

ridicule is no answer. I think the virtue of the Furze does not lie so much in its being in flower, or its perfume, as in its sharp and spiny foliage, which the butterflies apparently do not like. The Furze would be in flower about the time when it is placed in the trees. I wish some of the sceptics as to its efficiency would try the Furze, and if in some localities it is not easy to obtain it, it would surely be worth while to grow a few bushes for the purpose.—R. D.

MOISTURE IN FRUIT HOUSES.

THE hackneyed phrase "throw plenty of water about in fruit houses during a spell of bright weather" is well known to readers of gardening periodicals. Such a term is very indefinite. The mere throwing about of water, or, as it is understood by many, "damping down," although the former is nearer the mark if we may judge by the indiscriminate use, or rather abuse, of water, is no criterion that a growing atmosphere is being maintained. Half the quantity of water in good hands may be of far greater benefit to the subjects growing within the structure than a larger amount used indiscriminately. To a certain extent, certainly the quantity of water to be used will depend upon the structure itself, for where this is of a dry and arid nature, probably on account of the quantity of iron or stonework, more will be needed than where the surroundings are more genial. In the more modern plant and fruit houses, although happily this was seen early enough to note the evil, stone and iron-work played a too prominent part. The evaporation these materials caused was enormous; consequently the floors had to be constantly damped down to cause a genial atmosphere, the result being that the foliage was thin in texture and devoid of stamina. Something more than moisture evaporated from a hard metallic surface is needed to keep the various subjects in good health. This can be plainly seen in structures for plant growing where the floors are of earth. I heard it stated by a large plant-growing nurseryman that plant growers had something to learn from fruit growers as to the means adopted to keep up a genial growing atmosphere, but I think the tables could be well turned in innumerable instances. It is clear to all ordinary observers how much better plants thrive within glass structures when the floors are composed of earth, gravel, or even cinders, or indeed any decaying vegetable matter, as leaves and such like. Such being the case, the desirability of maintaining like conditions in fruit-growing structures is evident. There is not so much trouble in damping down, for, as a rule, a light damping in the morning and heavily in the afternoon when the structure is closed will be sufficient to keep the subjects in good health. From an earth floor, evaporation of a genial description is continually going on.

When a structure is to be damped down in the afternoon let it be done thoroughly, well moistening all available surfaces from walls to pathways and even under the pipes. Dry corners are only too frequent in both fruit and plant houses. Very often the pathways only are damped down. I have seen the under sides of pathways where these are formed of trellis-work perfectly sour and sodden, whilst other parts were as dry as well could be. The surface of borders should always be moistened if approaching the dry side, but on no account damp these surfaces merely for the sake of damping, for if so, the surface will soon become green. Where the body of the structure is composed of border room and the surface is sufficiently moist, it would be very unwise to damp this. Under such circumstances I should only damp dry surfaces, such as walls, the pathway, if a closed one, and under the pipes if at all dry. This would be during fine and sunny weather, for to close a structure early without sufficient moisture being present so as to guard against burning would result in serious mischief. On a dull or wet day this would not be necessary, and this is where want of forethought comes in. Damping down two or three times during the day I look upon as useless. It is where the ventilation is abused and also the heating that a too aid at-

mosphere during the daytime is caused, and which no amount of damping will counteract. During very bright weather a slight damping at midday in those structures where there is not much earth or genial evaporating surfaces would prevent the surroundings becoming too dry. Fruit houses do not require to be kept like plant stoves. It should also be remembered in damping down that a little water sprinkled or syringed over a large surface is of more benefit than a larger amount thrown down in the pathway or such like places by canfuls. The practice of damping down in the evening of fine days with manure water is certainly a beneficial practice. Sour or crude manure water must not be used, neither should the borders be damped over for fear of souring the surface. In our fruit houses the pathway is formed over a channel or open space, which is very useful for pouring manure water into. It may appear immaterial to some people, but I find manure water from fresh cow manure and soot to be the best. The time I damp with manure water is about 7 p.m.

Y. A. H.

THE MEDLAR TREE.

ACCORDING to Syme in the last edition of "English Botany," the common Medlar is a native of Britain, but its original home would

little inferior to that of the W. Indian guava, and the marmalade of the Quince is a delicacy long ago appreciated, and a jar of it was one of the presents offered to Joan of Arc when she triumphantly entered Orleans.

The Medlar usually seen in gardens is *M. grandiflora*, or *M. germanica*, as it is more correctly called, and of which there are several varieties. The Nottingham Medlar is a well-known form, and there is a seedless variety with smaller fruits and leaves.

In the old College Garden at Dublin is a very quaint old tree of *M. germanica*, that reminds one of a Japanese drawing. It is grafted on the Hawthorn as a stock, and bears a grafted branch of the seedless variety actually engrafted thereon by the late Archbishop Whately a good many years ago. In the years succeeding very hot and dry summers—that succeeding the Jubilee year, for instance—this tree bears profusely, and its fruits are large and succulent and "blet" remarkably well. The due harvesting of Medlars and the preparation of them for the dessert are a fine art now-a-days nearly lost. Apples and Medlars at the dessert find but little favour in the presence of fine Pears; still, they are different, and, happily, there are



Fruiting branch of Medlar.

appear to be Asia Minor and Persia. *Mespilus* is now merged into *Pyrus* by Hooker and Benthams, and is grouped along with such divergent species as the Pear, the Cotoneaster, and the Amelanchier (or Snowy Mespilus of our gardens), and even the common Hawthorn or May Thorn might be added, since it often serves as a stock on to which the Medlar, the Cotoneasters, and other rosaceous shrubs of this ilk are more or less successfully grafted. But on its own roots the Medlar is a very attractive and distinct low-growing tree, beautiful at all seasons, leafy or bare, green in summer, or yellow and russetty brown ere its leaves fall soon after the early November frosts. As a small and quaint-habited lawn tree the Medlar deserves a place, and no orchard is quite complete without a group of Medlars and at least a Quince or two; indeed, in all old gardens these trees and the Mulberry also are generally to be found.

It may be that the taste for the bletted fruits of the Medlar is an acquired one, but, nevertheless, they are delicious to those who can appreciate them, and possess a flavour all their own, just as does a slice or two of the hard-fleshed Quince when added to an Apple pie. Medlar fruits may be made into a jelly but

those who appreciate them. Medlars, as a rule, are allowed to fall from the tree in October or November, but they are better as gathered after the first severe November frost. Their stalks should be dipped in a strong brine, and then the fruits should be laid in boxes in layers and each layer surrounded by wet bran. So treated and placed in a cool and dry fruit room, the fruits gradually ripen and "blet" or soften—quite a different thing from the rottenness most people suppose it to be. So treated, Medlars are quite an addition to the Christmas dessert.

Apart from its use as an edible fruit, however, the Medlar is well worth more extensive planting for its beauty alone. In hedges or along wood margins it is quite at home, and its autumnal colouring is so marked, that one wonders it is not more often seen. For the landscape gardener's purpose, seedling Medlars are best, the grafted trees being more or less mop-headed and stubborn in growth for the first few years.

F. W. B.

Keeping Grapes.—I cut all my Grapes early in December, cutting wood with the bunch and put them into bottles of water. Having Grapes on some leading canes, and wanting to keep the wood for

fruiting this year, I cut the bunch without wood. I put the stem into a Potato, thinking of using them first. Those in the Potatoes were the last to be used, and on May 2 I sent Grapes to my employer's table fairly fresh, considering the bunches had been cut nearly five months. Another thing in favour of those the stems of which were put into the Potatoes is that I have not had so many mouldy berries as when the bunches are put into water.—F. COULDREY.

SPINELESS GOOSEBERRIES.

HITHERTO the chief object with raisers of new kinds of Gooseberries has been to produce large-fruited varieties, the advantage of possessing a spineless race appearing to have been but little attended to, and it is only within comparatively recent years that the matter has received much consideration.

The first specimen of a spineless Gooseberry of which we have any account was the result of chance, or, to speak more properly, came naturally amongst a batch of seedlings of ordinary spiny Gooseberries raised by the late M. Billard, nurseryman at Fontenay-aux-Roses (Seine), about the year 1860, and from this, in the year 1884, M. Edouard Lefort, secretary-general of the horticultural society of the district of Meaux, commenced to create the new series of spineless Gooseberries of which we are about to speak. We have thought it right to give one of these the name of M. Billard, with whom the first spineless specimen originated, and to another the name of M. Edouard Lefort, who conceived the idea of sowing seeds of the first specimen with the object of raising new spineless varieties, and whose efforts in this direction have been so successful, that, amongst a great number of varieties raised by him, we are now able to describe some very fine ones.

SOUVENIR DE BILLARD.—A vigorous-growing and exceedingly prolific variety. Fruit subspherical, sometimes slightly oboval, of a dark pink or wine-red colour and quite smooth; pulp of a fine pale pink colour, juicy, firm, sugary and slightly acidulous. This variety ripens somewhat late, that is, about the end of July, sometimes even in August. It is a most abundant bearer and the fruit generally grows in clusters.

EDOUARD LEFORT.—A variety possessing more than average vigour of growth. Fruit quite smooth, oboval-elliptical, broadly rounded at each end, nearly an inch and a half long and nearly an inch and a quarter broad, of a glistening wine-red colour, through which internal streaks are visible; pulp of a grey or ashy red colour, sugary and comparatively firm. This is a very handsome and good variety and an abundant cropper. The fruit, owing to its thick tough skin, keeps for a long time, and for the same reason can be sent to distant markets without sustaining any injury in transit.

MME. EDOUARD LEFORT.—A variety with erect-growing branches, the bark of which is of an ashy grey colour. Fruit numerous, spherical, smooth, nearly $1\frac{1}{4}$ inches in diameter, and of a wine-red colour. Pulp very firm, fleshy, of a wax-white colour, sugary, slightly acidulous, and of an agreeable flavour. This variety, which is very productive, bears its fruit in rather compact spherical clusters, which adhere so firmly to the wood that some force is required in detaching them.

BELLE DE MEAUX.—A very vigorous-growing variety with long trailing branches. Fruit medium-sized, sub-elliptical oval, smooth, of a very deep red colour, almost black when quite ripe. Pulp firm, ashy grey, not very juicy, slightly sugary, and sharpish. The long trailing habit of the branches of this variety points out the advisability of grafting and growing it as a tall standard. This would not only enhance the good appearance of the bush, but, the branches being thus better exposed to sun and air, the fruit would also be finer

and better. For this purpose the best stock would be *Ribes aureum* or *Ribes palmatum*.

Reverting to the primitive type, Groseiller Billard, we may add that the fruit is large, of a pale yellowish green colour at first, changing to deep red, and finally becoming purplish black. It is quite smooth, and has an agreeable flavour. In shape it is slightly oblong, and in size $1\frac{1}{2}$ inches or more in length and about $1\frac{1}{4}$ inches in breadth. It does not appear to be much cultivated, although the only fault that can be ascribed to it is that it does not possess a very vigorous habit of growth. As the progenitor, however, of the valuable varieties raised by M. Lefort it possesses an abiding interest.

In addition to the varieties which we have here described, M. Lefort has a great number of others in process of growth, the fruit of which we shall probably see before long.—*Revue Horticole*.

NEGLECTED FIG TREES.

THE remarks by "D. T. F." I had already anticipated, and should not have again returned to the subject had I not had an opportunity recently of inspecting some very fine Fig trees growing in the neighbourhood of Hawkhurst, Kent. Those trees I have been acquainted with for many years, and have seen remarkably good crops taken from them both when they were kept rigidly trained to a garden wall and also since they have been allowed to grow away from them, as advocated by Mr. Tallack and "D. T. F." On making inquiry I learnt that not a fruit was gathered from the trees in 1891, and for a very good reason, this being none other than the fact that not a fruiting shoot escaped being badly damaged by frost during the previous winter. According to "D. T. F." this is no more than may reasonably be expected "every now and then, or once in a decade or so," but unfortunately for the soundness of his deductions, the wood that was formed last summer suffered badly last winter, at least half of it being killed. Then, to make matters worse, spring frosts have sadly crippled those that escaped and commenced active growth, only those actually pressing against the wall surviving both visitations. Instead, therefore, of fruit being gathered by the hundred, there will not, it is my belief, be three dozen in all. Samples of wood cut with strict impartiality from these trees have been placed before the editor, and had I been so minded I could have taken short stout growths from trees growing quite in the open that were even more injured than those against the wall. If this has taken place in favoured Kent, what must be the state of naturally-grown Fig trees in East Anglia and other less favoured localities? In this district any unprotected were killed down to the ground during the winter of 1890 and 1891, and last winter the strong young shoots resulting were again destroyed.

According to my experience, once a Fig tree gets badly damaged by frosts nothing but a series of hot summers and mild winters will give it a chance to recover properly. Now, if they are kept closely and thinly trained to a hot wall the wood ripens well and can be easily protected during the winter—the old-fashioned plan of taking them down, bundling together and covering with mats or branches of Fir being resorted to. Allowing the trees to be cut back and crippled by frosts "every decade or so" may answer fairly well in districts where the Fig is most at home, and I have gathered large quantities from standards growing on the Sussex coast, but it is very faulty practice in all localities well away from the south coast. Does "D. T. F." or anyone else, seriously advise the readers of THE GARDEN generally to attempt Fig culture on the same lines as are said to answer so well in Sussex and Cornwall? If not, what comes of their criticism?—W. IGGULDEN.

— Under the above heading some useful remarks are made about Figs. I quite endorse most of

what "D. T. F." says respecting them, as I am quite against the training of them to walls, and any pruning beyond perhaps a little thinning out, which is only necessary at times and when they make long shoots, or the growths stand out too far, as the less of the knife Figs have the better, for cutting only causes fresh wood. The thing with Figs outdoors is to restrict the head, as may be seen by those of great age that are now and then to be met with in court-yards or similar places where their roots are under stones and in very poor soil, the result of which is that the shoots they make annually are only 2 inches or 3 inches long and close-jointed, with a fruit at each joint, and the wood so firm and hard that frost has but little effect on it. When Figs get injured from severe winters, it is those that have long pithy soft shoots and are immature, and they get killed back; but on those that have wood instead of pith, frost has little effect. Knowing this, I had places prepared for ours by bricking them in around and concreting the bottom, using cement with the mortar and rubble so as to make sure of keeping the roots in, and we never had any trouble. Those in the house were served almost the same, as they have the walls, and 3 feet down bricks were laid flat and the joints between filled in. If the trees show signs of growing too freely, we cut down a trench through the soil and sever the roots at 2 feet or so from the stem.

The plants are now full of ripe fruit, and we get a heavy second crop and a third. Where Figs do best outdoors is in districts where chalk comes up near the surface, as in Sussex and other parts, or where there are plenty of calcareous matter in the soil and free drainage, as then the wood they make is firm and solid. Manuring Figs is about the last thing I should think of doing, unless in pots or small tubs and they were getting starved from too little root room. In such a case liquid manure or top-dressing might be necessary just to feed up for a time, but outdoors the ground cannot well be too poor or solid. "D. T. F." mentions the White Marseilles, but that is not suited for outdoor culture, the hardiest and best being the Brown Turkey, and the next the Brunswick, which is not so good in flavour as the former, but the fruit is large and fine looking. At Muntham Court, near Shoreham, there used to be some fine Fig trees, and I remember others at Bowood, Wiltshire, against a wall on very high ground, that bore freely.—S. D.

— I do not contend that there are no fine specimens of closely trained Fig trees in the country, several of such trees being known to me, and I have in addition seen the fine trees grown in one of the two places mentioned by Mr. Iggulden. These, however, prove nothing more than that the Fig is amenable to such high-class culture, and do not disprove the fact of equally fine fruit and heavier crops being taken from trees more naturally grown. The point I wished to mark was the advice given to possessors of large old trees for the production of finer fruit. If climate and surroundings, whether in Cornwall, Sussex, Hampshire, and I may add Suffolk (as I know of fine specimens grown on what we may call the "neglected" principle in each of these counties), have helped to produce such trees which ripen good crops of fruit, then I say that there is nothing to be gained, and much to be lost by altering the form of the trees. For every closely trained tree worthy of being called a fine one, I think there would be no difficulty in finding a score equally as fine, and some much finer, grown on the other principle, which produce as good fruit and more of it. Mr. Iggulden says that Cornwall is not England. I might just as reasonably add that so neither is Somerset England. Advice given for general application is equally as much for one county as another. But the question is too broad a one to be governed by mere county limitations; if it were not so, it would not be worth argument, and I would not give much for the result of outdoor cultivation of Figs where the wood has to hug the walls so closely to get it sufficiently ripened for fruit-bearing. There is plenty of evidence to be

had in favour of loosely trained trees, and where the wood on these does not ripen well, I should say that richer food given to the trees would but aggravate the evil, as I am firmly convinced that either a poor or a confined root-run is one of the surest roads to success in Fig culture. Any feeding that may be thought necessary would be better applied in a liquid state when the fruit is swelling. One form of tree is almost as easily protected as the other, for after a year or two of free growth the branches droop naturally and not far from the face of the wall, so that a slightly increased quantity of protective material only would be wanted.—J. C. TALLACK.

STRAWBERRIES IN COLD FRAMES.

MANY persons cannot find room to force these fruits in hot houses, while others object to forced Strawberries, as being deficient in flavour early in the year. When a few plants can be brought on slowly in cold frames, the fruits are equal to those outdoors if proper attention is paid to watering and airing. I have seen Strawberries planted out in frames do well, but I do not think it a profitable way, as for nine months out of the twelve the frames cannot be used for any other purpose, that is when the frame is a permanent fixture. When planting out is done it should be on a warm border, using a movable frame, as then this can be used in a variety of ways; though the fruit may not be quite so early as when planted out in a permanent close frame, it will be much earlier than that not covered.

This note is to point out the value of preparing a few plants yearly for the frames, and to do this there are several ways, much depending upon the accommodation of the grower. The value of these fruits will be great to those who have convenience for forcing, as when late Strawberries are forced late in May and early in June in hot pits or houses, there is considerable difficulty in keeping them supplied with moisture. When labour is a consideration, cold frames are most serviceable for the late lot, as if allowed to suffer for want of moisture, the flavour is deficient and red spider soon obtains the mastery. There are several ways to get a stock of plants for this work. An excellent method to those short of labour is to secure strong runners from maiden plants and to plant in rows early in August in good land on a west border, lifting them in April or early in May and potting up into 6-inch pots with good balls, placing the plants under a wall and covering for a short time, and then placing in the frames as soon as new root action has commenced. I prefer to place in the open for a few days, as the foliage does not flag, and when placed indoors with hot sun it causes a slight check. I have also used last season's forced plants for this work when they have been hardened off, the drainage removed, and the ball reduced and planted out in a rich compost. They lift well for this work the following spring, using 8-inch pots and treating as advised for those grown from runners. If plants are grown in pots all the season previous, a 7-inch pot is none too large; but this entails a lot more work. I have used boxes made of rough Larch, placing four plants in a box 3 feet long, 1 foot wide, and plunging the boxes in rows in ashes. Some may object to the use of wood, but in some districts there is abundance of it and pots are scarce. I preferred the boxes to pots, as the plants did not become so dry when swelling their fruit. I have also lifted the plants when of good size and placed them direct into the frame, but would not advise it if the work can be done as previously advised, as often when lifted in this

way late in the season it is too much of a check and the fruits do not swell freely. It may be asked, why lift, as frames can readily be placed over permanent beds? But often the beds do not get the necessary attention as to air and moisture, and often they suffer badly with mildew when kept close after thorough exposure. Of course, protection at night from frost is excellent and of great benefit to get fruit a few days in advance of that unprotected. One of the best Strawberries I have tried for frame work either in pots or boxes is Sir C. Napier. Sir J. Paxton is also a sterling variety for this work, and President for pots, if grown close to the light and a sharp look-out kept for mildew. I have grown Noble better in cold frames than any way, and it is surprising how much improved the flavour is under such treatment. I have also given Waterloo a trial, but it is too late. Oxonian or Eleanor gives fine fruit, but is somewhat deficient in flavour. G. WYTHES.

VICOMTESSE HERICART DE THURY STRAWBERRY.

As stated by "A. D.," the undoubted popularity of the above-named Strawberry stamps it as one of the best kinds either for early forcing or for its earliness in the open air. By some people it is spoken disparagingly of for the former purpose, on account of its not throwing its flower-spikes high enough. This I am certain can be remedied. This season it has been my main Strawberry for early forcing, and I have never seen a better lot of fruit of the variety, taking one batch with another. It sets freely, swells evenly, and also colours exceedingly well, and when thinned down to about nine fruits to a plant, the individual fruits are large enough for any purpose, the flavour also being very good for early forced fruit. This latter trait this season has been so marked as to call forth inquiries whether it was a new variety, it having given such unbounded satisfaction. As previously hinted, the evil of not throwing up the flower-spikes may be remedied. As is well known, this variety has a tendency to form several crowns, or what is known to gardeners as "crown-splitting," so much so, that if these are not thinned out, the flower-spikes appear very crowded. I do not say that thinning the crowns will solely remedy the evil, for it will be noticed that this has a tendency to cause the flower-truss to form too early; so much so, that it is often clearly visible at the close of the autumn, or so forward, that directly the plants are taken in for forcing they make an effort to open their flowers. What is wanted is a little leaf growth to take place before the flower-stem shows. If this takes place the stems will push out long enough for any purpose. I think the mistake lies in taking the runners too early. The last week in July or even the first week in August is quite early enough. I make a fresh plantation annually, so I have always some strong healthy runners to select from. The plants the runners are taken from are allowed to fruit. The runners being taken at the time stated, layered singly into small pots, and eventually transferred to 6-inch pots, good plants will be forthcoming, other details, such as suitable soil, firm potting, and free exposure to the sun, having full attention. Two, or it may be three, crowns will form to each plant, and which are ample. If more should commence to form, then these should be carefully removed. Taking the runners as early as obtainable and trying to keep the crowns from forming, only result in those remaining splitting up further or advancing the flower-truss too much to be safe. This season I have grown our forced Strawberries without liquid manure, relying upon artificial manure. A dressing was given when brought in to force and another directly the fruit was thinned, and the results have been most satisfactory. The distance "A. D." states that Mr. Norman allows for Vicomtesse when first planted out, viz., 12 inches apart, would be too close on our

strong soil. Our plants are layered in pots and planted in August in rows 2 feet apart and 18 inches in the rows, or even 2 feet each way. This allows a free circulation of air amongst the fruits, which during a wet time is no mean advantage. I am not saying that Mr. Norman grows his plants too close, as it may suit his soil and purpose. Air is what is wanted amongst Strawberries, the quantity of foliage the plants make gauging the distance. Y. A. H.

THINNING FLOWER-BUDS ON PEACH TREES.

ANENT the discussion carried on in THE GARDEN by your various correspondents in connection with the thinning of flower-buds on Peach and Nectarine trees, I would like to ask "S. D." and "D. T. F." if they can give any tangible reason—not mere assertion—for condemning the practice. "D. T. F." says "flowers are foliar organs." Granted, but do they perform the same functions as true leaves? True leaves contain chlorophyll (those of Peaches and Nectarines), and are enabled by its aid to decompose the carbon-dioxide of the atmosphere and assimilate the carbon. Can the flowers of Peaches do this also? This gas is given off by plants during darkness; therefore, would a wealth of bloom compared with a limited quantity not have a tendency to foster exhaustion, seeing that a larger surface is provided by the greater number of flowers for its elimination?

Last spring I took two shoots of a Peach of equal size and length, thinned the flowers on one to an inch apart, but left the other intact (which was simply wreathed with blossom), placed them separately in inverted bell-glasses of equal capacity over lime-water, and in twenty minutes there was about twice as much of a precipitate thrown down in the glass containing the greatest quantity of flowers. This experiment was performed at night. Now, will "S. D." or "D. T. F." explain the meaning of this, and at the same time show there was no excessive waste of carbonaceous matter by the exceptionally large number of flowers? Further, will these gentlemen tell your readers the source of the flower-bud's food from the embryo to its full development, and in doing so clearly prove that the plant has not been drained of much of its food laid up in store during the previous season's growth. The examples of bud-thinning cited by "J. B." are conclusive evidence that they are wrong in their ideas. But although the thinning of flower-buds gives greater strength to those left, it should not be put in practice on all conditions of trees. Those making weakly growth will be strengthened in proportion to the reduction of flower-buds; whereas, vigorous young plants, on the other hand, will be made even more so, and consequently less fruitful, as there will be less likelihood of being able to ripen the wood. In conclusion, I would suggest that the opponents of bud-thinning give it a trial next year and note the result, and in selecting a subject for experiment choose the weakest Nectarine or Peach under their care. When they have done this, their practical experience—not theoretical unbeliefs—will enable them to quote facts, and entitle them to be heard along with those who have tried both methods.

A PEACH FLOWER-BUD-THINNER.

Orchard fruit.—I do not think that we are going to have such a season of bloom as we had last year, at all events not of Plums and Pears. From the attention that we have given the ground under the trees of late with manure and vegetable matter all shoots seem to be breaking strongly.—J. MILLER, *Ruxley Lodge.*

Black-fly on Peach trees.—Since I have used petroleum at the rate of 2 ozs. to the gallon of hot water as a winter dressing for the trees, black-fly has ceased to be troublesome. There was a time, however, when it was quite a scourge, the young growths being paralysed, ruined in fact, by their attacks. Fumigating with tobacco and heavy syringings with clear water have no

appreciable effect on this species of aphides, as they are either securely rolled up in the young leaves, or else, if more exposed to attacks, roll off to recover their old position a few hours later on. They increase with such rapidity, that a few days' neglect may end in the loss of the points of nearly every shoot on the affected trees. Directly it is seen they are on a tree, and they quickly so injure young leaves as to cause them to curl badly, either cut the shoots bearing them cleanly out and burn them, or if they cannot well be spared, pinch off the worst affected leaves and destroy them. Tobacco powder as fine as it can be had and a distributor ought always to be kept in readiness, and a good puff of this or else dipping the shoots in water heavily surfaced over with tobacco powder would do much towards destroying the fly. The tobacco being rather strong should be syringed off the delicate points in the morning following upon an overnight application, and these tactics being early commenced and well persevered with, will do much towards keeping the enemy in check.—I.

KITCHEN GARDEN.

SIMPLE METHOD OF GROWING TOMATOES.

IN gardens where glass space is limited various plans have to be resorted to to keep up a supply of Tomatoes irrespective of what might be obtained from the open air. We have here a row of plants in a light lean-to structure. They are growing in a narrow border. Ventilation is amply provided for, and a comfortable warmth is maintained in the pipes on dull days and during the night. The plants are 18 inches apart, grown as single cordons, and have space to grow ahead for quite 14 feet. That these plants will fruit from base to summit I am confident, full set trusses of several fruits now showing from within a foot of the surface of the ground. Water is needed about twice a week, and a top-dressing will be applied later on. The side shoots are rubbed out as soon as noticeable, and the leader is kept tied up. In small gardens where glass space is limited, there are generally at disposal low pits or frames which have been used as plant protectors during the winter and spring months, but during the summer these are more often than not empty. Generally these small pits or frames are put to such uses as growing Cucumbers or Melons. Of the former there is generally a surfeit, and with the latter success is not always certain. It is in such positions as these that Tomatoes can be grown, as I have a very vivid recollection of having seen splendid crops in low pits in a large market establishment near London. These pits during the winter and spring were occupied with Lettuce, Mignonette, &c. If the pits are heated, so much the better, as a little warmth in the pipes at night and on dull and wet days will make the plants proof against disease, as, according to my experience, it is the want of artificial warmth which predisposes the plants to disease during a dull and wet summer. In the cultivation of Tomatoes in pits and frames, the evil to guard against is overcrowding, for if at all neglected, the flowers will not set, as these must receive plenty of sun and air to strengthen them. The growths will be trained flat, or rather on a slope up to the back of the frame, as being more likely to get the full benefit of the sun. It must not be surmised that the growths will have to be trained flat on the soil or whatever material is filling up the body of the frame, as if so, they, as well as the fruits, would be in too close contact with the soil. The best mode of treating these frame or pit plants is to have the rooting me-

dium along the front, so that the wants of the plants as regards moisture may be seen at a glance. All that is necessary is to make a narrow border along the front of the frame or pit to the width of 18 inches and to the depth of about 15 inches. The framework for training the growths on should reach from this right up to the back of the frame or pit. The trellis must be close enough, so as not to allow the fruits to fall through. It matters little whether the plants have two or more stems, but whatever number, see that the growths are trained far enough apart to allow full light to have free access. Also see that all side growths are rubbed out as soon as perceived, as these act as robbers to the main growths. To ensure free setting, the best course is to give the flower-trusses a shake at mid-day.

If the pits or frames are arranged so that the plants may derive benefit from hot-water pipes, so much the better. Any attempt at damping over-head and closing up the ventilators must be avoided, this having a tendency to make the growth puny, and consequently unfruitful, and also possibly engendering disease. A little ventilation should be given at all times. In cold pits and frames the object in view will be to avoid subjecting the plants to fluctuations of temperature, these predisposing the plants to disease more than anything else. Being unheated, many people think that it is of the greatest benefit to keep the ventilators close, or to close early with sun-heat. My advice with these cold frames or pits, or, indeed, any unheated structure, is to allow a circulation of air at all times, avoiding as much as possible a close and muggy atmosphere. The ventilation may be reduced at nightfall, but care must be taken to increase it in the early morning, for if kept at all close until the sun is far advanced, the plants are very liable to become affected with disease. A firm, woody growth is what is wanted, taking the precaution also not to over-excite the plants with too liberal applications of rich manure, these tending to force a rank and unfruitful growth. A. Y. A.

SEAKALE IN MAY.

WE have had such cold, sunless days with frosts for the past few weeks that most of the early vegetables will be very late, so that Seakale at this date is very useful. It is also of better flavour grown what may be termed naturally than when lifted and forced in strong heat. I am of opinion that Seakale hard forced is never so good in flavour as that grown cool, the latter being more succulent and tender. Some persons object to forced vegetables for several reasons, but no one can object to Seakale grown specially for late spring use, as it is superior in every way, the growth being so much stronger than in the case of forced roots. It is often the case that vegetables like Seakale get overlooked because the roots can be grown so readily. I have seen large breadths of ground that would have given a good return if planted with Seakale. Of course, there is the necessary covering to get pure white heads, but various shifts can be made to do this. Strong sets are preferable to old roots that have split up into several crowns, and though some may think the single-crown system wasteful, not producing so much as the old roots, such is not the case when the extent of ground the old roots occupy is taken into consideration, as the single crowns are grown closer together and there are no losses by decay and old age, as there is hardly a set in one hundred but gives a strong, solid growth. I do not contend that the roots should be destroyed every year, but after having been grown in the same place for two seasons, I prefer to force them and rely upon others in ground specially prepared. We have certainly made good progress in the culture of this vegetable, as I well remember having seen ground years

ago that had the same roots growing for a number of years with wide gaps between and the roots in a very decayed condition, the Seakale being forced under pots.

To get early produce, it is best to choose the strongest root cuttings. When taking up the roots for forcing in the late autumn, I have found it advisable to get strong Kale in the spring to make two lots of sets, reserving the stronger for forcing for the first lot, and the second size for remaining in the ground for later use, discarding weak roots. Blanching is one of the most important points in the Kale grown in the open, as if care is not taken, the growth, if exposed for a very short time, soon becomes green and is not liked for the table in this state. When blanching is being done outdoors, much depends upon the time the Kale is required for use. If in April, less covering is needed. To keep the Kale as late as possible, we cover earlier. I have tried several ways, but having plenty of leaf-mould that has been used in the previous autumn to start Asparagus into growth, I use it to cover the Kale. If pots are used, it is best to plant three or five sets together, according to size of pot, 18 inches apart, and to cover these either with short litter or leaf-soil. Drain-pipes are useful for this purpose when other materials are not to be had. These keep the Kale clean and answer equally well; stakes may also be used and boards nailed together answer well. They are soon put on, the only drawback being in cutting, as the whole length has to be removed to get at the Kale. I have used leaf-mould without any other covering and it brings the Kale up well, but often slugs are troublesome and the Kale gets discoloured by close contact with the soil, so that when any other material can be used first, it is advantageous; even old boxes and tiles are useful for a first covering. To keep it as late as possible, it requires to be covered early before starting into growth and to put quite 12 inches of soil or whatever is used as an outside protection. It is also necessary to protect from slugs and snails, so that a covering of sifted coal ashes over the crowns and giving the ground a dressing of lime are beneficial. I have used gas-lime to advantage at the winter dressing before digging; this destroys wireworm, and if placed on the surface for a short time before digging in, there is no danger. I prefer covering with decayed leaves to fresh material, as there is less trouble with slugs. G. WYTHES.

Runner Beans.—It is not the case that Runner Beans grown dwarf in the open fields have their pods materially spoiled by grit after heavy rains, for the obvious reason that the broad overhanging leafage breaks the force of the rainfall, and there is very little splashing after all. I have been frequently amidst hundreds of acres of such dwarf Runner Beans and found dirty pods to be exceedingly unusual. It is well to point this out because Runner Beans form, so grown, generally a very profitable crop. Mulching with long manure would doubtless be acceptable both to keep down weeds and retain moisture, but over breadths of 20 acres it would not be easy of performance. Such breadths of Beans are rarely topped more than once; indeed, it is seldom found needful. The rows are usually sown from 4 feet to 5 feet apart, and a row of Brussels Sprouts or Autumn Giant Cauliflowers planted between each two rows of Beans. The produce from the two crops is of course very considerable. After having grown Runner Beans in that way for many years, I find it to be an odd experience to have to grow them now in a small enclosed area in a town, a mere yard rather than a garden; but we have in Scarlet Runners, happily, some very tractable plants, which will often thrive wonderfully well in town gardens if cared for sufficiently, especially when in an early stage of growth. In towns, sticks are rarely to be had, and Bamboo canes are expensive. But most town gardens are surrounded by walls or wooden fences, and as I have such 6 feet in height, it is not difficult to furnish the runners with support by the aid of strings running to the top of the fences. The chief dangers to the plants are slugs,

snails, woodlice, and earwigs, but an occasional dressing of soot will do much to keep these in check. It is well also to have a large panful of plants at hand to fill up the rows should any others come to grief. The worst town-grown Runner Beans if fresh gathered will usually be preferable to shop pods.—A. D.

GARDEN FLORA.

PLATE 858.

LUCULIAS.

(WITH A COLOURED PLATE OF L. GRATISSIMA.*)

IT is now about seventy years since *L. gratissima* was introduced into English gardens from the Nepaul Himalayas and figured in Sweet's "British Flower Garden" and in the *Botanical Magazine*. It is certainly one of the very handsomest of greenhouse flowering shrubs, as fragrant as Honeysuckle, and not by any means difficult to cultivate. And yet it is still a rare plant in gardens. Possibly its scarcity here is owing to the fact that it rarely succeeds when grown in a pot, even although it be allowed plenty of root-room, and also to its shy-flowering nature except when large. I have seen shrubs of it in English gardens 10 feet high and bearing over 100 large heads of beautiful pink blossoms in December; but they have invariably been planted out in a well-drained bed of rich light soil and exposed to full sunshine in a well-aired greenhouse. Planted out in a bed of cold soil, the plants will grow freely, but the flower-buds fall off. The success of the one method and failure of the other have recently been exemplified at Kew, where a large specimen was planted in a bed of the temperate house and a second one in the greenhouse (No. 4). In the former the plant grew freely, but never produced any flowers, and it was quite evident that this was due to the coldness of the soil about the roots of the plant. But the specimen in the greenhouse has been an annual feature of the house in December for many years, and in this house the bed is not so low and the temperature of the house is a little warmer than in the temperate house.

To succeed with the *Luculia*, therefore, it is essential that the bed should be well drained and contain about 2 feet in depth of good soil, say two parts of loam to one of peat, with an abundance of silver sand. The position of the bed should be such as that plenty of sunshine and air in summer and a moderately dry atmosphere in winter could be afforded. The plant requires plenty of water in summer and autumn, none whatever in winter. The flowers are developed in December on the ends of the new shoots. After they fade the plant must be well pruned, removing all the new growth except about 2 inches of every shoot. In April or May the new growth pushes, and this is the time for liberal syringing and watering at the roots. The house best suited for *Luculias* is such as is generally provided for *Camellias* and *Azaleas*.

* Drawn for THE GARDEN by Gertrude Hamilton, in the Royal Gardens, Kew, December 5, 1891. Lithographed and printed by Guillaume Severeys.



Weigela florida (L.) Albo

L. GRATISSIMA forms a loose spreading shrub, not unlike a *Cinchona* in habit and foliage, and it grows to a height of from 10 feet to 16 feet. The leaves are glossy green, 8 inches by 4 inches, sometimes slightly hairy on the underside. The flowers are in terminal corymbs about 8 inches in diameter, and each flower is formed of a tube an inch long, with a flat limb of five lobes measuring $1\frac{1}{2}$ inches across, and coloured soft pink. Mr. Woodall, writing to *THE GARDEN* a few years ago,



Luculia Pinceana.

said the flower-heads made the most delightful hand bouquets if arranged with a little greenery and a few coloured leaves such as *Coleus*. They do not remain fresh more than a day or so if cut and placed in water, but on the plant they make a display for several weeks.

L. PINCEANA was introduced from the Khasia Hills in 1843. It has smaller, narrower, more strongly nerved and leathery leaves than *L. gratissima*, and larger flowers, slightly paler in colour. The calyx, too, is larger and there are a pair of raised tubercles on each side of the corolla lobes at the base, suggestive of the corona of some flowers. This species flowers at Kew in January or February. It is not quite so good a garden plant as the species here figured, but at the same time it is decidedly worthy of a place in every conservatory where choice winter-flowering shrubs are a desideratum. Both species are propagated by means of cuttings of the half-grown shoots. Seeds of them are sometimes obtainable from India.—W. W.

The extent to which the cultivation of this handsome flowering shrub has attained since its introduction some seventy years ago would lead one to the conclusion that it does not merit any particular notice, by the very few really good plants that are to be seen in gardens. Such, however, is far from being the case, for wherever the culture of temperate house plants is attempted, there the *Luculia* should find a congenial home. It may be grown in a greenhouse which accommodates the majority of plants coming under that designation, but it is not so much at home in such a house. A house which is suited to *Camellias*, and where the surroundings are such as to be conducive to a healthy and vigorous growth in the case of these plants, is also calculated to suit the *Luculia* remarkably well. This may to some seem strange when a temperate house has been more particularly recommended, but it must be borne in mind that when *Camellias* are making their growth they delight in a fair amount of warmth with plenty of moisture. If the *Luculia* is given such a house it should be placed in a position where not liable to suffer from sharp currents of air, nor should it be too much exposed to the sun's rays during the middle of the day. A conservatory wherein the majority of the plants are growing in

beds rather than in pots or tubs will be an excellent place for it. If a space of wall has to be covered where it is possible to plant the *Luculia* out without the opposite extreme of too much soil, there it may be grown with every prospect of success. It is more adapted for growing in beds and borders than in pots, yet, as indicated in a previous sentence, the opposite extreme must be avoided, otherwise there will be a tendency to make rank wood, which will be unproductive of bloom. As regards soil, it does better in peat than in loam. Light loam would suit, but any tendency to a heavy retentive soil should be avoided at all times. Light fibrous loam and peat of good durable character in about equal parts, with the addition of coarse silver or river sand, would make a capital mixture for it; lime rubble and charcoal would likewise be good additions. The pruning should be seen to after flowering; some in most instances will be found necessary; it thrives well when pruned rather hard, but I would prefer a more moderate course. Before pruning it is a safe plan to let the plant get dry at the root to prevent exhaustion by its bleeding. The stronger shoots should be stopped so as to regulate the growth before they become too much advanced.—PLANTSMAN.

THE WEEK'S WORK.

FRUIT HOUSES.

EARLIEST PEACHES.—The Peach season may be said to be fairly started and the fruit will soon be plentiful, Nectarines being somewhat later, as there are no extra early varieties other than Lord Napier in general cultivation. In most private gardens a rather long succession of fruit is had from one house, this being accomplished by means of several varieties. It is not advisable, therefore, to greatly alter the treatment directly the earliest trees are ripening their fruit, or the latter will perhaps be favoured at the expense of the rest. More air and less moisture are naturally beneficial to the ripening crops, but this change may affect



Luculia gratissima.

the size of later varieties and also favour the spread of red spider. In mixed houses, then, be content to admit rather more air if possible to the early trees, and in any case cease syringing when the fruit is nearly ripe. Continue to maintain a moist atmosphere in the house by frequently damping down and freely syringing the later trees twice daily, that is to say, some time before the house is ventilated in the morning and again when it is closed early in the afternoon. Keep the young

growths neatly tied in and the leaves tucked back from the fruit, the aim being to expose the latter to all the sunshine and light that can reach them in order that they may colour well. There is no necessity to hang nets under the trees bearing nearly ripe fruit, as there ought to be no dropping. The latter occurrence should always be anticipated by gathering all that are ripe enough, the trees being gone over at least once a day. It is a noteworthy fact that some of the earliest varieties produce ripe fruit long before the wood-growth has ceased and after the crops are cleared off; therefore it is advisable to recommence overhead syringing and to keep the house rather close for a time. Especially is this desirable in the case of trees that were moved or severely root-pruned last season.

SUCCESSIONAL TREES.—Those started early in the year will now be far advanced in growth, or sufficiently so to have this finally thinned out and laid in, though, unless the shoots are pressing against the glass, it is advisable to leave it alone till the stoning process is completed. Not a few cultivators defer the final thinning out of the fruit till the stoning period is passed, but there would be far less likelihood of premature dropping if it were done much earlier or before the stoning commenced. In any case, avoid unduly exciting the trees while the stoning is going on, a night temperature of about 60° being ample, while in the daytime the heat may range from 65° to 70° with air admitted freely. Close early and syringe regularly, the present being the most favourable opportunity for keeping down red spider. When the fruit recommences swelling, increase the temperature 5° all round, and lose no time in tying down the shoots and well exposing the fruit. From the outset the borders ought to be kept uniformly moist, liquid manure having been given freely early in the season and stopped during the stoning period, should again be applied when the final swelling commences. Strawberries ought now to be cleared out of Peach houses generally. They require so much water as to badly sour the borders immediately under them and are almost certain to leave a legacy of red spider.

LATE HOUSES.—Heavy crops usually set on trees in late or freely ventilated houses, and too often the thinning, from mistaken motives, is unduly delayed. In most cases all the fruits that remain on the trees after the flowers drop are sufficiently fertilised to swell off if only the trees were capable of supporting so many, and it is far better to thin out early or before the trees have greatly exhausted themselves in trying to swell off far more than are required. Therefore, thin out early, leaving not more than double the quantity that will be eventually reserved. Select those on the upper side of the trees trained up roofs or over semi-circular trellises and those facing outwards on wall trees, as it is only fruit thus well placed that can be well coloured. Avoid over-cropping newly-moved trees and any that it is desirable should grow strongly. Persevere with the thinning out of young growths, a comparative few of those well placed for laying in being reserved for the purpose of clothing blank spaces and for furnishing bearing wood next season. Young growths springing from joints where fruit is left should be stopped at the fourth joint. Syringe freely every morning and again when the house is closed in the afternoon, and see that the roots are kept well supplied with water, any trees not very vigorous also having liquid manure. Fixed temperatures are not needed, but it is advisable to prevent the night temperature, where fire-heat is available, from falling much below 50°, and maintaining a genial growing atmosphere throughout the day favours a healthy growth of tree.

ORCHARD HOUSES.—Apricots, Plums, Pears, Cherries, and such like, now that the crops are swelling fast, should be treated very much as advised in the case of late Peaches, hard forcing

being undesirable. All will be sufficiently far advanced in growth to render it possible for the most timid even to unhesitatingly thin out the fruit, and this should be done freely in order that those reserved may attain to full size as well as the best quality. The trees, whether in pots or planted out, should be stopped or pinched back exactly the same as those in the open are treated, allowing them to form much superfluous growth being a most wasteful practice. Any young growths required for furnishing wall space or for enlarging pot trees should be reserved as much as possible to their full length and early laid in. The fruit on pot trees colours much the best when the plants are frequently turned round so that all sides shall, in their turn, have the full benefit of the sunshine, but in this case they must be raised off the borders or otherwise prevented from rooting through. Such trees will now require abundance of water twice or thrice daily, at times a mulching of manure following upon the top-dressing of rich compost. Stationary trees may be allowed to root out of the pots, and though requiring less other assistance, they must yet be very closely attended to.

PRACTICAL.

THE KITCHEN GARDEN.

LETTUCE.—Instead of sowing and planting Lettuce at lengthened intervals, the wisest course is to do this say at intervals of ten days or a fortnight, as in this way a succession is more likely to be maintained. Fitful supplies must be guarded against. By making small sowings at the time previously stated, a constant relay of young plants is always on hand whether required or not. Soil for Lettuce must be in a well-pulverised and manured condition, this being better than having recourse to liquid manure, which, I am of opinion, should be kept clear of such a delicately flavoured subject. The best site for the seed beds is, perhaps, an east border, but on no account allow them to be over-shadowed. Nor must the seedlings be crowded, this causing the young plants to spindle up and, when planted, to run to flower-stems instead of forming hearts. The seeds should be sown in drills, the beds having a fair proportion of light friable soil spread over the surface if at all lumpy to ensure a more regular and speedier germination. If the weather should be dry, soak the drills overnight, sowing the seeds early the following morning. It is also advisable to cover each small plant with a flower-pot if the weather should happen to be dry at transplanting. To avoid the risk of transplanting, the seeds, especially on dry soils, are best sown where the plants are to remain. The drills should be 1 foot apart, the seeds being scattered thinly, and the seedlings eventually thinned as soon as large enough.

POTATOES.—Only early-planted Potatoes are likely to be injured by frost, as in our own case the earliest are now appearing above the ground. In any case, young growing Potatoes must have prompt attention by working freely amongst the rows, this causing a free growth as much as anything. The best implement for the purpose is a pronged hoe, this stirring up the soil to a good depth. Where it is contemplated to apply artificial manure to growing Potatoes, now is the time to do it, scattering it evenly along the rows previous to hoeing. It will be necessary with the earliest Potatoes to earth them up as soon as ready.

HOLING AND THINNING YOUNG CROPS. The various young crops are coming up well, there being quite full rows of Onions, Carrots, Parsnips, and such like, and this without thick sowing. Directly the little seedlings are well through the soil and the rows can be seen, hoeing must not be neglected, this destroying numberless weeds in a small state, and which if at all neglected would soon smother up the crops. The hoeing also strengthens the young seedlings, and so prepares the way for thinning a little later on. Where thin sowing was practised the advantage will now be seen in the little plants having sufficient room in which to develop themselves without early thinning. It is where the seedlings appear so thickly that early

thinning must be practised, for if at all deferred the root-hold of those remaining is considerably loosened, and forking of the roots is caused. The Dutch hoe is the best implement, and this in good hands is a useful tool. Merely skimming it along under the surface is of no use, this forming a firm and level surface immediately under the top soil. Such crops as Parsnips, Beet and Onions are often transplanted to fill up gappy rows, but although transplanting is not commendable, it is much better to transplant than have faulty rows. Transplanting should be done in showery weather if practicable. Where the Carrot or Onion grub is troublesome, thinning must take place neither too early nor too freely, or the crop may be short.

PREVENTION OF ONION AND CARROT GRUB.—In some gardens the Onion and Carrot crops suffer very much from the above destructive pests, so much so as to almost destroy all hopes of a crop. In the case of the Carrot grub late sowing with a free use of soot, and also getting the soil into a pulverised state lessen the evil, but where the pest is known to be troublesome do not stop at this, but apply preventive measures from now onwards, for a time at any rate. Soot dusted freely amongst the rows often proves efficacious; so also does a little guano or gas-lime sprinkled between the rows. On no account allow this to touch the plants, but sprinkle it along the centre of the rows, the fumes keeping the flies at bay. Diluted paraffin oil syringed lightly over the tops is also a preventive. Slightly earthing up the rows of Onions may also be practised, as it is the base of the plant which the fly selects to deposit its eggson. Transplanted Onions are seldom if ever affected. Prompt measures must be taken in any case, and all affected roots should be carefully dug up and burned. Merely pulling them up would leave the base of the plant and consequently the grubs in the soil. Sprinklings of soot and a free use of the hoe would be sufficient in case of mild attacks.

A. YOUNG.

ORCHIDS.

CATTLEYSAS are now flowering freely, and with these the later-flowering *Dendrobiums*, *Lælia purpurata* and many other things, including *Cymbidium Lowianum* as a background for the more brilliantly coloured Orchids. Owners of Orchids are naturally anxious that the plants should retain their flowers for as long a period as possible, and to do this the temperature of the house must not be too high, the atmosphere not too moist, nor should the house be shut up while the sun shines upon it, so that the temperature is raised as high as we like it for growing plants. There are still the two conflicting interests—plants in growth wanting heat and moisture with the house shut up in the afternoon, so that the temperature may be considerably increased in these bright sunny days. There is much more attention required to keep the entire collection in good condition now, more plants needing watering and the insect pests needing incessant watching. Repotting and placing plants in fresh baskets should be continued whenever opportunity offers. We omitted to repot the *Anguloas* when they started to grow. I believe that is the best time to do it, as they throw out new roots at that time. We will probably find an opportunity to do them when they pass out of bloom. The plants are liable to be attacked by red spider; scale also finds a resting-place on the undersides of the large leaves. Both parasites may be sponged off with soft soapy water. The *Cymbidiums* may now be repotted. *C. eburneum* has passed out of bloom, and those plants that were not repotted last year will be done this. When plants are not repotted, they are surface-dressed by first removing an inch or two of the top soil, replacing it with some fresh compost. They do best in good fibrous yellow loam if this can be obtained from a healthy pasture, and where Bracken or Brake Fern grows naturally. Mix with this a fourth part of fibrous peat, a little decayed stable manure and some coarse sand, adding broken potsherds to keep the whole porous. The roots are of a very thick fleshy nature, and care must be taken not to injure them, for whether

Cymbidiums are repotted in summer or in winter, the roots always seem to be in an active growing condition. The flower-pots should be well drained by putting in some large pieces of clean crocks in the bottom, with smaller pieces over them. Two inches of drainage material would be enough in a 9-inch pot. Over the drainage place some fibre from which much of the soil particles has been shaken. The drainage must be kept open. *C. eburneum* and *C. Mastersi*, with the vigorous *C. Lowianum*, succeed well with this treatment, and they do admirably in the Cattleya house. *C. Parishii* is a lovely Burmese species, and will succeed better in the East Indian house; it will also do well in the usual peat and Sphagnum compost, whereas the others do much better in loam. The genus *Phaius* contains some vigorous-growing stately plants which succeed admirably in loam, and when these and any *Calanthes* require repotting in May, it is a good plan to repot them all at one time. The new *Phaius Sanderi* promises to be the best species yet discovered and sent to Europe of the *P. Wallichii* type. The *Phaiuses* form a striking feature on the centre stage of the Cattleya house, their tall spikes standing above the other occupants. The spikes are sometimes upwards of 5 feet in height. They make their growth in the summer months, and when the roots have well filled the flower-pots, occasional doses of weak liquid manure water are beneficial. These, as well as the *Cymbidiums*, require plenty of water during hot weather when they are growing freely, and I fancy the reason that good loam of a medium clayey nature is better adapted to them than peat is because it holds the water better. In potting the plants it is well not to press down the compost too firmly. These plants must not be allowed to suffer from want of water. At this season of the year healthy Orchids of any kind are more likely to suffer from too little than from too much water. Cattleyas, for instance, ought not to suffer from want of water now; even those at rest when they are kept over-dry at this season become yellowish and lose some of the back leaves. I like to give Cattleyas and *Lælias* a good watering, and wait again until the soil is fairly well dried before watering again. It is a very unsafe practice to keep Cattleyas fastened to bare blocks, for if they once get thoroughly dried the plants are sure to suffer. I am quite ready to admit that some shy-flowering species will produce flowers in that way, when they are not likely to do so if planted in peat and Sphagnum and grown in pots. It is better to dip the blocks in water. If they are watered in the ordinary way the water does not penetrate through to the blocks always. Some persons syringe the plants on blocks; this is even less satisfactory than the other method, especially when there are choice flowers near, likely to be injured by the spray from the syringe. Another cause of the flowers becoming spotted is shutting the house up close at night without any artificial heat.

In the cool house all the plants are now starting to grow freely. The cool spring suits the occupants of this house better than it does the other sections. The drying east winds we are having may not be so beneficial, as it is not well to ventilate too freely at such times, as the dry atmosphere rushing in may check the plants, and it certainly causes the insect pests to become more active. It is well to look carefully over the plants, and remove any of the aphid tribe that may be settling upon the flower-spikes. They must be removed before the flowers begin to open, otherwise when they get into the inside of the flowers they cripple them to an alarming extent. We do not let the plants in this house be entirely without heat. There is no need for artificial heat by day, but it is better to have a little at night to keep the damp from injuring the flowers. If any plants require surface-dressing see to it at once; use clean live Sphagnum chopped up and the best fibrous peat. Some pieces of charcoal and clean potsherds should be firmly pressed into it. It always shows that the atmospheric conditions are right if the Sphagnum grows freely; sometimes indeed it grows too freely and needs to be cut down, or portions of it may be removed to surface any plants that are destitute of it.

The cool house will now be 50° to 55° at night, Cattleya house 60° to 65°, and the East India house about 70°, with a proportionate rise by day.

J. DOUGLAS.

PLANT HOUSES.

STOVES.—GENERAL REMARKS.—The growth of plants in stoves where under favourable conditions will by this time have made considerable progress. This will still further be facilitated by the more favourable weather of the present and past week. Plants which luxuriate in warmth with plenty of atmospheric moisture will appreciate these more congenial surroundings and make rapid headway. In many cases the difficulty will arise as to the best way of accommodating plants as they increase in size without overcrowding each other. The better way is to look well after young and healthy stock, whilst where any duplicates exist that are not in such good condition I repeat the advice previously given to dispense with them rather than spoil others in attempting to grow more than the means at disposal will permit. It is utter folly to overcrowd plants to such an extent as to draw each other up quite out of character. If this happens in lean-to houses it is even worse than in span-roofed ones, for they will soon become one-sided and only fit for remaining just where they are. The effect of plants when grown thickly may be very good for a time as a whole, but there comes a time when the foliage prematurely fades or the vitality of the plants themselves is further weakened to a serious extent by attacks of insects.

This last failing is one not lightly to be passed over; it is bad enough at any time of the year, but when prevalent upon the young growth at this season the measures taken for cleansing require more caution in the application as well as more time in addition. The warmer weather, favourable as it is to plant growth, is equally so to most of our insect pests. The mealy bug, for instance, will thrive amazingly at this season of the year, soon undoing the good work of past months towards its reduction, leaving no alternative but another entire overhauling, and this may be repeated indefinitely if no determined resolve is made to exterminate it once for all. Rather than be troubled with this pest of both plant and fruit houses, I would run the risk of killing the plants infested. This in the end would be far preferable, resulting as it would in a saving of labour, in the healthier condition of the plants, and in a more satisfied state of mind for those in charge. Where it has been almost overcome, no pains should be spared to finally conquer it. Where it is now found in quantity and time cannot be found to treat each case in as thorough a way as one could wish, the next best plan is to syringe the plants with water as hot as can be comfortably borne by the hands in holding the syringe, or to use a reliable insecticide, as Chelsea blight composition or Bentley's soluble paraffin oil, either of which would be found effectual in making a considerable reduction when the printed instructions are not much exceeded.

Scale of whatever kind is not lightly to be passed over; although it is not such a nuisance as the bug, it is bad enough. Time spent now in cleansing will be well repaid. Sponging in all possible cases is a good remedy; if this takes too much time, then syringe as for the bug. Red spider in most cases can be kept under by good and repeated syringing, but the white spider, which where it exists is a far more insidious pest than the first-named, is best kept in check by placing a bag of pure soot in a tank or tub whence the water is taken for syringing. As the water when impregnated with the properties of the soot is in some instances injurious to tender foliage, as in that of young Fern fronds, it is best to keep this soot water by itself. About half a gallon of soot in a bag would last for three or four fillings of a 20-gallon tub. The result of an attack of this insect is to cause the young and tender leaves of Crotons to fall in succession, leaving the points destitute, while it attacks young Vines oftentimes in the same way. Thrips will cause trouble, as

usual, but most so near to hot-water pipes; the syringe, when in good hands with fumigation rather stronger than for aphides, will set matters right.

With the weather milder not nearly so much firing will be required. An unduly high night temperature should be avoided; 70° or 72° may be taken as a good height of the thermometer at nightfall; a few degrees less the first thing in the morning will be better than if higher. When there is a fair amount of heat in the pipes it permits of a more liberal use of the syringe; this will in the case of many plants be almost indispensable, particularly with a young growing stock. Crotons, for instance, may be frequently syringed from early morn to late at night; so also may Ixoras, the Stephanotis, and many other plants. In most instances it will be found that plants which have been repotted this spring will now take more water. Such as Caladiums, although in entirely fresh soil, will bear liberal treatment; so also with Dieffenbachias, Marantas, Crotons, Alocasias (particularly *A. macrorrhiza variegata*), and the ornamental foliaged forms of Anthurium, provided all of these are in a healthy condition at the roots. Flowering stove plants for the coming summer will also as they show for bloom be improved by extra supplies with occasional doses of liquid manure as a further assistance. Be cautious, however, in the case of Dipladenias; it is far easier to injure these handsome flowering plants by over-doses than it is by the opposite extreme. Where these plants are trained near to the glass, see to it that the young shoots now or soon showing for flower are not allowed to intertwine into each other or touch the glass, so as to cripple the points.

JAMES HUDSON.

THE FLOWER MARKETS AND FLOWER-MARKET GARDENS OF PARIS.

(Concluded from page 396.)

PLANTS AND FLOWERS FROM THE SOUTH OF FRANCE.

HAVING so frequently mentioned the flowers of the south of France, I feel myself bound to give a short account of the various branches of culture which are carried on there. When florists speak of the south they mean Provence, from the neighbourhood of Toulon to the Italian frontier. To this region, favoured by the sun with a warmer climate than our own, I will now conduct you in fancy, and in these days of icy north winds and frosts it will be a pleasing contrast to see the green Grass growing fresh and thick, and the countrymen and countrywomen wearing straw hats and gathering flowers in the open air. In Provence flowers have been grown from time immemorial, both for ordinary decorative purposes and, more especially, for the manufacture of scents or perfumes. The opening of the railway, however, which has rendered this district so accessible to visitors from the north, has also brought about a wonderful development of the production of vegetables and flowers, which are now grown to supply the markets at Paris and some other large towns. The Paris-Lyon-Mediterranée Company have afforded exceptional facilities for the transit of these special products, and in order that the flower-growers might not suffer, they have recently abolished some restrictions which would have kept down the traffic. Their sensible and liberal action in this matter deserves our grateful thanks. Of the centres of flower-growing in Provence the first we meet with lies a little to the west of Toulon at the entrance to the well-known passes of Ollioules. Here are grown a large proportion of the Roman Hyacinths, those winter forerunners of the Hyacinths from Holland. Besides the bulbs, which are the staple of the business here, large quantities of

the cut flowers are sent away from January to March, and early in winter these form the main part of the contents of the hawkers' hand-carts in Paris. In the baskets of flowers which are made up by the florists the fresh white bunches of these flowers also form, together with the white Lilac (and less expensively than this), a light kind of garnishing and contrast to the heavier and more showy flowers.

From Ollioules are also sent away large quantities of white and red Stocks, Mignonette, and perpetual Pinks, but the Roman Hyacinths and the white and yellow Polyanthus Narcissi are the two special productions of the place. I do not mention in this connection the Immortelles, or Everlasting Flowers, which are used for making wreaths, chaplets, &c., as these come under the category of dried flowers, with which we have nothing to do at present. On the other side of Toulon, north of Hyères, opens out the valley of Sauvebonne, which is one of the most fertile and best cultivated districts of the south. Solliès-Pont, which is situated at the entrance of the valley, is famous for its orchards which supply the markets of the north with early Cherries, Apricots, and Peaches three weeks before any of these fruit are ripe near Paris. Some years since the people here began to grow vegetables and flowering plants in the spaces between the trees in their orchards, where the ground was previously kept under grass, and both these crops do well in the clayey soil and under the system of plentiful irrigation which, in this climate, is so beneficially applied to orchard trees. From Solliès-Pont are also sent to the Halle large quantities of Quatre Saisons Violets, in small bouquets ready made, which arrive at Paris in basketfuls, and in spring supplies of the various kinds of Anemones which are peculiar to Provence. Leaving Solliès-Pont, we cross the plain of Argens, and having passed through the picturesque mountains of Esterel, we soon come out upon the valley of Siagne, at the bottom of which lies Grasse, surrounded by its gardens of Roses, Jasmines, Tuberoses, and Parma Violets, all grown for the manufacture of perfumes. Many of these flowers, however, are sometimes diverted from their original destination and sent away as cut flowers to the Paris markets, just as in some vineyards Grapes are sometimes spared from the wine-vat and sold in the large towns as dessert fruit. Besides the branches of culture, however, which have long been traditional in Provence, the facilities for transport which are now afforded by the railway company and the amazing increase in the demand for flowers in the large towns of the north of France, have led to the establishment of special branches of culture all bearing upon the production of flowers. First of all, we have in the vicinity of Mowans and Pegomas the fields of the red Nice Anemone and Chapeau de Cardinal (or, in the Provençal dialect, *Capcou de Capelan*), which, at the close of the winter, are sold in large quantities at Cannes and even in Paris. Then there are plantations of Pinks, becoming more extensive and more carefully attended to every year, the Pink being one of the flowers that are most constantly in demand during the winter and one of those that suffer least in transit to a distance.

As we leave the outskirts of Cannes, the fields of Tea Roses become one of the chief features of the landscape. Of these we have already seen a few plantations in the direction of Hyères, but it is only in the region east of Esterel that Tea Roses are grown on an extensive scale. Here the difference of a degree or a degree and a half in the mean temperature of the winter, and the lighter and more porous nature of the soil are sufficient to render more

certain and profitable these branches of culture which on the western side of the same mountains are not so much to be depended upon. In mild winters the difference in temperature is less and sometimes disappears altogether, but whenever the season turns out severe the high-lying granitic soil has every advantage over the clayey lower grounds. Amongst the plants grown in the open fields or broad-terraced grounds it is idle to look for variety. One kind of Rose takes the lead before all others, namely, the Tea Rose Safrano, which is so well known to visitors to the south, that it is commonly called the Rose de Nice. This Rose fully justifies the high estimation in which it is held by the abundance and continuousness of its blooms, the handsome shape of its flower-buds, its fresh salmon-coloured tint, shaded with red on the reverse of the petals, which is exposed to sun and frost, and especially by its valuable property of remaining in flower even when the temperature falls so low as to put a stop to the flowering of every other kind of Rose. This peculiarity accompanies the Safrano Tea Rose when grown about Paris, and in autumn this is the Rose which supplies the latest Tea Rose buds that are to be obtained. In the south of France its comparative hardiness enables this Rose to continue producing flowers for weeks together when no other Tea Rose is to be found in bloom and at the very time when Roses are most in demand. It is only among the Bengal Roses that we find varieties that resist the cold so well and that continue flowering throughout the winter in the open air. The Bengal Rose Ducher, which bears long white flower-buds, and the red-flowered Bengal Rose are, as well as the Safrano, sources of the supplies which our markets receive of low-priced flowers. In the south of France other varieties of Roses are profitably grown on walls or under glass, or sheltered by canvas coverings. Souvenir de la Malmaison, Gloire de Dijon, General Lamarque, Paul Nabonnand, and many others which are thus grown are met with in abundance at the Halle and in the shops of the florists. As in the case of the Rose-forcers of Paris, each variety has a special mode of treatment, and each grower confines himself to one or more particular kinds of Roses, and these he propagates and cultivates with success. At Nice one establishment sends out every winter more than 20,000 flowers of Mar'chal Niel in as fine and perfect condition as you can imagine, and hundreds of thousands of Roses of all kinds are grown at Cannes where the glass shelters are ranged in stages one above another on the sunny slopes. On one of the largest landed properties at Golfe Juan, within recent years there were such extensive plantations of the Tea Roses Safrano, Isabelle, Nabonnand, Coquette de Lyon, Mme. Falcot, and others, that at a certain period of the year no gathering of flowers took place, and in the Rose fields thousands upon thousands of Roses might be seen left to wither as they grew, like the wild Roses in the hedgerows. This, it is true, occurred in spring, a season in which Roses do not travel well and when their market value is at its minimum. But during the winter the growers are careful not to lose a single flower, and the visitor is particularly struck with the careful precautions that are taken on behalf of the Roses, and especially the manner in which they are sheltered by glass structures from the inclemencies of the winter. In these glass structures the growers capture the rays of the sun and send them to us in the shape of flowers of every kind.

Another floral product of the south is grown exclusively in the vicinity of Cannes, namely, the flowers of *Acacia dealbata*, or Mimosa, as it

is popularly termed at Paris, where they are seen in abundance in the florists' shops, and even in the hand-carts of the hawkers during the months of January and February. It is not a herbaceous plant nor a shrub that produces those pretty clusters of silky and airy-looking flowers set off by the finely-cut foliage, but a tall, feathery tree, which grows with amazing rapidity, attaining a height of over 30 feet in five or six years. While it is still young it bursts into bloom, covering itself from top to bottom with yellow, flaky flowers, which give it the appearance of a pyramid of snow powdered over with gold. During winter these pretty branches of velvety flowers are so highly esteemed in Paris that they always command a high price (usually exceeding one franc per kilogramme, or 2½ lbs.), notwithstanding the circumstance that in favourable places numbers of the trees have been planted with the view of selling the flowers, those of a single tree often bringing in as much as £1 12s. to £2 per annum, so that it is no common luxury to be able to keep intact on the trees for one's own enjoyment and that of visitors and passers-by the flowers of large Mimosas, as one may see them preserved in some of the finest grounds at Cannes and in its immediate neighbourhood. For some years past, branches of this *Acacia* have been forced so as to come into bloom by the 1st of January. These early-forced branches, when well done, sell at the rate of 4s. per kilogramme. Some other kinds of *Acacia* also are seen in the markets at Paris, such as *Acacia retinodes* (*Mimosa floribunda* of the florists), which may be found there nearly all the year round, and is readily distinguished by its long, slender, entire leaves; *A. petiolaris*, with its large clusters of golden-yellow flowers and broad leaves, like those of a *Eucalyptus*; *A. longifolia*, the flowers of which are not disposed in globular clusters, but in very elegant racemes, which, unfortunately, have a rather disagreeable odour; and last, *A. cultriformis* (*A. albicans*), with its deep golden-yellow flowers and short silvery-grey or bluish leaves. All of these species make up the Mimosa season, some of them making their appearance before *Acacia dealbata* and others continuing after it has gone out of flower, but while *A. dealbata* is to be had in bloom, none of the other kinds are thought so much of by purchasers.

At Cannes, and still more decidedly at Golfe Juan, we find ourselves quite in the region of the Orange tree. The slopes of the hills here are laid out in terraces, on which are planted rows of Orange trees pruned to spherical heads, like those in our large public gardens, but of more vigorous and exuberant growth, as might be expected from trees constantly growing in the open air. Besides the flowers which are used for the manufacture of Orange flower water and essences, a good many are sent away to the florists at Paris, where they are sold for wedding flowers. One of the most characteristic flowers to be seen about Cannes is the golden-yellow *Chrysanthemum* (the *Anthemis* of commerce), which is more or less abundant from the beginning of autumn to the end of spring. This is very closely allied to those shrubby *Chrysanthemums* which we see at exhibitions in umbel-like specimens 6 feet or more in diameter, but this Provençal variety is distinguished for the bright yellow colour of its flowers, which last for a remarkably long time when placed in water. Up to the present, however, these flowers are more in request in London than at Paris.

This account would be incomplete if I omitted to mention the *Eucalypti*, some species of which, in addition to their value from a

hygienic point of view and as forest trees, also flower prettily in winter. Their white or pink blooms, being devoid of petals, have a very singular appearance. Then we have also *Hakea laurina*, the flower of which resembles a Sea Urchin and presents a strange sight. *Eupatorium*, the flowers of which come very white and light-looking when grown in shade, is another good plant which the florists are beginning to use for bouquet work. Lastly, when I mention *Arctotis aspera*, with its broad, cream-coloured, velvety-black-centred flowers, *Cornflowers*, *Mignonette*, and double and semi-double Dutch *Ranunculi*, I have given a pretty full enumeration of the different kinds of flowers which make up the ordinary supplies from the south of France—an inventory of the floral riches which abound in the vicinity of Cannes, Antibes, and Nice, which, lying in the middle of the Provençal coast, is the most highly favoured region of the south and the real centre of the production of flowers for export. It is far more difficult to estimate the money value of the floral produce of the south than of the like produce which is raised about Paris. The daily number of consignments averages from 1500 to 2000, rising to 2500 during the Mimosa season. But nothing can be more variable than the value of these different consignments. It has been computed that from Nice about a million of various kinds of flowers are sent away; from Cannes and Antibes about the same quantity; from Toulon and Ollioules a somewhat larger amount; and, as in the various towns along the coast at least a million of flowers are sold retail in the markets to the inhabitants and to visitors, it would appear that in Provence the production of flowers puts in circulation the amount of money that is paid for over four millions of cut flowers. As the greater number of these flowers are sent to Paris, following them, we return to that great hive of industrious toilers. We again find the great army of factors, hawkers, and florists engaged in distributing the flowers, according to their class, amongst their various customers, both the fastidious and the easily-pleased. We see flowers in bloom on all sides, decking the altars, embellishing dwelling-houses, soothing and consoling the sick, and bringing a gleam of cheeriness into the homes even of the poor, where their presence is mostly a token of orderly and quiet habits of life, so that when one sees a planter or a bowl of cutflowers on the windowsill of a workman, one will hardly be mistaken in pronouncing him to be the occupant of a happy home. We also see that this branch of industry supplies the means of existence to a vast number of people, and among them to hundreds of women and young girls who nowadays find it so difficult to support themselves, and this should more especially recommend the flower traffic to the favourable consideration of all.

I shall now conclude by hoping that you will not regret the hour during which you have patiently given me the opportunity of explaining to you some of the details and perhaps affording you clearer ideas of the full extent of a branch of our French industries which is praiseworthy in its aims, interesting and ingenious in its processes, and truly prolific in its results.

Growing Bouvardias in the open air in summer—It is a good method to grow on some old cut-back plants in the open air through the summer in pots in a warm place, placing them out early in June, pinching the shoots once or twice, allowing them to grow on afterwards. When treated in this way they make grand plants. *Humboldtia corymbiflora* and *triphylla* are both good ones for

such work. Last August I saw a grand batch grown in this way at Elvetham Park, Winchester. —DORSET.

TREES AND SHRUBS.

THE HOP IN GARDENS.

THERE are few things more beautiful than the common Hop, which, even when seen climbing over the straight poles in the Hop fields, has a gracefulness and picturesqueness inexpressibly charming. We can take some of this beauty to the garden, and use the Hop for covering bowers, arbours, trellis-work, and odd nooks, especially if evergreen vegetation is not required. A good use for it is as a climber permitted to ramble at will over dead trees, amongst shrubs and stumps, as any soil is suitable. We lose much picturesque beauty in gardens by ignoring things like the Hop because they are "common." Nothing is common if it is capable of giving the delight the Hop of the field will when set in a place it can clothe with a luxuriant and rich green vegetation. I remember a gnarled Apple tree on the fringe of a beautiful pleasure ground, over which the Hop had spread its vigorous shoots, and it would have been difficult to discover a prettier bit of free and picturesque growth. As with the Ivy it makes a happy contrast to Clematis Jackmanni and its varieties, the mass of deep green leaves intensifying the colour of the rich abundance of deep blue flowers. Nor is its charm confined merely to summer, but as autumn approaches the plant then carries its rich clusters of golden yellow Hops, and receives additional beauty of no mean kind. We can judge of the rich beauty that a common climber can give when once it has become established by a glance at the illustration. There is another kind called the Japanese Hop, which has been much used for covering arbours and trellises. The growth made is surprisingly rapid. Those who have not yet heard of it should give it a trial, and though resembling the common type, it has no commercial value whatever. The bunches of flowers are larger, and, therefore, the plant has an advantage for the garden. T. W.

PLANTING CLIMBERS AND SHRUBS IN MIXTURE.

WE are indebted to "J. R." (p. 416) for some charming medleys of Roses, Jasmines, Honeysuckles, Clematis, Virginian Creepers and other climbers on chimneys and cottage walls, and there is no doubt that such mixtures would often prove far more attractive than the usual method of planting each climber by itself. "J. R." also gives an artistic example of the planting of climbers among shrubs, using such good ramblers as the Hop and the purple Convolvulus for this purpose. There can be no objection to these and several of the Clematises, Jasmines, and Tropæolums, not the least effective among the latter being the common Canary Creeper. The sprays and wreaths of gold of this common, but charming plant are intensified when seen in close proximity or mixed with the glowing crimson of the Virginian Creeper (Veitchi) or white wreaths of the all too seldom grown Hawthorn-scented Clematis. Even such Evergreens as Hollies, Ives, Laurels, Rhododendrons, as well as all deciduous shrubs, if not overburdened with climbers, may be greatly enlivened in the late autumn and early winter months through a skilful and sparing admixture of brilliant coloured climbers. Among some of the richest shrub or sylvan pictures in home woods or shrubberies are the long sprays of the Old Man's Beard, Honeysuckle, common Roses, Sweet Brier, Virginian Creepers, golden and silver Ives,

and other rambling climbers. A Golden Queen Ivy, a very fine specimen thinly sprayed over with the Veitch's variety of the Virginian Creeper, seen at eventide between the eye and the setting sun, is a sight never to be forgotten, and which ought to be multiplied in many directions. The next most brilliant and striking dual mixture of Evergreens and climbers seen by the writer was a tall Yew hedge in robust health and greenest verdure sprayed over thinly and irregularly with the brilliant Tropæolum speciosum, with here and there a few wreaths of the Canary Creeper. "J. R.'s" article will suggest many other plants for the brightening up of shrubberies.

D. T. F.

Flowering Brooms.—The great popularity attained in so short a time by Cytisus Andreanus has served to direct greater attention to the



A Hop-covered archway.

other spring-flowering Brooms, which, common though they may be, are still very beautiful. The ordinary yellow Broom (Cytisus scoparius) will grow almost anywhere, and its rich golden-coloured blossoms are very showy, while the variety Andreanus, whose two centre petals are of a rich velvety crimson, is now in great demand, and is being propagated as rapidly as possible. The common white Broom (Cytisus albus) flowers most profusely, and the same may be said of the sulphur-coloured Cytisus præcox or sulphureus. As with many of the Leguminosæ, the roots of these Brooms are long and descend deeply into the soil, so that where it is dry and sandy, they succeed better than many other shrubs. The pretty sulphur-coloured præcox cannot be depended upon to come true from seed, and the same remarks will apply to the variety Andreanus.—T.

Pyrus malus floribunda.—The value of this species as an early forcing plant cannot be too highly appreciated. It is very free-flowering, and its deep crimson buds, numerous produced on the branches, are of a bright crimson colour, but when

expanded they lose this tint to some extent. It can be forced easily; in this respect it is much superior to Prunus Pissardi, which does not appear to be particularly free-blooming, while the flowers are very fleeting. I notice some authorities drop the specific name of malus and simply call it Pyrus floribunda. Seeing it is a Japanese species, it is probably correct. It is truthfully described as one of the most desirable of all the Crabs.—R. D.

INFLUENCE OF TREES ON TEMPERATURE.

APART from the fact that a country denuded materially of trees is essentially devoid of the best elements of beauty and picturesqueness, I think it is a fair question to ask how far also average temperatures may be affected. Generally, perhaps, our winters are not so intensely cold as they were 100 years since. On the other hand, it certainly

does seem as if our summers were colder and more contracted, and our springs much less genial or regular in character, and partaking far more of the winter than of the summer. Are these local causes to be associated in any way with the very considerable denudation of trees from which the country has suffered, the clearing of woods and forests, the destruction of roadside and field trees, or has the general change in the temperature no such association? The latest wintery burst of weather flung into late spring was experienced on the 28th and 29th ult. In comparatively treeless districts its force was excessive, and the greater the force the greater its coldness. On the other hand, where trees were plentiful, the very same air was comparatively mild and produced no unpleasant sensations. Was this diversity due solely to the fact that the trees broke the wind's force and rendered it comparatively harmless, or was it due to some warmth-giving power which the trees may possess? This is a matter of considerable importance, not merely from the picturesque aspect, but specially to us as a nation of gardeners and cultivators of the soil, to whom warmth for our crops, especially our fruit crops, is of the highest moment. Generally, we had little to complain of so far as the winter was concerned. It was not until the spring came that we found how inclement could occasionally be those

months which are traditionally associated with the genial spring-time. The fruit prospects were in March all that could be desired. At the end of April we find in many districts hopes have been rudely shattered because of the bitter coldness of the wind during the month and the numerous severe frosts. Even assuming that trees in a condition of rest in the winter may exercise no appreciable influence on temperature beyond acting as wind-breaks, may it not be the case that as the sap rises and leaf and bloom-buds expand, some warmth is thus diffused into the surrounding atmosphere, that warmth being proportioned entirely by the bulk of trees in any locality. Has anyone ever taken the average temperature of the atmosphere in an open treeless district and in a district where trees are abundant, say during the months of April and May? Were such experiments made, they would perhaps furnish some useful evidence. I am not putting this theory forward as a sufficient one; I am simply suggesting it as worthy of consideration and inquiry. There can be no doubt but that within the past half century im-

mense lengths of hedgerows have been cleared, so also of coyses and woods, as well as of hedgerow trees, and breadths of land previously fairly sheltered have been left exposed to the sweep of the cold blast, which gathers strength and coldness the more it is unchecked. Very many farmers and gardeners have found that their clearing notions have not all been successes, and would gladly now have some of the old shelter replaced. A. D.

Spiræa callosa.—There are many beautiful Spiræas usually regarded as varieties of *S. callosa*, or *japonica*, as it is often called. They vary a good deal from each other in stature, colour of the flower, and other particulars, but the whole of them, with the exception of the white-flowered variety (*S. callosa alba*), have the young leaves more or less suffused with crimson, and those in which that character is most pronounced are just now very conspicuous. The richest tinted of these, in association with the golden-leaved variety of *S. opulifolia*, serve to show in a marked manner the peculiar characteristics of each. *S. callosa* does not bloom till about midsummer, so that it is the foliage alone which renders it prominent just now. The bright crimson tint is not limited to the young leaves, but extends also to the shoots, and as the plant continues to grow throughout the summer, it is during the whole season conspicuous on this account, especially as the richness of colouring is intensified by exposure to the full rays of the summer's sun.—H. P.

Spiræa arguta.—This is very noticeable among the Spiræas that bloom at the present season, for it forms a very graceful specimen, and the flowers are, as in most members of the genus, borne in great profusion. The branches of this are slender and arch over in a most pleasing manner, while the minor branchlets are quite wiry in appearance. The small pure white flowers are arranged in such profusion along the upper parts of the shoots as to almost hide the dark wire-like stems, and in this stage it is very beautiful, while a pleasing feature is furnished by the small tender green leaves which are just making their appearance at the flowering season. This Spiræa must be classed among the more uncommon kinds, but it is, I see, quoted at a cheap rate in some nurserymen's catalogues.—T.

Acer circinatum.—This Acer is, from a flowering point of view, one of the showiest of the entire genus, and, taken altogether, it is a very ornamental small or medium-growing tree. The roundish leaves, which are acutely, though not deeply lobed, are bright green, and often in the autumn just before falling they assume a brilliant crimson colour. In the spring, that is about the middle or end of April, the branches are studded with drooping clusters of deep red blossoms, which, in conjunction with the tender green of the unfolding leaves and the reddish leaf bracts, which remain on the tree for some little time, form a very pleasing feature. This Acer, a native of the forests of Oregon and Northern California, was first introduced in 1826, and is one of the many plants from that quarter we owe to the perseverance of David Douglas.—T.

Cydonia Maulei superba.—The ordinary form of Maule's Quince with its orange-red blossoms has proved itself to be a very desirable shrub, and is now extensively grown either as a hardy shrub in the open ground, as a hedge plant, or for flowering under glass. Not only are the blooms very showy, but the comparatively large and handsome fruits which are borne in such profusion form a most attractive autumn feature. As seed ripens readily, immense numbers of plants are raised in this way, but, unlike its immediate relative, *Cydonia japonica*, very little, if any, variation is to be found among them; thus, instead of a long list of varieties, as in the case of the Japanese Quince, the only form of Maule's that I am acquainted with apart from the typical kind is the variety *superba*, which differs from the other in the flowers being much deeper and richer in colour. It is certainly one of the most desirable of the new or uncommon shrubs that are to be found in our gardens.—H. P.

ORCHIDS.

ORCHIDS AT ST. ALBANS.

A WALK through Mr. Sander's Orchid nursery is always instructive, and on a recent visit I saw the new and handsome *Cypripedium Chamberlaini* flowering freely. It is an exquisite variety. The flowers are charming, and the pouch of such a bright and pleasing shade, whilst the number of blooms upon a scape when it attains strength and becomes acclimated cannot fail to establish it as one of the finest of all the Lady's Slippers. The New Guinea forests have yet to yield us some marvellous things in the way of Orchids. Amongst other scarce *Cypripediums* now in flower I must note many very extraordinary forms of *C. Lawrenceanum*, with immense dorsal sepals and the colours so bright on a pure white ground, many fine forms of *C. philippinense*, *C. Elliottianum*, and *C. Rothschildianum*. *C. Wallisi*, the so-called white form of *C. caudatum*, is also displaying its wonderful long-petalled flowers. *Cynorchis flexuosa* is a pretty plant which many of my readers have not seen: the flower is medium-sized, green, but the large lip is a deep yellow, with a crimson blotch at the base. They are terrestrial plants, natives of Madagascar, and nearly allied to *Habenaria*. *Cymbidium Lowianum* is magnificent, the spikes being so numerous that it was quite an impossibility to count them. It is a grand and quaint flower. This likes to be somewhat root-bound before it flowers freely. Many people tried the fish manure upon this, but it only stopped the free-flowering properties of the plant. A large batch of *Calanthe veratrifolia*, the pure white flowers of which stand out in fine contrast to the dark green leaves; *Phajus*, such as *P. assamicus*, *P. maculatus*, *P. Wallichi*, and *P. Sanderi*, the last a superb flower, of large size and beautifully coloured, were also very showy. *Vandas* were numerous. They look in excellent health, and many spikes will be open in a week. I must note a plant of the wonderful *V. Sanderiana* in full flower, and many *Angraecum Sanderianum*, with their long spikes of pure white blooms. *Cattleyas* were numerous and beautiful. First amongst these must be mentioned the beautiful new species named *C. Victoria Regina*. The great beauty of this when established will be evident, as it carries so many flowers on a raceme. From its size and shape it might be taken for a very fine form of *Lælia elegans*, but the flowers prove it to be a true *Cattleya*; the sepals and petals of this glorious novelty, of a rosy crimson (darker or lighter according to the variety), are reticulated with an irregular network of crimson; the lip is very deeply coloured, spreading—not spatulate. *C. Warneri* is also to be seen here in bloom, and the beautifully fragrant *C. Schröderæ* certainly does remain distinct from *C. Triante*. It varies considerably in colour—like all the big-lipped kinds, but all have the same fragrance. *Cattleya Mendeli* is here in quantity. Some flowers have remarkably fine lips, being much elongated, finely frilled round the border and exquisitely coloured. It is a superb *Cattleya*, but said to be now scarce in its native home. *C. Skinneri* and *C. Skinneri alba* are both flowering here; the beautiful satiny rose of the type and the purity of the white in the variety are noteworthy. The clear yellow of *C. citrina* and its exquisite sweetness make many regret that the satisfactory cultivation of this has not been in every case mastered. *Lælia elegans* (the form with white sepals and petals) may be seen in numbers, whilst the majestic *L. purpurata* is numerous, many fine forms being amongst them. Den-

drobiums make up a goodly display. Here may be seen numbers of the pure white *D. Dearei*, one of the most exquisite flowers of the day. Why this plant does not gain favour with the market men I cannot conceive; the longer I know it the more convinced I am it is just the plant for them, and as such I shall not cease to recommend it. Another fine plant is *D. Phalaenopsis*, which is flowering freely, the varieties being endless. Another plant that is getting much into favour through the cool moist atmosphere it requires is *D. infundibulum*. It may also be seen here in quantity. *D. Parishii* is always a favourite with me, as also is the beautiful large white-flowered *D. Bensoniæ*. *Odontoglossums* are magnificent, many spikes of *O. crispum* being open, with many hundreds to come into flower shortly. Among other *Odontoglossums* in bloom I may note *O. luteo-purpureum* in many forms, *O. vexillarium* and *O. Roezli*. Amongst these is the new French hybrid, *O. Bleuenum*. Close by is a fine lot of *O. Phalaenopsis* with its beautiful blooms, *O. Rossi majus* and *O. Cervantesi*. *O. Reichenheimi* is another very beautiful plant. *Oncidiums* are represented by some marvellous kinds, of which the new species called *Oncidium Gravesianum*, somewhat resembling a form of *O. crispum*, is very distinct. It is a very free-flowering plant and a very showy one. Here also are some plants in flower of the beautiful kind figured in the "Orchid Album" under the name of *O. Larkinianum*, a supposed natural hybrid with a brilliantly coloured flower. Noteworthy were fine masses of *O. ampliatum*, a plant that I have always found likes a great deal of warmth; *O. opulentum*, *O. Papilio*, and *O. Kramerianum*. Amongst *Epidendrums*, the beautiful *E. Godsetianum* is flowering in great abundance. This species was described recently by Rolfe, I think. *E. dellense* is also here very abundant, the colours very rich, and the plant dwarf in habit, in which it is superior to its near hybrid, *E. O'Brienianum*. A fine contrast to this is afforded by the beautiful yellow flowers of *E. xanthinum*, whilst the old *E. vitellinum*, which Lindley described as a magnificent species very difficult of cultivation, has been found very easily grown if kept cool and moist. I seldom visit St. Albans without seeing it in bloom, its brilliant orange-vernilion flowers contrasting well with the white blooms of *Odontoglossum crispum*, *O. Pescatorei* and others. The *Masdevallias* are a perfect blaze of flowers. Nothing has yet been found to rival these in colour, whilst the ease with which they may be grown, and at no expense in the matter of fire-heat, should endear them to all. *M. Harryana* is here to be found displaying many shades of colour. *M. Veitchi*, still amongst the best with its large, brilliant flowers, is in great numbers, whilst the hybrid raised by Mr. Cookson and dedicated to Mr. Cortauld by Reichenbach as *M. Cortauldiana* is just opening its large blossoms. Of single plants, I may mention *Aerides Savageanum*, which from its crimson-purple flowers is very distinct. This was introduced by Mr. Sander some two or three years ago, and gives hopes of a distinct break in the colours of *Aerides*. *Grammatophyllum Measuresianum* appears to be a very free bloomer, for here are dozens of its tall spikes of bloom, the flowers being bright yellow, tipped with crimson-purple.

WM. HUGH GOWER.

Cœlogyne cristata (W. Berrie).—I think that the reason why the pseudo-bulbs you send of this species are so shrivelled is because you have kept the flowers upon the plant too long and at the same time starved the plant by keeping it too dry.

Put into an intermediate stove where the atmosphere is moist and give it an occasional sprinkling from the syringe and water to its roots—this is the way to plump it up. I am under the impression many of the bulbs require to be cut away.—W. H. G.

Dendrobium infundibulum.—This fine species of the nigro-hirsute section flowered in the fine collection of Major-General Berkeley at Bitterne, Southampton. It was introduced by the Messrs. Low, of Clapton, who received it from the Rev. C. Parish. It was named *D. mouleianense* by the Messrs. Low, but the plant had been found previously by Thos. Lobb when collecting for the Messrs. Veitch and Sons, of Chelsea, and from whose dried specimen Lindley had named the plant. It succeeds best in the cool house.—*Orchid Album*, t. 448.

NEW WORLD LADY'S SLIPPERS.

THE question whether that portion of the Lady's Slipper family which inhabits the southern half of the American Continent should be separated into a distinct genus or not is one which cannot yet be said to have been settled definitely. Reichenbach established the name *Selenipedium* for them, but subsequently reverted to the original circumscription of the genus as established by Lindley. Bentham and Hooker have, however, kept the South American section separate, whilst Messrs. Veitch, on the other hand, again united them with the Asiatic. It is curious that whilst species belonging to each of the two groups have been crossed with one another and numerous plants raised, not one has yet flowered. This is in marked contrast to the hybrids raised from species of the same group, which both in the American and Asiatic divisions flower with perfect freedom. It may be considered, moreover, as evidence indicating a physiological divergence wider than the botanical characters exhibit. It is, as a rule, an easy matter to distinguish members of the two groups even when out of bloom, although the more important differences reside in the flower.

In the South American section the ovary (or seed vessel) is divided into three cells, whilst in the Asiatic species it is unicellular. More obvious, however, are the differences in foliage and habit. The *Selenipediums* have in several instances creeping rhizomes; the leaves are neither spotted nor marbled, and they are usually much longer and narrower than those of the Old World species; the scapes, too, are often much taller and many-flowered, the flowers expanding in succession from below upwards. So far as horticultural value is concerned, the palm must be given to the Asiatic species, whose flowers are more attractively coloured and whose foliage is often handsomely variegated. On the other hand, the South American species are by no means devoid of beauty, and in several instances the peculiar structure which is characteristic more or less of all the Lady's Slippers reaches its highest development. No class of Orchids has been more enriched and improved than this by the hybridiser's art, not so much in numbers as in quality.

The cultivation of *Selenipediums* is the same as for the Asiatic species in all essential particulars, and they are, in fact, usually grown together. They may be given a tropical temperature throughout the year, a constant moisture at the root and in the atmosphere being indispensable. It is indeed almost impossible to over-water well-rooted, perfectly-drained plants during the growing season. At the same time most of them may be grown in a more intermediate temperature, or one at least 5° lower than that of the East Indian house, and for *C. Schlimi* the

cooler conditions are absolutely necessary if it has to remain in health for more than a year or two after importation. In regard to soil, a compost of fibrous peat and Sphagnum should constitute the base for all the species, but for the stronger-growing kinds, like *longifolium*, *grande*, *Sedeni*, and *caudatum*, a proportion of one-third loam-fibre may be added with great advantage. Respecting the use of loam for these (and many other) Orchids, a larger proportion may undoubtedly be used in country districts, where the air is purer and clearer, than would be found suitable in the vicinity of London. All the sorts must be grown in pots, or, in the case of large specimens, in broad and fairly deep pans. Repotting should be done in spring before growth recommences, care being then taken to provide ample drainage.

Of about ten species known to botanists the following six, with their varieties, include all that are obtainable in any quantity and which at the same time can be said to be worth growing:—

C. BOISSIERIANUM, one of the rarest in this group, was first discovered in Peru about a hundred years ago, but it was not until 1876 that it was introduced alive to Great Britain. Davis, one of Messrs. Veitch's collectors, found it along with *C. caudatum*, but only one plant arrived in a living state, and it is from that that all the plants at present in cultivation are supposed to have been obtained. It has narrow strap-shaped leaves upwards of 2 feet long, and erect scapes about the same in height. The sepals and petals are of a pale yellowish green, veined with darker coloured lines and having white margins; the lip is brownish in front, the remainder pale green spotted with brown. The petals are twisted, 4 inches to 5 inches long, and (unlike most of the species) stand out horizontally; the vertical diameter of the whole flower is about 6 inches.

C. CARICINUM (Pearcei) differs greatly in general character from the preceding species. It is also better known in gardens not only in being more common, but also in being one of the parents of the first hybrid raised in this section, *C. Dominii*. It is probably oftener grown in gardens under the name of *C. Pearcei*. Its leaves are very narrow and sharply pointed, from 1 foot to 18 inches long, and of a deep shining green. The scapes carry four or five flowers, which in colour are a combination of pale green and white, the petals being pendulous, hanging close beside the lip, and measuring about 5 inches in length. The flowers, although pretty, are not showy. This species is a native of Bolivia, and was introduced to England in 1863. It is one of the few species with creeping rhizomes.

C. CAUDATUM.—Not only in the size of its flowers, but more especially in their beauty and remarkable structure, this species stands out beyond all the others from South America, and representing as it does the extreme type of the long-petalled Lady's Slippers, it is indispensable to every collection of warm Orchids. It has strap-shaped, pointed leaves, each 1 foot long and dark green. The scapes are half as long again as the leaves and carry generally three flowers. The upper sepal is 6 inches long, arching forward over the lip; in colour it is yellow with green veins; the lower one differs in being broader. The petals on the first opening of the flower are about 4 inches long, but growing at the rate sometimes of 2 inches a day, they ultimately attain a length of from 1½ feet to 3 feet. They are chiefly of a brownish crimson colour, but change to yellow near the base. The lip on the outside is brownish green, the inside ivory-white spotted with purple; it measures about 2 inches in depth. In the variety *Wallisi* the flowers are smaller and paler in every part; they are, however, very handsome, the sepals being ivory-white veined with yellowish green and the lip mottled with rose. Another distinct variety is *Warscewiczii*, which has sturdier foliage and in which the sepals are yellow with orange-coloured veins, and the petals mostly of a

rose-purple. So far as botanical interest goes, what is now known as *C. caudatum* var. *Lindeni* is the most noteworthy. Its peculiarity consists in its having no pouch, this being replaced by a third petal which is like the other two, except that it is broader towards the base. This plant was originally placed by Dr. Lindley in a separate genus and called *Uropedium*. But in spite of some differences of opinion, there is now little doubt of its being anything else than an abnormal form of *C. caudatum*, flowers having been produced on the latter midway between the two. The typical *C. caudatum* was introduced by William Lobb in 1847 from the Huanuco district in Peru, and flowered for the first time under cultivation two years later. The variety *Wallisi* is found farther north, in Ecuador, whence it was introduced nearly twenty years ago. The variety *Warscewiczii* occurs in Central America, and *Lindeni* in New Grenada. Thus it will be seen that the species in all its forms is spread over an immense area. It flowers at the present season.

C. LINDLEYANUM.—A curious species which was first seen in flower at Kew in 1885, having been sent there from the Kaieteur Falls, Demerara. It is a strong-growing plant with leaves between 1½ feet and 2 feet long and distinguished by a thin marginal line of yellow. The flowers are not large, being in colour various shades of green and reddish brown; they are noticeable on account of the marked pubescence in various parts. A plant was lately shown at a Drill Hall meeting, but, although of striking habit, it is otherwise a species of but little garden value.

C. LONGIFOLIUM.—In habit this plant is one of the handsomest of *Cypripediums*, the leaves being of a rich shining green. It thrives under cultivation better than almost any other species, and is rarely seen either in bad health or out of bloom. I have seen a plant continuously in flower for between two and three years. The flowers can scarcely be termed handsome, being chiefly of a pale yellow green stained and spotted with rose-purple. What is generally known as *C. Roezli* is properly a variety of *C. longifolium* called *Hartwegi*; it is handsomer in bloom, the rose colour being more pronounced and the plant itself more robust. This species is the most northern representative of the *Selenipediums*, being found above the isthmus of Panama in Costa Rica.

C. SCHLIMI.—This charming little species is quite distinct from any of those previously mentioned. In gardens it is rather rare, although well known as a parent of the best of the numerous hybrid *Cypripediums* now in existence. It is a dwarf plant, its bright green leaves being narrow, pointed, and from 9 inches to 1 foot long. The scapes are about as much in height and carry but few flowers. These are upwards of 2 inches across, the upper sepal white tinged with pink, and the lower one white veined with pale green; the petals are also white, but spotted with rosy purple at the base; the lip is very much rounded with the opening greatly contracted; it is of a deeply rose-tinted white, streaked with rose at the mouth. The whole flower is covered with a soft pubescence. In the var. *album* the flowers are of a purer white, although there is usually a tinge of rose on the petals and at the opening of the pouch. *C. Schlimi* was introduced to Brussels in 1854, having been discovered two years previously on the mountains of New Grenada. It is not an easy plant to maintain in the best of health, and, as previously stated, prefers a lower temperature than any of the other species.

The first hybrid raised in this group was *C. Dominii*, which has now been in existence for twenty years. It was raised in Messrs. Veitch's nursery by Dominy from *C. caricinum* and *C. caudatum*. It is intermediate between the two, the sepals being white with yellow veins, whilst the petals are of a rosy pink except at the base, where they are yellow veined with green; like the petals of *C. caudatum*, they are pendulous, and measure 8 inches or even 10 inches in length. The pouch is yellowish green with

brown veins, the mouth spotted with rose. Following this came *C. Sedeni*, which with its varieties and allies still remains the most useful of the *Selenipedium* hybrids. Its parents are *C. Schlimi* and *C. longifolium*, and it has been raised with each as a male and female parent. It is of strong and handsome growth, being altogether one of the most robust and easily grown of Lady's Slippers. The flowers are white, tinged and spotted more or less deeply with rose, the lip being almost entirely rosy pink. Var. *candidulum* was raised from the same species, but with the var. *album* of *C. Schlimi*; var. *porphyreum* owns *C. longifolium* Hartwegi (Roelzi) as one of its parents; both are superior to the original *Sedeni*. This hybrid is itself the parent of several others, of which may be mentioned *cardinale*, from the white variety of *C. Schlimi*; *Ainsworthi*, from *C. Roelzi*; *calurum*, from *C. longifolium*; *Schroederæ*, probably the finest of all the *Sedeni* group raised from *C. caudatum*.

The most striking and remarkable success in hybridising *Selenipediums* that has been obtained is *C. grande*, which was raised by Mr. Seden from *C. Roelzi* and *C. caudatum*. It is not only stronger in habit than either of its parents, but is more robust than any *Cypripedium* known; if it never flowered it would still be well worth growing. The scapes are often 3 feet high, the flowers being the largest of any in this group. The most conspicuous feature of the flower is the petals, which are considerably over a foot long. In colour the flower presents a combination of various shades of green and white. W. J. B.

Odontoglossum Oerstedii.—Although amongst the smallest of *Odontoglossa*, this species is also one of the prettiest, its chaste and dainty little flowers having been for the last month some of the most charming objects in the cool Orchid house. It is a native of Costa Rica, being found there on the highest parts of the mountains at elevations of 7000 feet to 9000 feet. It has pseudo-bulbs about an inch in diameter, slightly compressed, and bearing a single leaf, which is from 3 inches to 4 inches long. The spike is a little longer than the leaves, and bears, as a rule, two or three flowers. The strongest form, however, known as *majus*, bears four and even five. Each flower is a little over an inch in diameter, with oblong and slightly concave sepals and petals, which in the best forms are of good substance and overlap each other. The lip is almost orbicular, and is deeply notched at the apex; like the other parts of the flower, it is pure white, except, however, at the base, where a small patch of yellow occurs. It was first discovered by Warszewicz in 1848, but although noticed subsequently by other travellers, it was not until 1872 that it was brought to England by Endres, one of Messrs. Veitch's collectors. It should be grown in the cool house, potted in shallow pans in a compost of Sphagnum and peat fibre, and suspended near the roof-glass. It is described as growing naturally on the Moss-covered branches of low trees in districts where dense fogs are of daily occurrence, from which may be inferred the necessity of keeping the roots, and more especially the atmosphere in which it is grown, very moist. B.

Dendrobium thyrsiflorum.—Although considered by botanists to be a variety of *D. densiflorum* and named var. *albo-luteum*, this plant is beautiful enough to justify the retention of the original name, for garden purposes at least. At this season, when it is usually to be seen in bloom, the Orchid house affords a no more gorgeous sight than that of a large and well-flowered specimen. Its stems are erect, from 1 foot to 2 feet high, and terete. The leaves are few and confined to the apical portion of the stem, whence also the pendulous flower racemes are produced.

These racemes are from 8 inches to a foot long and about 4 inches through, and carry many flowers. The sepals and petals are white, whilst the wide funnel-shaped lip is of a rich orange-yellow; each flower is $1\frac{1}{2}$ inches across, and they are so closely set together, as to hide the central shaft on which they are borne. The charming effect of the combination of rich yellow and white is heightened by the delicate, almost transparent texture of the sepals and petals and the soft pubescence of the lip. The distinctions between this plant and *D. densiflorum* are readily noticed; the latter has shorter, stouter stems, and they are four-angled; the flowers, too (in the typical form), have orange-yellow sepals and petals. *D. thyrsiflorum* is a native of Moulmein and Lower Burmah; it was first discovered by the Rev. C. Parish, and was introduced to England by Messrs. Low in 1864.

CATTLEYA WARNERI.

I FULLY agree with the observations of Mr. Gower (p. 413) on this grand *Cattleya*. Considering its fine qualities, I was indeed surprised to read that one seldom sees even a small plant. I was also surprised to see it noted that many growers find it also a shy bloomer. A few years ago there must have been quantities in cultivation, and if the majority of these plants have vanished, I fancy that this must be attributed more to errors in culture than the waning popularity of the species. Instead of being a shy bloomer I find the very opposite to be the case. The first time I became acquainted with this *Cattleya* was upwards of sixteen or seventeen years ago. At that time Mr. Douglas, then of Loxford Hall, used to exhibit a fine plant at Regent's Park and other shows. It is evidently from not according it proper treatment that the plants have vanished. Anyone not well acquainted with the requirements of this *Cattleya* could easily fail with it. Unlike other *Cattleyas*, this species does not commence to root until it has finished its growth and also flowered. Any other *Cattleya* would commence to root long before this, and there need be no mistake in affording a fair supply of water to push up and strengthen the flowers, let alone support the growth which follows. This *Cattleya*, unlike some of the others, throws up its flowers with the growth. I have a grand plant now unfolding thirteen flowers; last year the same number also appeared, and the year previous eleven, so this does not favour the shy-flowering theory.

This *Cattleya* commences to make its growth in the winter, and during the whole time until it has flowered it is kept in a structure, the minimum temperature of which during the winter is 60°. At this time it is 65°. Just now the plant has water once a week, this to assist in maintaining its plumpness. If more than this were applied, the pseudo-bulbs would very quickly decay, commencing at the base. This is generally the time at which the mischief is done, people thinking that because fresh pseudo-bulbs are being formed, the general application of water is a necessity. After it has flowered is when root-growth commences, and not until this is seen should the plant be regularly watered, and then only to keep the material fairly moist. During the summer after flowering I place our plant in the *Cattleya* house and where it is rested in the autumn. In the early part of November the plant is given warmer quarters than those afforded the majority of other *Cattleyas*. The whole question of success or failure appears to turn on the water supply and also in subjecting it to warmer treatment during the winter, spring and early summer. A. YOUNG.

Abberley Hall.

SHORT NOTES.—ORCHIDS.

Cypripedium vexillarium.—This hybrid, figured in the "Orchid Album," t. 447, was raised by the Messrs. Veitch, of Chelsea, about twenty years ago. Although this is one of the earlier crosses, yet from its charming and brilliant colours and its general contour, it must always take a foremost place amongst Slipper Orchids. This most beauti-

ful hybrid is the result of a cross between *C. barbatum* and *C. Fairrieanum*.

Cattleya Schroederiana alba.—A beautiful white form of this plant comes to me from Messrs. Seeger and Tropp, the Orchid Nurseries, Dulwich. This is a fine flower, very fragrant, and, I think, quite distinct from *C. Trianae*, with which it is usually associated.—W.

Cattleya Mendeli.—T. Jackson sends me four varieties of this plant, all of them distinct and all very beautiful. The flowers are of good size and the colours are very good, but I have seen some *C. Mendeli* much superior both in the size of the lip and also in the colour of the flowers. None of the flowers sent have any character by which a varietal distinction could be made.—G.

Lælia purpurata Brysiana (J. Nichols).—The flower sent for *L. purpurata purpurea* is the form which used to bear the name given above some thirty-five years ago, at which time the forms having white sepals and petals were considered to be the true *L. purpurata*. The flower now before me is a very good variety, the sepals and petals of good form, the colour soft rosy purple, the front lobe of the lip deep maroon-purple. I would advise you to take care of this variety.—W.

Lælia Boothiana.—J. McEvoy sends me a splendid flower of this plant, which was called *Cattleya lobata* by Lindley on account of the deep lobings of the petals and the lip. In the flower sent, the petals, although undulated and toothed, cannot be said to be lobed. These, together with the petals, are of a deep rosy lilac; the lip is lobed and prettily frilled, the convolute portion being rosy purple, the front much lobed and frilled, of a rich bright purple, and streaked with a paler purple.—W.

Aerides Picotianum.—Gustav Schwarz sends me blooms under this name from Hamburg asking if I know the variety, and, if so, if it is in commerce. I know the plant well under the name of *A. Houlettianum* given it by Reichenbach. It is a very pretty flower, with somewhat tawny yellow sepals and petals, each tipped with crimson-purple, the lip being rich purple with a fringed border. As the flowers lie before me, they have a great resemblance in everything save colour to those of *A. falcatum*, which is, perhaps, better known to Orchid growers by the name of *A. Larpentæ*; after Lady Larpent, in whose collection it first flowered some forty-five years ago.—W. H. G.

Orchid blooms from Gainsborough (F. W. Burton).—No. 1 is a magnificent *Cattleya Mossiæ* of good size, measuring upwards of 7 inches across, and of good shape, the sepals and petals being a deep rosy crimson; lip large and beautifully frilled round the margin, deeply stained with rich and bright crimson-purple in front. It is a magnificent variety. The *Lælia purpurata* appears to be a somewhat small-flowered variety, the whole of the flower white, saving the front portion of the lip, which is very dark purple. *Odontoglossum luteo-purpureum* is a good form, and so the variety of *Masdevallia Harryana* appears to be, but it is so shrivelled I can make nothing of it. Kindly send me another flower of this if you can spare it.—G.

Lily bulbs from the Cape.—Quite recently a large consignment of Lily bulbs from South Africa appeared at the London auction rooms, and, what is more, in first rate condition. They appear to be *Lilium Harrisii*, or at all events one of the forms of *L. longiflorum*, for the bulbs of all the reputed varieties of the long-flowered Lily cannot be distinguished from each other if they are all grown under similar conditions. Some of these South African bulbs are large, plump, and well ripened, so that as far as one can judge they should commence rooting directly they are placed under conditions favourable to growth. With the rapid means of transit now available, plants, but especially bulbs, are cultivated in various parts of the globe to supply the demand in this country. Thus, in addition to the *Tuberoses* which South Africa has given us for some time, must be added

these Lilies, and if successful, their cultivation at the Cape will no doubt be greatly extended. Then from Bermuda we get the Easter Lily, the first consignments of which usually reach this country about the latter part of July. Japan also sends us immense numbers of many Lilies, in the cultivation of which we cannot compete with them, while in Brazil Caladiums are now cultivated for export. South African bulbs just imported should form a succession to the latest of those from Bermuda, and still further extend the season over which blossoms of the longiflorum group of Lilies can be obtained.—H. P.

PLEASURE-GROUND NOTES.

EVEN in the summer days when trees are at their best, when foliage is fully developed and shrubs in great variety are bright with flower, it is doubtful if the pleasure-grounds are more beautiful or more enjoyable than during the first weeks of May. Perhaps the secret of such a special pleasure at the present time lies in a keen appreciation of the new life of trees and deciduous shrubs after the many bare months of winter and the many beautiful contrasts presented by these things in their spring dress. I noticed the other day a lot of silvery foliage above some dark Yews, and found it to be the under side of the young leaves of the Service Tree. It was a beautiful contrast, more striking, although, perhaps, not more beautiful, than is shown by the bright green young growths of the Hemlock and Spruce Firs against the older and darker foliage and the prominent tips of young shoots of Silvers, the white of brachyphylla and concolor, and the pink of Pinsapo. Some bright effects are also produced by Sugar Maples flanked with copper Beeches and a mass of the common Beech backing a group of Deodars. These are a few of many interesting and beautiful combinations in spring foliage, and instance the results of judicious and careful planting. It is still early for the mass of flowering shrubs, but Berberis Aquifolium and B. Darwini, one or two Spiræas and Viburnums, Forsythias, Brooms, Ribes in variety, and the old scarlet Rhododendron have been very gay. I referred a short time ago to the difference in growth of the Lebanon Cedar when planted singly or in groups of five or six. As an instance of the tendency to horizontal branch-growth of isolated specimens, I may mention that a branch measured the other day gave just 90 feet from end to end. Supported by props, it is singular as being quite parallel with the ground, the distance from the ground level at its emergence from the trunk and its extremity being identical. Daffodils are dying hard, plantations of the commoner varieties of the incomparabilis section on shady north-west slopes being still bright. This is worth noting, as the value of Daffodils for cutting renders any chance of lengthening the flowering season an object of interest to the gardener. The same varieties in the open herbaceous borders were at their best three weeks ago. The advent of scythe and machine-mowing and the consequent sweeping and cleaning attendant thereon have practically stopped for the present all extra pleasure-ground work; occasionally, however, as time permits, we are still giving attention to old Laurel breaks that are getting a little the upper hand of us in height, cutting partially through close to the ground and laying (not layering) the old stuff instead of cutting it right off, retaining the dense undergrowth while we reduce the height. Rabbits have been troublesome this winter, and many dead and dying Laurels testify to their destructiveness. Small specimen conifers planted here and there to take the place of those now past their best and that are getting in the sere and yellow leaf have their stems protected by galvanised wire netting some 2 feet from the ground. The nibbling propensities of these rodents cannot be too often or persistently pointed out, and planters would do well to either protect at once and effectually, or where this cannot be done, to plant those things that claim exemption from their attacks. Wire netting let well into the ground and standing

30 inches clear of the same is necessary for all slopes and quarters that have been cleared of old Laurels and common Rhododendrons, and planted with flowering shrubs and the larger herbaceous subjects. Attention has been directed in occasional notes to the advisability of encouraging the planting of Camellias out of doors in favourable spots in the home counties and within a certain radius of London, but the writers possibly forget that successful outdoor culture does not mean exactly the retention of clean and healthy foliage, or even the setting and partial expansion of plenty of buds, but rather whether a fair percentage of good flowers will ever stand to repay the skill and care of the cultivator. There may be a few favoured spots where they can be secured, but here we very seldom get them. Plenty of buds which may expand perhaps to the dimensions of a fair-sized Rose-bud, and then a few degrees of frost, a shower of sleet, a nipping wind destroy all chance of a display for the current season. Only once in eleven seasons have the flowers opened well and remained in full beauty for a considerable time, and for this reason I should pronounce most emphatically against the idea of outdoor Camellia culture unless some very substantial covering, as, for instance, thick tiffany or scrim canvas, could be placed over them so soon as the flower-buds showed signs of plumping.

E. BURRELL.

Claremont.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

MAY 17.

THIS gathering was the smallest in point of exhibits of a general character yet held this season. In spite of this, there were several new plants of much promise exhibited; likewise of fruits the same should be said. The scarcity was in the groups usually so well to the front, these greatly helping to make the gatherings attractive to the visitors. There was no competition in either of the classes provided for greenhouse and hardy Azaleas, nor for Pelargoniums. This is somewhat singular on the eve of the Royal Botanic show. In other respects, the paucity of exhibits may be safely attributed to the nearness of the Temple show.

Orchid Committee.

First-class certificates were awarded to—

CATTLEYA IRICOLOR, a variety which has been already brought into requisition as one of the parents in various crosses by Messrs. Veitch and Sons, and which have been shown at recent meetings. The growth and habit are dwarf and compact. This is a beautiful species, still very scarce, being the only plant in this country. The sepals and petals are bluish-white and of much substance, the lip fringed on each side with a well-defined transverse bar of golden yellow, with veinings of purplish crimson, the inner portion of the lip extremely beautiful. Exhibited by Baron Schroeder.

VANDA TERES ALBA.—In form of growth and of flower this is a counterpart of the species, but the colour of the flower throughout is a beautiful pure white, with the throat of a pale lemon colour; a remarkably fine form of this grand old Orchid. From Lord Rothschild, Tring Park, Tring (Mr. Hill, gardener).

Awards of merit were given to—

CYPRIPEDIUM EVENOR (bellatulum × Argus).—This hybrid has the free growth and foliage of Argus with a twin-flowered spike, the fully-developed flowers being more after those of the other parent in character, the ground colour a pale buff, the spotting more profuse, but much more minute; the sepals are broad, making it a conspicuous bloom. From Messrs. Veitch and Sons.

MASDEVALLIA CAUDATA-ESTRADE (caudata × Estradæ).—This hybrid is of dwarf habit, but bears evidence of being a most profuse flowering one, the

flowers of a rosy lilac and of good substance. From Messrs. Veitch and Sons.

CATTLEYA SKINNEBI (Temple's var.).—The plant exhibited was a finely grown one, very vigorous, with stout pseudo-bulbs, bearing two large spikes of flowers, the colour of which is deeper than in the species, the sepals and petals considerably broader, the lip having a well-defined white blotch in the centre. From Mr. Temple, Leyswood, Tunbridge Wells.

CATTLEYA SCHRÖDERÆ LEYSWOODIENSIS.—A beautifully marked form of this choice Orchid, the sepals and petals of the usual colour, whilst the throat has a rich orange blotch edged with rosy lilac, the margin white and finely fringed. From Mr. Temple.

A botanical certificate was given to *Sarcopodium Lobbi* var., which, speaking without the type for comparison, is probably a paler yellow form, with reticulated markings rather than spots. From Mr. Lucas, Warnham Court, Horsham. A cultural commendation was given to some magnificent cut blossoms of *Cattleya Mendeli* in the finest varieties, in which the lip was more highly coloured than usual, and also a superb spike of *Odontoglossum Alexandræ* with ten fine blooms. From Mr. White's collection at Arddarroch, Gareloch Head, Dumbartonshire.

From Messrs. Veitch and Sons came also a fine plant in vigorous health, bearing several long spikes of flowers, of *Dendrobium lineale*, from New Guinea. The flowers are of medium size, of a creamy white colour, the lip veined with pale lilac; a species of noble growth. Another hybrid *Cypripedium* was also sent. This, if not the result of such an interesting cross as that previously alluded to, is yet quite as handsome. In this case the wings are densely spotted, of extra length, and twisted. It was raised from *hirsutissimum* × *ciliolare*, being named *C. eurylochus*. Mr. Temple had another fine form of *Cattleya Schröderæ* in *rosea*, which, if not so markedly distinct, is equally beautiful with the other variety shown with it and duly recognised, the lip being of a rich rosy colour, with a bright orange blotch, the petals extra broad. From Mr. Wigan, Clare Lawn, East Sheen, came a plant of *Dendrobium Leeanum atro-purpureum*, which had been imported with *D. Phalaenopsis Schröderianum*, to which it bears some resemblance, but with flowers of a dark rosy crimson colour. From other exhibitors came cut blooms of *Lælia præstans*, two fine forms of *L. majalis* (one with light and the other with dark lilac-coloured flowers), and two varieties of *Dendrobium superbiens*, one being much superior in colour, a purplish rose, the spike of extra length.

Floral Committee.

First-class certificates were awarded to—

PANDANUS PACIFICUS, a South Sea Island species of truly noble growth, with broad, somewhat short, but sturdy and recurved foliage of a bright green colour armed with the usual spines upon the edges of the leaves, and also upon the midrib, but all set in one direction, whereas in the case of *P. javanicus* variegatus those in the midrib incline in the opposite direction and towards the base of the leaf. From Messrs. Veitch and Sons.

WISTARIA SINENSIS ALBA.—A variety of this well-known and popular hardy climber, which is neither sufficiently grown in our gardens nor nearly enough known; the cut examples shown were even more profuse in flowering than the type, with longer racemes of flower, but in other respects similar except in colour. There appears to be some notion that there are two varieties of this white form; if so, this must be considered the superior one. From Messrs. Veitch and Sons.

Awards of merit were given to—

PELARGONIUM ARETE, a sport from *Volonte Nationale*, also shown for comparison. In the sport the colour is several shades deeper, a bright cerise, betokening also the greatest possible freedom in flowering, the trusses large; the habit is also very good. Messrs. Veitch and Sons.

HYBRID TEA ROSE LADY HENRY GROSVENOR, a delicate blush-pink with extra large blossoms, very full, the habit sturdy and robust. The shell-

like petals are of great substance. From Messrs. W. Paul and Son.

From Messrs. Wm. Paul and Son also came a small group of other new Roses of various types. Zenobia (Moss) gives promise of a vigorous growth, with rose-coloured flowers, not unlike Jules Margottin (H.P.); Pink Rover (climbing Tea) has pale pink blossoms, its name denoting its character, both plants and cut blooms being shown; Medea (Tea), of a dwarf, but vigorous growth, with extra large globular flowers of a clear pale yellow and very full. From Messrs. Lane and Son, Berkhamsted, came a beautiful basketful of Polyantha Rose Anna Maria de Montravel, quite a counterpart of Perle d'Or, save in colour, which in this instance is a pure white with the greatest possible freedom in flowering. From the same source came also The Pet, a taller form of the same race. Mackaya bella (figured in THE GARDEN, August 16, 1879) and Cantua dependens (also figured in THE GARDEN, September 12, 1885) were shown by Hon. P. C. Glyn, Rook's-nest, Godstone, and were greatly admired, both being out of the common line of flowers. The Cantua was particularly bright in colour. A vase filled with flowers of the new Streptocarpus was shown by Mr. Haywood, Woodhatch, Reigate, clearly showing the valuable acquisition these flowers are in a cut state; the colours were very varied, from white to blue and rose colours, with clearly defined markings. From Mr. Elliot, Stour Valley Nursery, Christchurch, came a dwarf form of Richardia albo-maculata called nana, which must be seen in better condition to gain approval. Some good forms of Anthurium Scherzerianum were shown by Messrs. Peed and Sons, Norwood, with spathes of the best shape, but not of excessive size. From Kew Gardens came several trusses of Himalayan and hybrid Rhododendrons bearing close affinity thereto. R. Griffithianum is a truly noble species with pure white bell-shaped flowers from 5 inches to 6 inches across, the truss, an immense one, with nearly a dozen flowers; other good kinds were R. kewense (Griffithianum x Hookerianum), a blush-coloured hybrid with large clusters; R. Dalhousianum x formosum bore much resemblance to Countess of Haddington, but with finer flowers than usually seen in that kind; R. arboreum and the form with white flowers were also shown. Messrs. Veitch and Sons exhibited cut specimens of Cerasus serrulata (Japan), a vigorous growing and profuse flowering double Cherry, with pure white flowers, C. avium multiplex being shown for comparison, the latter being of not nearly so robust growth. Cut examples of Citrus trifoliata (Pseudogale sepiaria) were also shown; this being a hardy variety should prove an acquisition. Another Pelargonium, Edith, was also staged, a white variety of much promise, with large trusses and a dwarf habit. One group of herbaceous Calceolarias was exhibited, the plants of good size and very well flowered, but the strain scarcely up to the best that are now so often seen shown; these came from Mr. Nothard, Lower Sydenham, S.E. Mr. O'Brien, Harrow-on-the-Hill, showed Cyrtanthus angustifolius aurantiacus, one of those good things seldom seen.

Fruit Committee.

There were a few interesting exhibits before the committee consisting chiefly of Melons, Figs, and Strawberries.

First-class certificates were awarded to—

MELON GUNTON PARK ORANGE.—Of this six fruits were shown. This, the result of crossing and recrossing Hero of Lockinge, Blenheim Orange, and Austen's Incomparable, is a variety rather under medium size and partaking of the first-named. It is slightly netted with scarlet flesh of a luscious flavour and golden skin. It is an excellent early Melon and stated to be very prolific. From Mr. Allan, gardener to Lord Suffield, Gunton Park, Norwich

STRAWBERRY EMPRESS OF INDIA.—This, the result of a cross between British Queen and Countess, possesses all the good qualities of the former and free-growing qualities of the latter. It is said to be very useful for forcing. Also from Mr. Allan.

FIG PINGO DE MEL.—This, recently put into commerce by Messrs. Veitch is a large green variety with very thin skin and rich flavour. From Mr. Sage, gardener to the Earl of Dysart, Ham House, Richmond.

Mr. Allan also sent his new seedling Strawberries Lord Suffield and Gunton Park to show their forcing qualities. They are equally good in the open and were fully described last year, having received first-class certificates on July 21. A box of Brown Turkey Figs (two and a half dozen) came from Mr. Wythes, gardener, Syon House. From the same gardens were sent fruiting branches of Ficus elastica in a green and ripe state. This was an interesting exhibit. A new seedling green-fleshed Melon was sent by Mr. Bishop, gardener to Mr. R. Burrell, Westley Hall, Bury St. Edmunds. Seedling Tomatoes in clusters of a good colour were sent by Mr. Boote, gardener to Mr. F. Ricards, Bure Homage, Christchurch. Mr. R. Orlebar, Hinwick House, Wellingborough, sent a dish of the new Strawberry John Ruskin. The fruits were very fine-looking, but somewhat deficient in flavour.

— — —

The paper on hardy climbers and creepers by Mr. W. C. Leach, Albury Park Gardens, was read by the honorary secretary. He stated he had nothing new to bring forward, but should wish to put old favourites not often seen in the front, as these were much neglected. As a practical man, he would give a few of the best and most suitable climbers for walls, houses, or for covering trees. He named Aristolochia Sipho as a neglected species. The beautiful old Wistaria sinensis and the common Woodbine are lovely creepers when allowed free play, and are well adapted for covering old buildings. Ivies are often used in unsuitable places when there are other plants of greater beauty. During the last twenty years more attention had been paid to climbers for town decoration. Such plants as the purple Clematis, those of the Florida section and Clematis montana did well in towns with such plants as Wistaria, Garrya elliptica, Escallonia in variety, Jasminums, and others. We could often take a lesson in managing climbers from the cottager, who did not prune so severely as the gardener. Pruning was often carried too far, and he advised more freedom of growth. Climbers should be allowed to ramble at will and not pruned too hard. The Clematis was not planted nearly so much as it deserved, and though there was great beauty in the berried plants, what was more charming than an old house or building covered with lovely flowers? For dwarf walls there was a wealth of subjects, such as Choisya ternata and Roses in variety, Magnolias, Vitis heterophylla, and the various Ivies for denser covering. He could not in a short paper give a long list of berried plants, but there was a large variety suitable for covering walls and unsightly buildings. He advised the large, quick-growing climbers for summer-house decoration. Mr. Douglas said he had planted Wistarias some years ago and never yet had a flower. He wished the lecturer had been present to advise as to the non-flowering of some varieties. He hoped some of the listeners would give their experience. Mr. Wilks gave a list of creepers he had planted. Many were termed greenhouse kinds, and only a few had been injured.

ROYAL BOTANIC SOCIETY.

MAY 18.

THE exhibition held on this occasion was remarkable for its brightness of colour, as flowering plants were numerous, but in regard to size, the giants of former days were conspicuous by their absence. This is to be regretted, because the capacious tent needs large specimens to give a sense of fullness, and small things appear dwarfed out of all proportions. There were but few specimen Orchids, and as these were for many years one of the chief glories of the May exhibition, they were sadly missed. Large groups of miscellaneous plants were

tastefully arranged on the centre beds, and collections of small plants of Orchids occupied the bank hitherto occupied by large specimens. Roses were a leading feature, and the collections from Cheshunt and Waltham Cross made up of themselves a Rose exhibition of no mean order. It must be confessed the specimen stove and greenhouse plants were somewhat poor; it is probable the near approach of the Temple and Earl's Court exhibitions kept some collections away. The best twelve plants in flower came from Mr. J. F. Mould, nurseryman, Pewsey, Wilts, who had Pimelea mirabilis, Boronia heterophylla, Hedaroma tulipifera, Erica ventricosa magnifica, E. depressa, and some bright coloured specimen Azaleas. Mr. H. James, Castle Hill Nursery, Lower Norwood, was second; his best specimens were Erica Lindleyana and E. Cavendishiana, two varieties of Anthurium Scherzerianum and some showy Azaleas. For six specimens, Mr. A. Offer, gardener to Mr. J. Warren, Handcross Park, Crawley, was placed first, having nice examples of Tetratheca ericoides, Hedaroma fuchsioides, Azalea Baron de Vrie, a fine white; Anthurium Scherzerianum, Erica ventricosa coccinea and Statice profusa; 2nd, Mr. R. Scott, gardener to Miss Foster, The Holme, Regent's Park, whose chief plants were Clerodendron Balfourianum, Clivia miniata and Rhynchospermum jasmminoides. In the nurserymen's class for the same number, Mr. Mould again took the first prize, with nice clean specimens of Dracophyllum gracile, Tremandra verticillata, Boronia heterophylla and the deep-coloured Azalea Flambeau. Mr. H. James was second with Epacris miniata splendens, Anthurium ferrierense and some Azaleas. Orchids were confined to one collection of twelve plants in the nurserymen's division from Mr. H. James. He had Dendrobium nobile, Cymbidium Lowianum, Cattleya Mendeli, Vanda suavis, Phalenopsis Ludemanniana, Lycaste Harrisonia, &c. Roses were admirably grown and bloomed. The only nine plants came from Messrs. Paul and Son, Old Nurseries, Cheshunt, who had centifolia rosea, Mme. de Montcharveau, La France, Celine Forestier, Magna Charta, Violette Bouyer, Alfred Colomb, Comtesse de Serenye, Catherine Soupert, &c. For a collection of Roses, Messrs. Paul and Son were again awarded the first prize. They had in all about forty specimens, which formed a grand bank; among the standards were Alfred Carrière, Thérèse Levet, Moiret, Souvenir de S. A. Prince (white, very fine) and Etienne Levet; trained specimens were represented by Marquise de Castellane, Violette Bouyer, Edouard Morren, Innocente Pirola, Beauty of Waltham, Her Majesty, Souvenir de S. A. Prince, Duke of Teck (very bright), Thérèse Levet, Celine Forestier, Mme. J. Laing, &c. Greenhouse Azaleas were small, but generally well grown and bloomed. In the amateurs' class for six, Mr. A. Offer was placed first with Duc de Nassau, Brilliant, Flag of Truce, Princess Alice, Eulalie van Geert and Reine des Pays-Bas. Mr. H. Eason, gardener to Mr. B. Ncaks, Hope Cottage, Highgate, was second. Mr. H. James had the best six in the nurserymen's class, staging fairly large bush specimens. In the class for twelve plants in 12-inch pots, Mr. C. Turner, Royal Nursery, Slough, was first with small, neat, well-grown and bloomed specimens of Irma, very bright deep rose; Apollo, white; Charmer, rosy red; Cordon Bleu, rosy purple; Mrs. Turner, &c. Second, Mr. H. Eason, whose plants were quite small. For six plants grown by amateurs, Mr. A. Offer was awarded the first prize, having small, bright examples of Stella, Comtesse de Flandre, Duc de Nassau, Baron Stigald, very bright, &c.; Mr. H. Eason was second, and Mr. R. Scott third.

The best six Heaths came from Mr. J. F. Mould, who had Cavendishiana, depressa, ventricosa coccinea minor, and others. Mr. H. James was second; his leading plants were Wilsoni and Lindleyana. Pelargoniums, like the Roses, were remarkably well grown and bloomed. In the amateurs' class for six large flowering, Mr. D. Phillips was first with Triomphe de St. Mandé, Fairy Queen, Lady Isabel, Maid of Honour (very fine), Thisbe, and Gold Mine, very bright. He was the only exhibitor. In the nurserymen's class for the same

number, Mr. C. Turner was first with six admirable plants of Gold Mine, Mons. Desmoulins, Kingston Beauty, Lady Isabel, clear lilac-pink; Prince Leopold, very striking; and Alice. Second, Mr. J. Wiggins, manager to Mr. D. Baldwin, nurseryman, Hillingdon, his best specimens being Brilliant, Decorator, Defiance, and Mme. Thibaut. Some very fine specimens of fancy varieties were staged. Mr. C. Turner was first in the class for six with Princess Teck, Ambassadors, East Lynn, Ellen Beck, The Shah, and Roi des Fantasies. Second, Mr. D. Phillips, Langley Broom, Slough, with Princess Teck, Pilgrimage, Mrs. Little, Ellen Beck, The Shah, and one other; third, Mr. J. Wiggins.

Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, had the best collection of hardy plants in pots, staging Liliun Harrisii, Trollius in variety, Silene virginica (a bright-coloured single variety), Saxifraga pyramidalis, &c.; 2nd, Messrs. Paul and Son, with Doronicum plantagineum excelsum, Trollius europæus, Tulips, Narcissi, Anemone sylvestris, &c. Messrs. Paul and Son had the best collection of alpine plants in pots, which included Trollius japonicus plenus, Saxifraga longifolia, Gentiana acaulis, Phlox frondosa, Aubrietia Leichtlini, Myosotis Queen Victoria, Arnebia echioides, &c.; 2nd, Mr. T. S. Ware, with hardy Cypripediums, varieties of Primula Sieboldi, Gentiana verna, Anemone apennina alba, &c.

Some very fine specimens of exotic Ferns came from Mr. A. Offer, who had Alsophila excelsa, Cibotium Schiedeii, Dicksonia antarctica, Microlepia hirta cristata, Davallia polyantha, and a Lastrea; 2nd, Mr. R. Butler, gardener to Mr. H. H. Gibb, M.P., St. Dunstan's, Regent's Park, who had Dicksonia squarrosa, Davallia bullata, and others, but much smaller in size. Mr. Offer had the best six fine-foliaged plants in Cypas revoluta, Latania borbonica, Encephalartos Allinsteri, Croton Weismannianum, C. Queen Victoria, and Anthurium magnificum; 2nd, Mr. R. Butler. The best six specimens shown by nurserymen came from Mr. H. James, who had Cocos Weddelliana, Latania borbonica, Croton pictum, C. Andreanum, &c.; 2nd, Mr. J. F. Mould, with small specimens. There was but one collection of twenty-four Gloxinias, from Mr. H. Eason, who was awarded the second prize.

Mr. A. Offer had the best nine Dracænas, staging well-grown and coloured specimens of porphyrophylla Robinsoniana, very distinct; albo-marginata, Gladstonei, Lindeni, Mme. E. Bergmann, argenteostriata, &c.; 2nd, Mr. H. James, whose best plants were amabilis, Bausei and Weismanniana.

Silver medals were awarded to Mr. C. Turner for a collection of Roses in pots, to Mr. T. S. Ware for a large collection of Pæonies, to Mr. R. Scott for a group of plants, and to Messrs. H. Low and Co. for a group of Orchids. Small silver medals were awarded to Messrs. B. S. Williams and Son, Victoria Nurseries, for a very fine group of plants; to Messrs. W. Paul and Son, Waltham Cross, for a group of Roses, which formed a conspicuous feature in the centre of the tent; to Messrs. J. Laing and Sons, Stanstead Park Nurseries, Forest Hill, for a very fine collection of plants; to Messrs. Barr and Son, King Street, Covent Garden, for a large collection of hardy flowers, Tulips being a leading feature; to Mr. May, gardener to Mr. F. C. Jacob, for a group of Orchids; to Mr. T. S. Ware for a collection of Tulips; and to Mr. D. Phillips for a collection of Pelargoniums. Messrs. Veitch and Sons, Exotic Nurseries, King's Road, Chelsea, had an interesting collection of new plants, and to some of these, and to new species and varieties from other exhibitors, certificates of merit were awarded.

A full prize list will be found in our advertisement columns.

GARDENERS' ORPHAN FUND.

THE annual dinner of the supporters and friends of this deserving institution was held on Tuesday night at the Hotel Metropole, Alderman Sir Jas. Whitehead, Bt., in the chair. The room was beautifully decorated with a very choice selection of flowers. Sir James was supported by many gentlemen well known in City cir-

cles, who take a practical interest in gardening pursuits, as well as those who are connected with the gardening trade. In giving the toast of the evening, "Continued Prosperity to the Gardeners' Orphan Fund," the chairman said he felt highly honoured to think that the horticulturists of the country had invited him to take the chair on that occasion, and to make an appeal on behalf of the orphans of the gardeners of England. While gardeners were supposed to receive—and in many cases did receive—a very fair remuneration for their services, yet it could not be said that they were a very highly-paid class. Thus it was that from time to time many of them were taken away prematurely, and their children thrown more or less upon the charitable feeling of the country. Recognising that fact, the horticulturists of the country had established the Gardeners' Orphan Fund, which made allowances not exceeding 5s. per week in aid of the maintenance of the orphans of gardeners until they were fourteen years of age. In addition to that they gave grants, not exceeding £10, to orphans to enable them to become apprenticed to any particular trade. The institution was one of the most useful which had ever been founded, and it was not too much to say that except for that fund a very large number of children would be compelled to seek refuge in the workhouse with all its demoralising effects. The fund was one of the most economically worked societies he had ever been associated with or which had ever been brought into being throughout the country. With the exception of £40 or £50 a year paid in the way of clerical work, all the administration of the fund was purely voluntary. There were no office expenses because the Royal Horticultural Society at Chiswick had given the fund a home, and they had nominated Mr. Barron, the garden superintendent, to be the hon. secretary of the fund. Mr. Barron performed his duties with great judgment, zeal, and efficiency; and he showed an enthusiasm for the cause which had a great deal to do with its success. During the first year the fund took eleven subscribers under its charge. The following year the number swelled to nineteen, and subsequently to thirty-nine, the figure for last year having been fifty. If the result of that dinner was a satisfactory one, they would be able to still further increase the number to sixty or sixty-five pensioners. At the present time there were a large number of cases with which the committee were entirely unable to deal, not one of which was undeserving of help. Another great feature in connection with the fund was that it was supported by the class for whose benefit it was instituted. The institution was doing an immense service, and it was building up for itself a position of great usefulness. During the evening the subscription list, amounting to over £1000, was announced.

COCOA-NUT FIBRE REFUSE.

I THINK the value of this to the amateur can hardly be over-estimated, and the competition among those who prepare this useful vegetable product has led to the introduction of special machinery and improved processes for preparing it for use. For plunging it scarcely matters how rough it is, but for potting, a finely sifted, prepared fibre refuse can now be obtained and which is well adapted for the purpose. I am far from saying that the fibre has any great manurial properties, but it is extremely useful in inducing things to root. I employ it for imperfectly rooted layers of Carnations and for seedlings of the same; for offsets of and seedling Auriculas; for divided plants of gold-laced Polyanthus and Primroses, and many other things, in order to induce them to root quickly and freely. The roots soon take hold of the refuse and form a small ball, and then the rooted portions can be potted in soil, and the plants rapidly make headway. It is useful for mixing with soil for potting young plants of soft-wooded things, using a little to make the soil open and free, but not too much so; that must be guarded against, or the soil will dry too rapidly.

I employ it mixed with refuse potting-soil when planting out in the open seedling Primroses and

Polyanthuses. A little of the mixture placed about the roots causes them to become active at once, which is a great advantage in early summer, and care should be taken to press the soil firmly about the young plants, so as to make the surface fairly hard. It is no doubt a great advantage when planting in this way, with the prospect that dry weather may soon come, to spread some rather heavy loam broken up fairly finely and spread along each side of the plants. It does not matter if employed as big as Walnuts; it gradually crumbles under rains, and spreading itself over the surface assists to keep it moist and cool. I once saw a large bed of double Primroses of various varieties which had been safely brought through a hot, dry summer by spreading a dressing of somewhat stiff, clayey loam over the surface in which the plants were growing, to their great advantage and safety.

I use the fibre for plunging both in summer and winter. During the summer the pots in which plants are growing are maintained cool and moist, and such things as Hepaticas, gold-laced Polyanthus, species of Anemones, Saxifraga granulata flore-pleno, Aubrietias, and such like are kept in safety through the summer. How largely the fibre is employed for plunging in nurseries can be seen by any visitor. When Mr. Roberts was at Gunnersbury Park he used to winter his thousands of pots of Strawberries for forcing in sunken beds, with cocoa-nut fibre between the pots and partially covering the plants, having quite given up the old-fashioned plan of laying them on their sides during the autumn and early winter, as was practised by the older school of gardeners. In winter it protects the roots of plants in pots from injury from frost, the roots being the most vulnerable point in the case of many plants, and pots when plunged in it do not become so readily broken through the action of frost. It is so useful as a top-dressing, that it protects from frost in winter and from heat and drought in summer.

I may add that Auricula cultivators, however careful, have to contend with rot in their plants. A large one will suddenly show signs of decay and the leaves begin to flag where the affected part is cut away. If the remainder be placed against the side of the pot and a little cocoa fibre and sand put about it, the stem will soon throw out other roots and thus renew itself and develop healthy leaves.

R. D.

PUBLIC GARDENS.

New park for Hanley.—The first sod of a new park, extending to upwards of a hundred acres which has been acquired at a cost of £42,000, was cut on Monday afternoon by the Mayor of Hanley, Mr. Huntbich, amid public rejoicings. A sum of £5000 to form the nucleus of a fund for laying out the park was left by the late Mr. George Meakin.

Golf in the London parks.—The Parks Committee reported that there was more or less danger from golf-playing in any public place, but that the danger was especially great on Tooting Common, because the Furze there prevented the players being always seen. The committee has decided, therefore, that golf should be prohibited on the common. They proposed, however, that for six weeks, whilst the club was arranging a new ground, to allow golf up to half-past ten in the morning. Subject to that condition, they recommended "That golf-playing on Tooting Common be in future prohibited." This was agreed to.

New or rare flowers for drawing.—Readers will kindly remember that we shall be greatly obliged for any specimens of new or rare plants, or information concerning them.

Names of plants.—C. E. B.—Bird Cherry.—*Young Gardener*.—No book that we are aware of is published on the subject you refer to.—*Watford*.—*Narcissus Johnstoni* Queen of Spain.

WOODS AND FORESTS.

THE DECIDUOUS CYPRESS.

(TAXODIUM DISTICHUM.)

If we except the Golden Larch (*Pseudolarix Kämpferi*) and one of the *Cryptomerias*, *C. elegans*, few coniferous trees that have been found hardy enough for this country are at all remarkable for the autumnal tint of their foliage. The reverse of this is, however, the case with the deciduous Cypress, for to see some of the fine old trees in the southern English counties during the early days of November, and when the foliage varies from a soft pleasing green to an attractive and homely shade of dark red, is a treat that in our forest lands is as unusual as it is desirable and worthy of repetition.

Trees of like foliage tints, but of distinct kinds, do not as a rule blend well together, and this I could not help noticing lately on looking at some unusually large and richly-coloured deciduous Cypresses that were growing in a hollow swampy piece of meadow and surrounded, or rather backed up, by Oaks and Willows. Not far from these on the lawn at Hollydale are two fair-sized specimens of the same Cypress, but they have been so planted that the eye in passing beyond them rests on the banks of deep bluish green foliage of the Highland Pine and common Yew. The contrast between the dark ruddy hue of the Cypresses and equally dark bluish green of the Pines and Yews is most pronounced; whereas, in the other case, although the trees are infinitely superior both in size and foliage colouring, few persons other than those who have some direct interest in this particular Cypress seem to notice what a depth of colouring pervades the tree, it being as it were lost sight of amongst the yellows and browns of the Willows and Oaks.

We sometimes speak of neglected trees, but the deciduous Cypress hardly comes under this category, although I am convinced that it is not planted so freely as it deserves. Being leafless in winter is perhaps a drawback to its more general culture; but this should not be so, for the freshness and peculiarly pleasing tint of its young leaves and rich autumnal glory leave it without a rival amongst hardy trees. Then it has an easy contour, the branches and leaves being neither stiffly arranged nor excessively massive. Neither does it want special attention, not even to be planted in a chosen site, and well drained and rich soil, for, unlike nine-tenths of our forest trees, the deciduous Cypress revels in a mire or swamp, be the soil almost what it will.

Accidents by wind or otherwise are rare with it, while no boring beetle has yet been known to attack it. In the nursery, too, it grows away freely, and only wants a biennial lifting to ensure the formation of plenty of rootlets in addition to the strong tap-root with which it is usually supplied. Southern England would seem to be the British home of the deciduous Cypress, for in no other part of the country have I seen either so many or so fine specimens of the tree. There, too, it grows with a freedom that I have never before seen equalled, and I somehow fancy that even in depth of leaf-colouring, be this in spring or autumn, it is superior to what we find in any other part of Britain.

The famous Syon House specimen everyone knows of, though it is not the largest tree of its kind in this country, and there are many others of nearly like dimensions within a radius of a dozen miles of the great metropolis. Near Bromley, growing on an island in one of the

lakes at the Rookery, is as well-developed a specimen as I have yet seen.

The "knees" for which the deciduous Cypress is so remarkable are produced by the Rookery tree in plenty, they giving the surface of the island quite an unusual and curious appearance, shooting up in various sizes and of varying heights over a space of ground that almost equals the spread of the branches.

Straight as an arrow describes well the smooth and well-rounded stem, and which is by no means scantily provided with healthy branches and the brightest of foliage. In the case of the tree now under consideration, the roots, at least the greater number of them, must constantly be under or in contact with the water; but this is just what they delight in, if we may judge from the healthy appearance and rapid growth of the tree. It may seem strange, however, that the deciduous Cypress, although a semi-aquatic tree, should grow freely and attain to a large size when planted under ordinary conditions on the lawn or in the park; indeed, numerous examples might be adduced of fine, well-grown trees succeeding admirably under such conditions as we would consider favourable for the Oak or Sycamore. This is a point of great importance, and one the value of which to the planter can hardly be over-estimated, for it allows him to use this handsome tree with equal success in the swamp or amongst other forest trees in the well drained woodland. On the Holwood estate the deciduous Cypress grows freely enough where hardly a couple of feet of loam overlies a 12-foot deep bed of shingly gravel; but in such situations I will not say that it grows so rapidly or attains to such a size as when planted out under more natural and favourable conditions. For confined spaces the deciduous Cypress is a capital tree, the branch-spread being unusually small in proportion to the height of the trunk, thus rendering it particularly well suited for positions where ground space is a matter of first consideration, and where compact-growing trees are of paramount importance.

Of the deciduous Cypress there is a remarkably handsome and somewhat uncommon form in *T. distichum pendulum*, a tree that grows with great freedom, and which from its graceful and unusual habit of growth is worthy of being planted more extensively than it has hitherto been. There is a fairly good and nearly fully developed specimen of this pendulous variety at Holwood, and although it is a handsome enough tree, yet it cannot bear any comparison with the typical or parent tree in the autumnal tints assumed by its foliage. Although designated a pendulous tree, yet it is hardly any more so than the ordinary form, except it be that the slender branchlets hang partially downwards towards the close of the season or just before the leaves fall off. It grows well here in good sound loam resting on a gravelly bottom, and where superfluous moisture is soon carried off. The foliage of this pendulous form drops from the tree at an earlier date than does that of the typical plant, and that, too, when the two are growing under exactly similar conditions.

A. D. WEBSTER.

Destruction of an ancient Oak.—An unusual spectacle was witnessed in the Home Park at Hampton Court early last Saturday morning, when a magnificent Oak tree, growing about 20 yards from the Long Water, was discovered to be on fire. The Palace Fire Brigade were quickly on the spot, and the alarm having been sent to Kingston and Surbiton, the steamers from those places arrived shortly afterwards, a copious supply of water pumped from the Long Water being poured on the

burning Oak. The tree is said to be 1100 years old, and one of the eight largest Oaks in England, being 33 feet in circumference and having an average diameter of 11 feet. It was in the hollow of the tree that the fire burnt fiercest, and the flames soon spread from branch to branch. The fire was extinguished in a few hours, but not before the tree had been almost completely destroyed.

MIXED PLANTATIONS.

ALLOW me to echo the sentiments expressed in your last issue (p. 456) respecting mixed planting. Should there be no mixed planting our landscapes, especially in hilly districts, would be deprived of their greatest charms, for even in the winter either natural forests or planted ones on a judicious mixed principle have beauties past description. A solitary tree or noble clump of Firs or other Evergreens shows to advantage against the prevailing bareness, while Ivy-clad deciduous trees are a pleasing sight shining in the wan winter sunshine or contrasting vividly with snow-clad surroundings. Additional charms are given by the variously coloured barks of noble trunks and huge limbs, some coated with Lichen and Ferns, and others, such as Birch, glistening in silvery brightness. Even the leafless twigs show infinite variety of growth and formation, while on hilly ground massive and quaint rocks are visible above and amongst them, the whole being seen with a clearness denied us at any other season.

The spring change comes to us anew, and is a revelation in leaf and bloom. The Larch, Chestnut, Birch, Elm, Sycamore, &c., bursting into their delicate greenery are as an advance guard to the later Beech, Oak, and Ash; while Geans and Crabs, Laburnums and Mountain Ash, May bushes and Rhododendrons lighten up the whole scenery with lovely and plenteous bloom. Perhaps during summer the beauties are not so pronounced and striking; still the young growths of Firs and Spruces blend so charmingly with the darker hues of those of maturer age, that they form a quiet picture and harmony of colour throughout the whole. The autumn effects have so often and ably been dilated upon, and are so universally admired, that it is here needless for me to comment upon them. By continuing on the lines of mixed planting as hitherto, I trust and firmly believe that, from the E. S. D. point of view, no great losses will be incurred. J. R.

The Ash as an isolated tree.—The Ash is not thought much of as an isolated ornamental tree, and where there are plenty of other subjects more suited it would be bad policy to adopt it to any extent for the purpose, as its wood, when the tree reaches the age to become effective, would be deteriorating. I know several large trees which, if their timber value had been considered, should have been felled many years ago. Their situation, however, is such and their form so good, that they have been allowed to stand. I have no doubt that many instances of trees being left to fall into decay have arisen from the same cause.—J.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols., price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

Hardy Flowers.—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 8d.

No. 1071. SATURDAY, May 28, 1892. Vol. XLI

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

STOCKS FOR ROSES.

WE have been so accustomed to discuss the merits of Brier *versus* Manetti, that it is quite refreshing to have some matter calculated to raise a discussion as to the superiority, if it exists, of one form of Brier over another. Apparently it would hardly seem possible that a different method of propagating one common stock would have the effect we are asked to believe it does, and my opinion is that allowance must be made for personal fancies on either side. However, I believe some of our large growers intend to justify their preference by trying a number of sorts on the two forms of stock all growing under similar conditions and side by side. Plantations have been made for this purpose, and doubtless we shall hear something of the outcome or result of the trial. New lovers of Brier cuttings for stocks will hardly be won through disparaging all others, and above all through attributing to the seedling form the defect of producing a plentiful crop of suckers during its growth. This is the opinion at least of two distinguished rosarians according to "Caledonian" (p. 457), and the opinion of growers and exhibitors is asked upon the point. It is well that growers and exhibitors should be separately asked. I have grown many Tea Roses upon seedling Brier stocks, and have never known them to produce a single sucker. A small percentage have produced one, or even two, and such have been removed so thoroughly that none have reappeared. Whether the plants are budded upon cuttings or seedlings, the bud is inserted as near the roots as possible. When suckers appear they generally spring from some adventitious bud forming and growing from a strong root. It is hardly likely that a strong root when such is obtained on a cutting Brier will be different in this respect. I fancy there is nothing in regard to suckers to justify preference or claim of superiority. Perhaps "Caledonian's" rosarian friends are exhibitors, and the plentiful crop of suckers represents excess of vigour through hard pruning and other restrictive practices. As growers, we allow our Tea Roses to make huge bushes and bear scores of blossoms, which need all the sustenance that rampant roots below can gather and send up. The exhibitor gives the roots more food than the grower, stimulating them to the fullest extent; but does he take from the plant anything like a proportionate produce? May not the plentiful crop of suckers be a self-created evil and casually occur under ordinary circumstances, becoming a perpetual nuisance simply through not permitting a sufficient outlet for the root force at work below? In the matter of the character of the roots there is not that difference we are asked to suppose. We think of a seedling pure and simple as producing few roots and sending these down almost straight and deep into the earth, and of a cutting as producing a mass or mat of fibres radiating at right angles rather than descending from its base; hence, we say the cutting is best, because it has different roots and more of them. But the seedling Brier is once or twice transplanted

previous to being budded, and perhaps again after it becomes a Rose, before it is finally planted in the garden. In raising forest trees from seed, frequent transplanting in a young state counteracts the down-rooting tendency, and a mass of radiating fibres is produced. A similar practice must modify the rooting habits of seedling Briers. It may be that the most careful culture does not quite bring the seedling Brier up to the cutting form in the value and quantity of fibrous roots, and so far as inquiries and observations that I have at present made prove anything, they seem to me mostly to show that the soil will be the most potent factor in determining conclusive results.—A. H.

— Under the heading of "Brier cuttings and seedling Briers" (p. 457), "Caledonian" solicits a few notes from practical growers upon the question of stocks most suitable for Roses. This is one of the most vexed questions among rosarians, and as it is so closely connected with the class of soil the plants are to be cultivated in, it is very necessary that any notes upon this important subject should be accompanied with a description of the soil each grower uses, when advocating the merits of any particular stock. I fully agree with "Caledonian" that it is somewhat dogmatic for one to insist upon any stock being absolutely best for any class or variety of Rose. For instance, although I generally grow all of my Tea-scented and Noisette Roses upon the Brier stock in some form, I have grown many of them, including Niphetos, Mme. Lambard and the strong Dijon Teas, upon the Manetti. My soil is loamy and of average quality, about 18 inches deep, and with a sandy gravelly bottom. Almost all stocks do well upon it, and although I would certainly select the cutting Brier as the best general stock, I also use the seedling form, hedge Briers, Manetti and the De la Grefferaie stocks—all with greater or less success, according to the variety worked upon them.

There is another point that is not sufficiently considered, and which "Caledonian" calls attention to. I allude to the different types of hedge Briers and seedling Briers one finds among the stocks when the seed is collected indiscriminately. Some of these are possessed of double vigour to the others, and must necessarily have a proportionate influence upon the Rose worked upon them. Both in the case of seedlings or of cuttings obtained from such, this deserves attention, as a judicious selection of stocks is naturally of immense importance.

Speaking from my own experience, I have found that the Briers with numerous and slender thorns, somewhat similar to the sweet Brier, are of the least value as stocks. The "brown-barked" Dog Rose that "Caledonian" mentions I take to be the best type of Brier one can secure. At the same time it must not be forgotten that this type or variety of Brier will bear green and even white-coloured bark when grown on some soils and in a shady situation. That this is so I know for certain, having propagated from the "brown-barked" Briers and found them vary considerably according to the position and soil they occupied. This fact is another point in favour of the great influence soil has upon the stock, or, indeed, any plant.

Respecting the merits or demerits of the seedling or cutting Brier in regard to suckers, I much prefer the latter when well made. From close observations I have decided that seedling Briers are much more prone to produce suckers than are those propagated from cuttings. A struck Brier does not throw such sucker-like roots as a seedling is apt to do. On the other hand, there is a great advantage in the seedling form as far as suckers from the crown of the stock are concerned. It is naturally more difficult to bud a seedling Brier above the collar of the roots than in the case of stocks propagated by cuttings; in the latter there is the whole length of the stem available for the operation of budding, and too often the bud is not inserted nearly so close to the roots as is desirable. When this is the case, and the lower eyes were not removed cleanly,

there is, of course, a much greater tendency to wards suckers than in the case of seedlings that were worked close upon their roots. In the foregoing remarks due distinction must be made between suckers issuing from the collar or stem of the stock and those formed upon the running or sucker-like roots that Briers, more especially seedlings, frequently produce.

If seedling Briers are root-trimmed before being transplanted for budding upon, a great deal of their tap-rooted character will be removed; in fact considering that they are considerably cheaper and also the fact of their being a little deeper rooted than cuttings, I do not see much choice in the matter, especially when growing upon a deep and loamy soil.

The fact of so many eminent growers being of different opinions regarding the superiority of the cutting over the seedling Brier for Teas compared to Hybrid Perpetuals, and *vice versa*, can be generally accounted for by the class of soil they are cultivating their Roses in. No hard and fast rule can be laid down, as there are so many exceptions. For example, we will suppose one is advocating the merits of the Manetti as being an excellent stock for the vigorous-growing Hybrid Perpetuals; although this is a fairly safe guide, it has one or two notable exceptions. For instance, the Manetti is far from being an ideal stock for Her Majesty, which is one of the most vigorous growing Hybrid Perpetuals.—R.

Rose Cheshunt Hybrid.—I have always considered that this Rose has been over-estimated. In growth and bloom it is free enough, but Mr. Burrell must have been almost alone in his experience if he has not found it rather unsatisfactory in regard to colour. He asks why its colour is against it (p. 459). I should say because it so quickly fades. Perhaps this may not occur so much under glass, but in the open air I have always noticed it, and last season I was particularly impressed with the defect by a plant upon a wall. I saw it one day fresh and fine and full of half-opened buds, and three days later all the flowers were dull and faded in colour, though otherwise all right. They degenerate into a slaty hue that few would admire in a Rose. Some Roses I have observed fade into objectionable shades after they have been cut a day or two, Jules Finger among Teas being a good example. It is solely for this reason that I have never recommended Cheshunt Hybrid for outside walls, as we have plenty of kinds always good in colour.—A. H.

White sports from Souvenir d'un Ami.—A day or two ago my attention was drawn to a white sport upon a plant of this superb Tea-scented variety. Only one flower has been produced upon it, and that was a grand one, having fully as much substance as I ever saw Souvenir d'un Ami have. The plant bearing the sport carries a first-class type of flower, and is one of the best of its variety. Souvenir d'un Ami does not always come alike, some plants carrying blooms of a much deeper shade and of far better shape and size than others, even although they were all worked from the same plant. I have never noticed a plant revert to either of these variations when established, but upon propagating from what I will style the best type of this Rose, some of the young plants have reverted to the paler, and, to my mind, inferior variety. The flower of the white sport in question was of immense size, and in shape was distinct from The Queen and Souvenir de S. A. Prince; it was also of a slightly lemon shade, while for perfume it was fully equal to its parent. It is somewhat remarkable and mysterious that a certain variety of flower should commence sporting almost simultaneously in widely different localities. For example, Souvenir d'un Ami sported in the United States and in England at the same time, the result being two splendid Roses that are exactly alike in every little detail. Similarly Catherine Mermet sported in America a short time back and produced Waban. Now, I have had a sport from C. Mermet that is so similar to Waban, that I should hesitate to call it by any other name, and mine was produced two

years ago. After being cultivated for several years without showing any signs of sporting, it is strange the same variety should commence sporting in different places and at so nearly the same time. Chrysanthemums and zonal Pelargoniums may be mentioned as examples of plants that have frequently sported at different places, and almost, if not quite, contemporaneously with one another. It would be interesting to hear if any other readers have had sports from Catherine Mermet and Souvenir d'un Ami.—R.

Own-root Roses.—J. C. Clarke (p. 458) has evidently got a soil peculiarly adapted for Roses on their own roots, otherwise he would hardly say that all strong-growing Roses will thrive as well on their own roots as upon any stock after they get well established. But here comes the difficulty, *eiz.*, the getting them well established. This is not easily done in many soils, my own, for example, and hence my remark that "there are but few Roses that recommend themselves to me for own-root cultivation," and which Mr. J. C. Clarke comments upon. Mr. Clarke seems to think that the reason I do not advocate own-root Roses for general cultivation is because I have treated them to the close pruning system. Such is not the case. Nor do I think it would make much difference, because if the plants were well established they would be amenable to either system.—RIDGEWOOD.

Enduring qualities of cut blooms.—This note is prompted by the long time that two blooms of the new Tea Rose Corinna (see p. 458) have lasted, keeping fresh and bright in colour for twelve days; as the blooms were cut from forced plants and were posted to me, the fact of their lasting so long points to the possession of good qualities in this respect. Anyone who has had much to do with Roses, but especially exhibitors, must have observed the varying qualities of endurance in a cut state of varieties that otherwise as growing in the open ground would be of equal merit in every respect. It would be useful to many to know what were the best and most enduring kinds. For anyone who has the best varieties of all sections an interesting pursuit might be found in the coming season, namely, in testing them and finding out how they look and last in a cut state. It is a satisfaction to know that among the Teas some of the very best kinds for massing in the open are as valuable for cutting in quantity for indoor decoration; Marie van Houtte, Edith Gifford, and Mme. Hoste may be specially mentioned, whilst Anna Olivier cut in the bud state is the loveliest Rose I know.—A. H.

KITCHEN GARDEN.

SUMMER LETTUCES.

It is during the hottest part of the year when salading is most appreciated, but in far too many cases that is the time when it is not plentiful, and what little there is forthcoming proves of inferior quality. The foundation of a good summer salad should consist of Lettuce, and when this is well blanched, crisp, and sweet, very little else is needed. When, however, there is little else but hard green leaves available, no amount of other material will compensate for this, and the aim, therefore, of all cultivators, whether amateur or professional, should be to keep up a regular supply of good Lettuces. Plenty succeed very well up to a certain point, but fail when hot weather sets in, while others can only maintain fitful supplies, having undesirable gluts at one time and none at all when perhaps most needed. Not a little depends upon the selection of varieties, but if too few sowings are made or the plants are only accorded starvation treatment, it is not to be expected that an unbroken supply of good produce will be kept up. Cabbage Lettuces are perhaps the

best for hot weather, these standing longer than most of the Cos varieties, and are also preferred by many for eating. The Neapolitan section succeeds well during the summer, Favourite, Standwell, and New York apparently being good forms of it. Varieties with red or brown outer leaves would appear to stand better than the green-leaved forms, and Continuity may well be grown extensively for summer use. This variety attains a large size, and although a red-leaved form, produces a well blanched heart, this frequently decaying rather than running to seed. Of Cos Lettuces, the very best for summer use will be found in the Bath or Brown. This is generally recommended for late autumn, winter, and spring use, but if properly grown it stands well in hot weather, while the hearts blanch perfectly, or better than those of the green-leaved varieties, and are also remarkably crisp and sweet. With these a good selection of Paris White Cos may be grown, this hearting in a few days quicker than the Brown Cos, and being usually still more rapid in bolting.

During the whole of June there should be plenty of good Lettuces available first from warm borders and then in the open, the plants having been raised under glass or protection of some kind early in March. Either Early Paris Market or Golden Queen and Perfect Gem Cabbage Lettuces form a good natural succession on a warm border, all being put out about 9 inches apart each way. Then, if more of the same varieties, and from the same sowing, are planted either between rows of somewhat small Strawberry plants or on the ridges between early-dug Celery trenches, these will keep up an unbroken supply till the earliest sown in the open are available. This season I did not sow any seed in the open ground till the middle of April, but as the selection of varieties included Golden Queen, this will heart in soon enough to keep up a good supply of Lettuces. In order to be sure of abundance during the summer, seed of approved hot weather varieties will be sown at fortnightly intervals up to the end of June, and unless something unforeseen occurs there will be no failures. Similar tactics should be resorted to by all anxious to succeed well with Lettuces this summer, but I must point out that there are a few other important details to be observed. What they require is a good open site, shady borders being about the worst place that can be found for them. Nor do they thrive so well on north borders as might be expected. Prepare the ground by freely manuring and deep digging some weeks in advance of cropping, or at any rate long enough for clayey ground to be either well pulverised or sufficiently baked to admit of its crumbling to pieces when soaked with water. In the latter case give the requisite watering over-night and through a coarse rose on the pot, well firming down the ground early next morning. Remember this is no ordinary seed bed that has so to be prepared, but permanent quarters, as Lettuces do not transplant well in hot weather. Draw the drill or drills, then, for Cos varieties 12 inches apart and for Cabbage varieties 10 inches. When the ground can be got into a fine condition without watering, but is in a semi-dry state, first open shallow drills and then give these a gentle yet thorough moistening, sowing the seed soon after and levelling down. In either case sow thinly and thin out early and freely, leaving the Cos varieties from 9 inches to 1 foot apart, and the Cabbage sorts rather more thickly. What Lettuces seem to delight in is a warm, moist, and rich root run, but if good solid manure is within easy reach of the roots—not being buried a spit deep, but rather mixed with the surface soil—the watering-pot may be dispensed with.

Those who can afford the time and have a good water supply may apply the latter to Lettuces with advantage, but it should either be given freely and often, or not at all. If at any time it becomes necessary to transplant in hot weather in order to fill up blanks, previous to moving the plants give a good over-night watering to both these and the intended site. They will then move readily with a good ball of soil about the roots, and being kept well supplied with water may not receive a very serious check.

Many gardeners and proprietors of small gardens may not be in a position to devote ground specially to summer Lettuces, and these should therefore, get out their Celery trenches early and crop between them. It is always surprising to note how well these positions suit Lettuces, a grand supply being had from them without much trouble during the hottest summers. All the preparation necessary is to evenly cover the spaces between the trenches with the 6 inches or so of soil thrown out from the latter, no attempt being made to manure or dig the ground underneath. After the sun has well baked any soil that will not fine down sufficiently without its aid, advantage should be taken of the first soaking rainfall to break all down finely with a rake. Failing the rainfall, water freely over-night. Also water dry drills, as previously advised, prior to sowing the seed, rather than adopt the less effective method of watering after the seed is sown and the ground levelled. I never attempt planting or sowing more than two rows 12 inches apart along the centre of each 4-foot space, and if the Lettuces are not off when the Celery requires a little soil, the sides of the ridges may be chopped down without detriment to the growing crops. The trenches being dug early, the soil thrown out serves to keep the good firm ground underneath in a fairly moist state, or sufficiently so to support the Lettuces without the aid of a watering-pot. I ought to add that, in order to have the Brown Cos at its best, perfect blanching should be brought about by tying up the plants when fully grown. I. M. H.

Read's Hearting Borecole.—This is a valuable Kale, for it keeps in good usable condition until very late in the spring, good solid hearts being available even now (May 20). The sprouts or side shoots will also be useful later. These kinds of green vegetables are, I think, more appreciated at this season than any other good fill-gaps, for all of us are not fortunate enough to supply early spring Cabbages and choice vegetables in sufficient quantity, so the Kales are a welcome dish. Now is a good time to sow for these late supplies.—J. R.

Lettuces.—What a march forward in the way of early forcing Lettuces are the Paris Early Market and Golden Queen on such as All the Year Round and even Perfect Gem, for by sowing in heat early in February and growing on in gentle heat they will be ready for use before All the Year Round sown in late autumn and treated in the same way. I do not wish to depreciate the latter, for on the point of quality I believe it to be a most difficult variety to excel when well grown, but as an early kind and a forcer it must give place to the above-named. Add New York to those already enumerated and you have a choice selection of Cabbage Lettuces of first-class quality and suitable for any season of the year.—J. R.

Potato flowers.—"A. D.'s" remarks on Potato flowers are interesting. I am an admirer of the Potato plant apart from its utility, and would have it in my garden without its economical merits. I have a weakness for cultivating a few of each of a large number of varieties. Last year my collection amounted to over forty kinds; of these only two bore fruit; whereas after the hot, dry summer

three or four years ago, nearly every sort that flowered, seeded, some very abundantly. If "A. D.'s" theory is right, may we not infer from this that a hot and dry season is necessary for the production of abundance of good fertile pollen, and that the general sterility of most kinds is attributable to the low temperature and damp of our summers?—J. M., *Charmouth, Dorset*.

Early Lettuces in market gardens.—The market gardeners who grow crops of early Lettuce are experiencing a very trying time this spring. They sow the seeds in frames before or soon after Christmas, as the case may be, protect the young plants from frost, and when large enough and sufficiently hardened off, plant out in ground previously manured, ploughed, and harrowed to make the surface fine. Then lines are drawn across the ground at regular intervals 15 inches or 18 inches apart, and the Lettuces put out 9 inches or so apart. This is done as early in March as possible, so as to secure a good and early start. Owing to the cold drying weather, the plants have made but little growth, and not a few have dwindled away. This renewal is necessary every season, but particularly so this year, and many of the plants have done little better than stand still. What is required to give the plants a good start is genial mild showers and warm southerly winds. Then they would grow rapidly. The birds appear to be somewhat destructive, eating the leaves, probably impelled thereto owing to the dry weather. Slugs are not nearly so troublesome as in some seasons.—R. D.

Status of Tomatoes.—The question is constantly being raised as to the proper status of the Tomato on the exhibition table. We have by custom made it to rank as a vegetable; Nature distinctly has created it a fruit. Practically the Tomato is no more a vegetable in our restricted exhibition sense than is the fruit of the Passion Flower. But then, and in spite of its undoubted fruit nature, it has never yet been made a dessert fruit. It may be so regarded some day, but at present we have to take its status as we find it, and that is classed as a vegetable, because cooked and consumed as ordinary vegetables are. Even if we partake of it raw it is rather termed salading, as Cucumbers are, than fruit, so that between the custom of gardening on the one hand and the facts of Nature on the other, it would seem as if custom just now had precedence. If the gardeners of the kingdom were canvassed, probably they would prefer to have its present classification continued. Tomatoes are very handsome and richly coloured, but whilst weak as fruits, they are very strong as vegetables. A dish of the large ones it is the common practice to show at exhibitions would look ridiculous placed with a collection of choice fruits, but are so telling in a collection of vegetables, whether in appearance or in points, that their quality often decides the fate of such collections. Could we but agree to admit in collections of fruit dishes of the small-fruited clustered forms it would perhaps be some gain, as these certainly are best fitted to appear on the dessert table, whilst comparatively useless as vegetable exhibits or as such cooked. Some such division of the diverse forms of Tomatoes might solve the difficulty satisfactorily. Whatever may be the ultimate status of Tomatoes, one thing is certain, and that is that their consumption in a raw ripe state is rapidly increasing, and the public is making of them, as Nature has, a pleasant edible fruit.—A. D.

Tomatoes at Ruxley Lodge.—Although it seems difficult to show any new way of growing Tomatoes, whether under glass or outdoors, yet does the plan adopted at Ruxley Lodge, Esher, by Mr. Miller deserve notice. He has a large span house with a centre raised bed having a brickwork shell. This bed is full of soil, on which, in the late autumn, are stood Chrysanthemums. Then in the late winter the bed is spanned by stout stages, on the shelves of which are stood Strawberry plants in pots, and so soon as these are done with, the stages are removed. Stout Hazel rods are fixed in the bed on either side and at about 16 inches apart, then brought over to meet each other and so tied,

thus forming a series of arches. The soil on either side of the bed is broken up about 10 inches wide, some fresh soil and manure added, and strong Tomato plants about 15 inches high are turned out of 6-inch pots into the bed, and against the Hazel arches on either side. The bed is equally divided for this purpose by a partition, and the Tomato plants are put out in two blocks at intervals of time. No great time elapses before the plants top the arches and meet, and once that is the case and they are full of fruit, a very pleasing sight is produced and a very profitable crop results. In this house the side shelves are still used for ordinary decorative plants; thus the house is never idle and is made the most of. The chief sorts are Ham Green Favourite, Excelsior and Hackwood Park. It is one of the admirable features of the Tomato that it does not want too much root-room, nor an excess of moisture. It is very amenable to almost any form of culture under glass, provided enough light and warmth be furnished. We can grow Tomatoes in pots or boxes, or in almost any receptacle, or planted out and by almost any method of training, provided the plants be kept hard thinned of all superfluous shoots.—A. D.

THE BOLTING OF CABBAGES.

THIS provoking fault was perhaps never so prevalent as this season. It matters little into what district or county one goes or what varieties were planted. The loss is the more serious, as a large percentage of the same crop has perished during the winter. Throughout many localities the growth of those left has also been abnormally slow, and the stocks of plants for sale at this late season are probably the smallest on record. As a striking proof of the latter fact it may be stated that on entering a garden a few days since, the small size, great distance apart, and stunted condition of what seemed to be Broad Beans challenged a closer scrutiny. On coming nearer to them they proved to be spring Cabbages just planted that had been purchased in a neighbouring market. And others have been seen equally weak and small since. It would prove interesting to have the opinion of larger growers for sale as well as private growers as to the low estate and backward condition of their crops of spring Cabbage. Also and chiefly as to the causes of the abnormal percentage of runaway plants. The winter, long and cold as it has been, hardly suffices to account for the enormous number of Cabbages bolting. The severe changes from midsummer to midwinter that characterised the first and last fortnight of April may have rushed a few more Cabbages into seed-bearing, but the foundation of the wholesale bolting was laid at a much earlier date, and long before our spring Cabbages had been exposed to such severe extremes of temperature. Not only the record of the winter temperature, but the small and backward condition of most of the spring Cabbages in evidence this May prove beyond dispute that they were not subjected to many fostering conditions. Throughout the long and dreary winter hardly yet closed the mortality among Broccoli being so severe for two winters in succession, the importance of spring Cabbages, which were never more needed and seldom more unsatisfactory than this season, is increased.

CALEDONIAN.

Growing vegetables for market.—Calling on an acquaintance some time ago, I noticed that he had got a new variety of Cucumber, a free bearer, but with fruit approaching the tenderness and flavour of a marling-spike or a Jersey Cabbage-stalk. I asked him why he grew such things, remarking that they were unfit to eat. "Eat, mister," he said, "We don't eat them, we send 'em to market, and they fetch sixpence apiece; we don't grow 'em to eat;" and I came away pitying the sorrows of the unfortunate individual who parted with his sixpence and got a very substantial Cucumber in return. Whilst on the subject of Cucumbers, can any of your readers tell me if the old Rollisson's Telegraph is in existence? I buy plants and seeds all guaranteed to be the real

thing; all are different, some eatable and some not, but none having much resemblance to the true variety. I should be only too pleased to get two or three plants of the real old variety, if it has not run out and disappeared.—T. FLETCHER, *Grapenhall, Warrington*.

NOTES OF THE WEEK.

The Mexican Orange flower (*Choisya ternata*).—I send a few sprays of this lovely shrub, now in full bloom. It has stood well through the two last severe winters, during which on several occasions we had 20° of frost. It is now in most robust health, one sheet of white Orange blossoms, and quite as sweet.—SANGUINEA, *Truro*.

Seedling Daffodils.—We understand that the large Barr medal for the best seedling Daffodil exhibited at the R.H.S. spring shows of 1892 has been awarded to the Rev. G. H. Engleheart for his trumpet Daffodil Golden Bell, which obtained a first-class certificate on April 12. Mr. Engleheart also gained the same medal last year.

A NOVELTY in London fêtes is to take place in the gardens of the Royal Botanic Society, Regent's Park, in June. A "floral parade" is being arranged for children, and medals are offered for the best decorated mail-cart, goat-chaise, tricycle-horse, tricycle, pony, donkey, and sedan chair—all to be adorned with flowers, and awards are also to be made for wreaths and bouquets exhibited by boys and girls.

Shepherd's Lily of New Zealand (*Ranunculus Lyalli*).—We had the pleasure of seeing this charming plant in flower in the rock garden at Kew this week. It was figured some years ago from a charming drawing by Mr. Moon, and many of our readers will no doubt remember the figure. The leaves as well as the flowers are all of singularly fine form. We hope so good a plant will some day be frequently seen.

The Pæony species are fast approaching their best; many of the finest of the officinalis forms are fully open now. *P. Wittmanniana* is nearly over. This is one of the loveliest of the early species; the reddish stems, ample foliage, and huge yellow flowers are very fine. *P. Emodi* is also in flower now; a good distinct plant, but not so hardy as many of the others. It requires a shady spot and shelter from the east.

Gardeners' Orphan Fund.—We have the pleasure to announce the receipt by the secretary of the following donations to the Gardeners' Orphan Fund: £10 from the Ealing Gardeners' Improvement Society, the proceeds of a lecture given by the Rev. Thain Davidson to that body; and £20, the proceeds of a concert held at Altrincham under the auspices of the Manchester Local Committee of the Gardeners' Orphan Fund. Such efforts are most praiseworthy.

Pyrethrum Jubilee.—We have forwarded you, per parcels post this day, a few flowers of our new Pyrethrum Jubilee cut from some 4-inch pots which they are growing in; also a small bunch of *Leschenaultia biloba* major, cut from some small plants grown in 3½-inch pots.—W. Batechin & Sons.
** The flowers of this Pyrethrum are single, deep carmine. It is the richest coloured variety we have seen.—ED.

The Oleasters.—We saw with great pleasure at Kew the other day a great, high and spreading *Elaeagnus* (figured in THE GARDEN of April 16). The plate well showed the beauty of the berries. It was a mass of cream-coloured flowers at Kew, and this and the silvery foliage gave a very charming effect. We can imagine nothing more beautiful than a group of this plant on a bank in the open garden. It must be perfectly hardy, because while many things have perished about London during the past two winters this is intact.

Medals for herbaceous plants.—The following medals are offered by Messrs. Kelway and Sons, of Langport, this year, through the Royal Horticultural Society: For Pyrethrums (perennials) on June 7: six single and six double varieties, three blooms of each variety (large silver). For

herbaceous Peonies June 21: three single and nine double varieties, three blooms of each variety (large silver-gilt). For Delphiniums, June 21: twelve varieties, one spike of each variety (large silver). For Gaillardias (perennial), July 12: six varieties, five blooms of each variety (large silver). Gladioli, September 6: twelve spikes in twelve varieties.

The David Syme Testimonial.—Subscribers are respectfully informed that the presentation to Mr. David Syme, manager of Peter Lawson and Son (Limited), Edinburgh, by friends in the seed and nursery trades and others, will take place in the Holborn Restaurant, London, on Monday, 30th inst., at 5.45 p.m., previous to the annual dinner of the London Agricultural Seed Trade Association. Further particulars if required from the hon. secretary, David Allester, 6, Market Buildings, Mark Lane, London.

The Pea crop in Essex.—Immense damage has been done to growing crops of Peas in Essex by the Pea weevil. In many cases whole fields of Peas have been destroyed, and have had to be ploughed in. Oats being sown in their place. Miss Eleanor A. Ormerod, who has been written to on the subject, says she attributes the pest in part to the great warmth that we had for a short time about six weeks ago. The only remedial treatment that appears to succeed, she says, is dusting the leaves with some deterrent powder—lime or soot, for instance—when the foliage is damp.

Eurybia (Olearia) Gunni.—Mr. W. H. Blair, Cork, sends us some very fine sprays of this valuable shrub, which also does well around London. Against a sunny wall it ought to do well in any part of England. The leaves are small, toothed and covered underneath with white felt-like tomentum. The flowers are very abundant, clothing the shoots with a mass of Daisy-like blooms, each about an inch across. The flowers, white with yellow disc, are borne singly on the ends of hundreds of tiny branchlets on the upper part of the large branches. It also makes a good greenhouse plant.

The proposed fruit exhibition.—On Tuesday, at a meeting at the Guildhall, at which Alderman Sir James Whitehead presided, of the provisional committee of the proposed international fruit show in London, it was resolved that, in view of the concentration of public interest in the coming general election and the consequent difficulty of making adequate arrangements for holding the exhibition this year, and also in consideration of the representations made by intending exhibitors that sufficient notice had not been given for preparations, the exhibition should be held in the autumn of 1893, and not this year.

The Globe Flowers are delightful just now and, in spite of the very dry weather, have attained to a good height. *Trollius europæus*, *americanus*, *asiaticus*, and the semi-double form known in gardens as *T. Fortunei* are all really first-class spring or early summer-flowering plants, good alike for bed or border. It is, however, as marsh plants that they are really seen in their best form, for when well supplied with moisture they attain a greater size and vigour than one ever sees them in the mixed border. They should be planted in good large patches and in company with the Marsh Marigold, the Fair Maids of France, and *Campanula rhomboidalis*. Of all the plants seeds should be gathered and sown directly, for besides the addition to stock, the chances are always in favour of a large-flowered or more vigorous form.

Rock plants well shown.—Everybody was charmed at the show in the Temple Gardens last Wednesday with the way the alpine flowers from York were arranged—just in the true and natural way. The culture of alpine flowers for many years past has been sadly hindered by the common way of placing the plants amongst stones, doing one's best to expose their roots to the sun and air, and producing exactly the conditions that are *not* found in the Alps. For in addition to the rainfall

and snowfall of the Alps being enormously greater than in the plains of England, there is the fact to be looked at that some of the plants grow a yard deep in moist, rocky and gritty soil. This little exhibit of Messrs. Backhouse showed the way the plants naturally emerge from ground among low rocks, which, instead of exposing them to the heat, really protect them from its effects; and we hope they will have the little plan shown in many other flower shows.

Kernera saxatilis is a charming little alpine not unlike the dwarf Scurvy Grass (*Cochlearia*). It does very well as a rock plant, and forms dense tufts of foliage in early summer. This just now is covered with a dense mass of the purest white blossoms. An open position suits it best, and it may be readily increased by division or cuttings. *K. Boissieri* is a very nearly allied species, dwarfer in habit, the leaves almost entire, and the flowers a trifle larger. Both are natives of Southern Europe and are good alpine.

The May Apple from the Himalayas (*Podophyllum Emodi*) is a much handsomer plant than the American *P. peltatum*, or the Chinese *P. pleianthum*. *P. Emodi* is one of the easiest to manage in partially shady or moist places, and never fails to bear ample beautifully marbled foliage, flowers in abundance, and in autumn a crop of the most exquisitely coloured drooping fruits. It is by no means so common as the American species, although quite as easily managed and certainly much handsomer. We grow it in peat in partial shade, and when strong it forms a very charming group, extremely attractive on the rockery in early summer. A good companion to the above is *Rodgersia podophylla* from China and Japan, with its charming bronze leaves and abundance of Spirea-like flowers. It thrives best in the vicinity of water, and if kept moist all through the summer is one of the finest ornamental-foliaged plants we possess.

Notes from Baden-Baden.—*Tchichatscheffia isatidea* is a very striking and beautiful rock plant. It has been in flower for fully four weeks. It forms a tuft of leaves like *Saxifraga longifolia* (fig. 5889, *Bot. Mag.*), to which also the flowers bear some resemblance, except in colour, which is in the above plant a bright rosy pink. It is sweet-scented, and among rocks perfectly hardy. *Tobolewskyia clavata*, a snow-white flowered Crucifer from Armenia, is a first-rate novelty; one plant produces a dozen or more flower-stems, much branched and divided into dozens of flower-heads, much like those of an Iberis, of the snowiest whiteness. It is very graceful, and being quite hardy must become a standard garden plant. *Ixiolirion Sintenisii* and *I. macranthum* are just now in full beauty; their flowers are double the size of those of *montanum* or *tataricum*, and are very bright in colour; *macranthum*, a deep blue with a tinge of purple, *Sintenisii* somewhat paler. —MAX LEICHTLIN, *Baden-Baden*.

Cantua dependens.—Amongst the greenhouse plants exhibited at the last meeting of the Horticultural Society in the Drill Hall, Westminster, a gathering of the flowers of this plant attracted much attention. *THE GARDEN* published a figure of it in Sept., 1885, but the plant cannot yet be said to have attained the wide cultivation which its beauty and distinctness entitle it to. It is a native of the Andes of Peru, where also are found the half-dozen or so species which belong to the genus. Naturally, *C. dependens* is a slender-growing shrub and is grown as such in the Riviera, but in English greenhouses it is better loosely trained as a climber. The stems are thin and bear small downy leaves. The flowers are pendent, and are produced in a loose cluster at the end of the branches. The corolla is tubular, and about 3 inches long by a little over an inch wide at the mouth; in colour it is of a charming shade of deep rose, becoming almost scarlet towards the base of the tube. It is a plant requiring very little artificial heat; in fact it is used as an outdoor wall plant in some parts of England. It should be given a position near the

glass, the most important factor in its cultivation being abundance of light. It strikes readily from cuttings, and requires an ordinary compost of loam, leaf soil or peat, and sand. In the neighbourhood of London it is not so great a success as in the country, being, as a rule, hard hit by fogs.

—B.
. Mr. Bedford, Straffan, has sent us some very richly-coloured flowers of this handsome creeper. —ED.

The Fire Bush (*Embothrium coccineum*).—I am sending you some branches of *Embothrium* which has come so well through the two last winters. One of the two trees from which I cut these branches was blown over in the great snow blizzard, and at the time I feared it was irretrievably ruined. I determined, however, to give it a chance by cutting off fully 8 feet of its top, dug a pit behind, and got the tree back into its old position. I then gave it some new soil, loam and leaf-mould, and secured it firmly in place with strong stakes, and it is now in most luxuriant health, covered from top to bottom with its dazzling scarlet flowers. The plant as it now stands is 14 feet high. The large branches, cut from the top of a plant fully 20 feet high, are sent merely to show how freely and to what size it grows and flowers. The small pieces were cut from the tree blown over in last year's snow blizzard.—SANGUINEA, *Trelisick, Truro*.

. The finest flowering branches of this brilliant tree we have ever seen.—ED.

Strawberry Commander.—I have forced this for the first time this year, and it is, I think, a great addition to our list of large Strawberries and lends itself to forcing very well. Commander has the best flavour of all the large Strawberries that I know. It is a very dark coloured fruit, large and solid. I picked one fruit which weighed 1 oz., and four other fine fruits weighed a quarter of a pound. It bears its fruit erect on a stiff stem and is far superior to Noble. Auguste Nicaise is a good Strawberry. It forces well, crops heavily, but the flavour, certainly superior to that of Noble, is not so good as that of Commander. I force President and Sir Charles Napier, but will replace them by Commander and Auguste Nicaise. For early work I find Vicomtesse Héricart de Thury the best. I forced some Crescent Seedling. It has proved the most prolific Strawberry that I have ever seen in pots, showing immense clusters of bright scarlet fruit of a round shape, something like King of the Earlies. It sets far more freely than King of the Earlies. Commander, Auguste Nicaise and Crescent Seedling are looking very well out of doors.—ALEXANDER TRAIL, *The Gardens, Fulham Hall, Winstow, Cheshire*.

. Commander has large handsome fruit of very good flavour.—ED.

Pæonies.—All the species and varieties of Pæony, with the exception perhaps of the albiflora section, have suffered more or less this year, and the stems with nearly fully-formed flowers are drooping by the dozen. A friend looking at them the other day said a grub was the cause, but my opinion is that the stems are frosted at the base just as they rise from the ground, and the grub is the scavenger following after and feeding on the damaged stems. *P. hybrida*, for instance, growing close by an officinalis form, is not touched and is flowering profusely. None of the albiflora forms are affected because they are later in coming up than the others, and *P. hybrida* is evidently hardier. A few plants of the same kinds as those damaged in the open, growing in a sheltered spot where the morning sun does not reach them, are untouched, and many more instances could be given. The stems, as we have already said, are damaged only close to the soil in which they are growing. The stems above and below this point are perfectly sound and the buds at the base are untouched, so that the following year's growth is not interfered with. If, as I take it, the frost is the cause, nothing but protection from the morning sun can have any good result.—D.

TREES AND SHRUBS.

THE ALMONDS.

Of all the hardly early flowering trees in the British Islands perhaps the Almond is the most valuable from the point of view of ornament. In March and April no other tree produces such fine effects in the garden or park—at any rate, in the southern counties of England. From a purely botanical standpoint Almonds are but a group or sub genus of the large genus *Prunus*—under which at present most botanists include them—but for garden purposes it may be as well to speak of them by their commonly accepted garden name, *Amygdalus*.

Loudon treats *Amygdalus* as a distinct genus, and for every-day use we cannot do better than follow Loudon. He, however, was not consistent, for he kept up the Peach as a distinct genus under the name of *Persica* after stating—under *Amygdalus*—that the Almond was included by Linnaeus in the same genus with the Peach and Nectarine, of both of which it is doubtless the parent, as trees have been found with Almonds in a state of transition to Peaches, and with both Peaches and Nectarines on the same branch.

AMYGDALUS COMMUNIS, the common Almond, grows from 20 feet to 30 high, and has white or rosy-coloured flowers. It has been cultivated from time immemorial, and has become perfectly naturalised in many countries. It appears to be thoroughly wild in Algeria, where quite a forest of it has been somewhat recently discovered on one of the spurs of the Ouled-Bahn Mountains near Guelma. There is also another truly wild Algerian habitat, but in both this and the first-named all the trees bear bitter fruits. Probably the sweet Almonds which constitute so important an article of commerce in Spain, France, Italy, &c., are merely the produce of forms which have originated under cultivation. There are many varieties differing much in the shape and size of the fruits, in the thickness of the shell, and in the taste of the kernels. The best qualities that find their way to English markets are known as Jordan and Valencia; they are used largely as a dessert nut. The common kinds of sweet Almonds are used for confectionery purposes, for coating with sugar, &c. Bitter Almonds are used almost exclusively for confectionery and cooking. In Europe nothing of late seems to have been done in the way of raising new varieties from seed; all the existing favourite varieties are propagated by grafting. In *Garden and Forest* for 1891 Mr. Charles Howard Shinn gives an interesting account of seedling Almonds in California, and asserts that "horticultural history must record the fact that California first originated an entirely new line of market varieties in the Almond. The Languedoc varieties introduced into California as early as 1853, and later French importations, are now superseded by seedlings of local origin, some of them worthy of trial by the great nurserymen of France, Spain, and Italy. Larger and better Nuts, heavier crops, and a greater degree of hardiness are the advantages of the Californian seedlings. Some of them yield Nuts which bring in the market two or three cents a pound more than the standard imported varieties." A weeping Almond is cultivated here and there in British gardens, but it is not worth growing as an ornamental tree. There is also another variety with variegated leaves to which the same remarks apply.

A. DAVIDIANA, a figure of which accompanies these notes, is the first of the genus to flower. In favourable seasons it opens its pure white flowers as early as the third week in January. During the present season it flowered about the end of the first week in February. Cwing to this

precocity and the liability of the blossoms to be injured during severe weather, it is desirable to plant this species in a sheltered spot. Cultivated in pots or tubs it makes a very beautiful object for the decoration of glass-covered corridors and unheated or cool conservatories, and flowers very early with-



Amygdalus Davidiana.

out being forced. There is a variety with rosy tinted flowers, but as it is not so free as the type, it is hardly worth growing. Mr. J. G. Jack, in *Garden and Forest* for the present year, gives the following account of this beautiful Chinese species. Enumerating some of the more remarkable plants

in the Paris Jardin des Plantes, he writes: "Another plant of much interest is a specimen, now thirty years old and partly decayed, of the *Prunus Davidiana*, introduced from China by the celebrated traveller and collector after whom it is named. This plant has never fruited, a characteristic which has so far been followed by its grafted progeny at the Arnold arboretum, where it is the very earliest of the Rose family to blossom, flowering this season as early as April 8. [The difference in the flowering season between the south of England and the Northern United States is well shown by this Almond.] The flowers seem perfect enough as regards stamens and pistils, and the non-fruited peculiarity has been attributed to frost or cool weather at the time of blossoming, or, what may be quite as probable, to the lack of pollen from flowers of different seedling plants of its own kind. It is a question worth testing."

A. ARGENTEA is a native of Western Asia, &c., and makes a charming shrub or low tree; its aspect is very striking on account of the shining, silvery appearance of the small leaves. This species rarely flowers in this country, but it is well worth growing for the beauty of its silvery foliage. In some books and gardens this also occurs under the names of *A. orientalis* and *Cerasus orientalis*.

A. INCANA, a native of Asia Minor, makes a small bush 2 feet to 3 feet in height, and bears red flowers in March and April; it principally differs from *A. nana*, the following species, in its smaller flowers and in the leaves being white beneath. In some books this is called *Cerasus incana*.

A. NANA, a native of Southern Russia, is a charming shrub about 2 feet or 3 feet high, and bears a profusion of rose-coloured flowers in March and April before the glossy green, Willow-like leaves appear. This species likes a rather dry soil, and when well established produces an abundance of suckers from the roots. There is a white-flowered variety in cultivation, but it is somewhat uncommon. The fruit is smaller than that of the common Almond, but otherwise much resembles it.

A. PERSICA.—The double-flowering Japanese Peaches are not so frequently grown as their merits deserve; there are no more beautiful objects in the garden or shrubbery. The flowers vary in colour from pure white to blood-red, and are freely produced in sheltered situations. Perhaps the reason that the double Peaches are so seldom met with is that grafted plants are short-lived. The Plum stock does not seem to suit them, canker often sets in, the heads grow unsightly, and the trees die. If plants could be obtained on their own roots, in all probability they would live much longer than grafted ones. In any case a sheltered spot should always be chosen for the Japanese Peaches, as they are neither so hardy nor so vigorous as the common Almond.

A. SIMONI, also known under the names of *Persica Simoni* and *Prunus Simoni*, is a more recent introduction from China, but for general ornamental purposes it is not so desirable as the last-named species. It is also an early flowerer, and, like *A. Davidiana*, has pure white blossoms. N.

A spiral Wellingtonia.—So far as I have seen hitherto, *Wellingtonias* take generally a cone shape, although differing more or less in relative height and breadth of base. Still, the same ordinary form prevails. But there is a striking exception to this rule in a noble tree on the lawn at Ruxley Lodge. It is a real spire, very narrow throughout, of perfect form, and 67 feet in height. The bole 5 feet from the ground is 7 feet round. It was planted in 1859 when but 18 inches in height, and is consequently about 35 years of age. The bole is branchless for some 4 feet or 5 feet from the ground, and then the branching is perfect, but singularly narrow. It has been described as one of the most remarkable trees of its kind in the kingdom.—A. D.

A noble Horse Chestnut.—On the lawn at Ruxley Lodge I lately noted a gigantic spreading Horse Chestnut, the lower branches of which not only rest on the ground, but are partially buried

in the soil, and in that way formed roots, and thus additional strength has been given them. In one direction a broad path runs through under the trees, but otherwise all round, the branches come down on the turf for a diameter of from 70 feet to 80 feet. The specimen shows how spreading these trees may be when protected from cattle, and when, as now, in full bloom it is a splendid object.—A. D.

NOTES ON BARBERRIES.

THE South American Barberries, which are all evergreen, or nearly so, contribute not a little to the floral display afforded by our hardy shrubs at this season of the year, for though there is a great variety of things now in bloom, such tints as the rich orange of *B. Darwini* and the golden blooms of *B. stenophylla* are by no means largely represented. Numerous as the plants are for which we are indebted to William Lobb, Darwin's Barberry must, I think, stand out as one of his very finest introductions, for irrespective of blossoms it is a really handsome evergreen shrub. Its usual season of blooming is in the spring, at which time the flowers are often borne in such profusion that the leaves are almost hidden. The berries, which ripen towards the end of the summer, are of a rich purple colour, and form when in that stage quite an additional feature. Beside all this, Darwin's Barberry will sometimes produce a number of blossoms during the autumn months, but this character appears to be limited to individual plants, which circumstance suggests the question, Would it be possible, by following a system of raising plants from seed and selecting therefrom, to finally acquire an autumn-flowering form? In the colour of the blooms seedlings certainly vary, as some are of a much richer orange tint than others. Another species now in flower is *B. empetrifolia*, a low-growing, somewhat spreading shrub, with small narrow leaves and golden yellow blossoms. This is not particularly robust in constitution, and when met with is by no means invariably in a flourishing condition. A considerable amount of interest is attached to this species from the fact that it is one of the parents of *B. stenophylla*, the other being *B. Darwini*. *B. stenophylla* is one of the finest members of the genus, and forms a large and dense-growing shrub, whose long wand-like shoots are wreathed for a considerable distance with deep golden-coloured blossoms. It is a most desirable lawn shrub, as when isolated in this way it forms a symmetrical-shaped specimen, whose slender shoots are disposed in a very graceful manner. *B. stenophylla* sometimes ripens seeds, and plants raised in this way show, as a rule, a considerable amount of variation, some partaking much more of the character of *B. Darwini* than others. Another species which is by no means common is *B. dulcis* or *buxifolia*, which forms a free-growing, much-branched bush of rather upright growth. It reaches a height of 6 feet to 8 feet, and is particularly noticeable from the fact that it is the first of these evergreen Barberries to flower. In this species the leaves are small, firm in texture, and of a deep green hue, while the blossoms, which are borne in great profusion, are suspended on unusually long stalks. The colour of the flowers is a clear bright yellow, a very pleasing tint. According to Loudon, this is one of the oldest Barberries from the South American region, having been introduced as long ago as 1830. The last of this group to be mentioned and the most recent introduction is *B. congestiflora hakeoides*, which is totally distinct from any of the others. It is a sturdy growing shrub, which is said to reach a height of several feet, but I have not yet seen it much more than a yard high. The leaves, which are from 1 inch to 2 inches in length, are roundish, bright green on the upper surface, and glaucous beneath. The foliage is of a thick leathery texture, while the large conspicuous spines upon the edges of the leaves are a very noticeable feature. It differs greatly from all the others in the arrangement of the blossoms, which are borne in dense globose heads. They are of a golden yellow colour. This Barberry was introduced and put into commerce by Messrs. Veitch.

One or two species other than those of the evergreen section are also very noticeable just now, the most conspicuous being *B. sinensis* or Thunbergi, which, though by no means a novelty, has only within the last two or three years been recognised to the extent that its merits deserve. This forms a dense growing, somewhat spreading bush, whose foliage and flowers make their appearance simultaneously with each other. The leaves are small, roundish in shape, and of a bright green colour, while the flowers, which depend in great profusion from the undersides of the shoots, are brownish-crimson on the exterior and sulphur-yellow within. The blossoms are certainly not particularly showy, but from their numbers and association with the tender green of the unfolding foliage they form a very pleasing feature.

It is, however, in the autumn rather than the spring that this Barberry assumes its most attractive garb, as the little oblong-shaped berries are of a bright sealing-wax-like tint, while the decaying leaves become of an intense crimson hue, and what is more they often remain in this stage a considerable time. It was exhibited at an autumn meeting of the Royal Horticultural Society in 1890, and awarded a first-class certificate, at which time very few people were acquainted with this Barberry, though I am assured that the demand for it has increased considerably since then. This Barberry is very popular in some districts of the United States, where the berries are as a rule produced much more freely than in this country, for here it cannot always be depended upon to produce a good crop of berries.

The last to be mentioned of the Barberries that are particularly noticeable just now claims recognition from a foliage rather than a floral point of view, and that is the purple-leaved variety of the common Barberry, which in poor sandy soil and fully exposed to the sunshine is much more richly tinted than where liberally treated.

dwarf. Preference should be given to the Japanese section, owing to their being naturally so much better adapted for decoration either with other plants or alone. Incurved or reflexed kinds are far too stiff in appearance to give a really artistic effect. The plants intended for cutting down should be selected from those grown for the purpose of giving large blooms, or, in other words, those grown with one stem from the cutting to the period when the first natural break is made for the purpose of furnishing the plants with additional shoots. Such plants will have been kept as dwarf as possible by keeping them thinly disposed on an open space. In competition, groups which contain plants carrying the best foliage have an advantage over others with faulty leaves. The manner in which the plants are managed previous to cutting down is very important to the preservation of the bottom leaves. Plants varying from 2 feet to 5 feet in height exclusive of the pots may be had for grouping upon the cut-down system, and will carry from three to six blooms each. Smaller pots can be used than are generally required by plants grown for the production of large exhibition blooms. Plants in smaller pots are also better adapted for mixed groups.

The time when cutting down should take place depends much upon the varieties to be operated on. Naturally, those varieties which flower late should be cut down first, as they require more time to develop their blooms after the buds are formed than do earlier sorts. Indeed, where cutting down is to be practised on a large scale, it is wise to divide the varieties into three sections—late, medium, and early-flowering. Where a representative collection of varieties is required on a particular date this plan is imperative. I will name just one or two sorts in each of the three sections as a guide to the inexperienced in making a selection for cutting down as to time.

Taking the late flowering sorts first, Meg Merrilies, Ralph Brocklebank, W. W. Coles, and Etoile de Lyon. Medium flowering sorts, as Sunflower, Carew Underwood, Gloire du Rocher, W. H. Lincoln, and Mme. Mezard. Those which flower slightly in advance of the last named are Avalanche, Edwin Molyneux, Elaine, W. Tricker, and Val d'Andorre. The above will indicate pretty clearly how the varieties need classing. The same rule applies, of course, to all sections. Where competition is an object, it is necessary then to include other sections to render a group of Chrysanthemums thoroughly representative. A judicious selection of incurred sorts ought then to be added, while a few of the Japanese Anemone kinds would also give variety. The graceful manner in which their guard florets hang renders this class interesting apart from their value as cut blooms. Always select varieties which are naturally dwarf in habit and which are well furnished with leaves for the front of any group. Avalanche is a type of this. These should be cut down, say, to within 4 inches of the soil, the others to 6 inches, 8 inches, and 12 inches, according to their respective natural heights of growth. The largest flowering sorts should carry three blooms, and so on, in proportion to their individual size. Those which carry the most blooms must be cut down according to the number of growths required to furnish the blooms, which will be one on each shoot. Commence about May 20 with the late sorts, June 1 will be early enough for the second batch, and the middle of the month for the latest lot. If the plants could have the protection of a cold frame after being cut down for a time, so much the better, as they will not re-

CHRYSANTHEMUMS.

DWARFING CHRYSANTHEMUMS.

Now that exhibitions mainly for the encouragement of these plants are so common throughout the country, it is not to be wondered at that in all societies' schedules are to be found classes for groups of plants either by themselves or intermixed with foliage or flowering plants.

For competition, then, there is no method of cultivating the plants so satisfactory as dwarfing them by what is known as cutting down. Good blooms can be had from plants so treated, while the plants can be seen to much greater advantage and the blooms are brought more within range. Dwarf plants are equally suitable for home decoration. I do not include plants which are more generally known as bushes, although dwarf, because these are mainly intended to produce a quantity of flowers rather than a few mainly for quality. Bush Chrysanthemums, although highly recommended for the two-fold purpose of providing blooms in quantity and plants for decoration, are not suitable for competition either alone or with other plants, owing to their somewhat lumpy appearance when grouped together. Singly, bushes are handsome subjects. The new varieties of Chrysanthemums, especially in the Japanese section, are now much dwarfer than formerly, and which if persevered with may before long result in a sufficient number of kinds which will dispense with the necessity of adopting measures to reduce the natural height of the plants, and still obtain good blooms. Any variety may be grown on the dwarfing process, but of course those sorts which are naturally of that style will be the more suitable, as it is next to an impossibility to have the plants too

quire much water at the roots until new growth begins. Syringe the plants twice a day to assist the shoots starting into growth from the eyes below where the top of the plant was severed. As soon as the new growths are long enough to determine if they are perfect and the leading points not deformed, disbud the shoots to the number required. Mrs. G. Rundle and its yellow sports, George Glenny and Mrs. Dixon, which are really valuable when treated in this way for decoration, may carry as many as six flowers on each plant. The soil in the pots should only be kept moist, as the plants are less liable to suffer from the stems bleeding from the place where they were cut down. When the new growths are well started, transfer the plants to the pots in which they are to flower; those 9 inches in diameter are large enough for any; some may go into pots an inch smaller. The compost should be of the same kind as recommended for the final potting of all the plants for whatever purpose required. Keep the plants rather close for a few days until the roots are running freely into the new soil, when they should be removed to their summer quarters. A position where they will obtain full advantage of sunlight and shelter from south-west winds should be given them.

Allow plenty of space between the plants to encourage a sturdy growth. At this stage the new shoots being brittle are easily snapped off by winds, so care should be taken to prevent these mishaps by placing a stake to each. Directly the pots are full of roots a stimulant of some kind should be given, the object being to maintain the foliage in good condition; the kind should be changed occasionally, not forgetting the use of soot water. Daily syringings during hot dry weather, keeping in subjection the attacks of insect pests, such as black fly, mildew, and the Celery fly, must be carefully attended to.

E. MOLYNEUX.

NEW AMERICAN CHRYSANTHEMUMS OF 1892.

It may be accepted as a fact of some little importance in Chrysanthemum cultivation that, while the issue of the National Chrysanthemum Society's catalogue for 1888 contained the names of only four American Chrysanthemums in the list of selected Japanese exhibition varieties, the Centenary edition, published two years later, comprised thirteen sorts worthy of a place in the lists devoted to the several sections of the same species. Those named in the earlier edition were Florence Percy, Gloriosum, Moonlight, and White Dragon, and their merits were so generally approved, that when the later issue of 1890 appeared, they were all retained in the lists, and the others, viz., Fimbriatum, L. Canning, Mrs. Irving Clark, Mrs. W. A. Harris, Volunteer, W. W. Coles, Ada Spaulding, Mrs. C. W. Wheeler, and President Hyde, were added. Since then other American raised varieties have proved of great value to the cultivator, and among not the least popular of the new-comers may be cited W. H. Lincoln, Puritan, Beauty of Castlewood, and several more that have been raised on the other side of the Atlantic. Out of the enormous number of novelties imported into England from various sources, it certainly speaks well for the ability of American raisers, now that most of their seedlings are becoming more generally distributed, that so large a proportion of their flowers are pushing their way into a foremost place in our collections, and undoubtedly as time goes on it will be found that the lists of our best show varieties will contain a high percentage of these American sorts.

There is always some difficulty in declaring what an American Chrysanthemum really is, because so many of the reputed American flowers are not seedlings of American origin, but varieties that have been imported into that country direct from Japan,

and so without considerable research at times it becomes unsafe to ascribe American origin to those which we in this country are frequently apt to do. These niceties of distinction may be dispensed with in the majority of cases, and are indeed of little value to any perhaps but the historian, inasmuch as the flowers imported from Japan by American nurserymen show very clearly the keen appreciation they have of good varieties possessing distinctive characteristics. This appreciation of a new and valuable stock will unquestionably operate, if indeed it has not already done so, materially to the benefit of the progeny raised from this source in America, and it is just this point that seems to be agitating the minds of the French raisers, who lose no time in securing the best American sorts and adding them to their collections.

The best known names in connection with this branch of Chrysanthemum culture in America are Dr. H. P. Walcott, Mr. John Thorpe, Mr. T. H. Spaulding, Mr. Robert Craig, Mr. W. K. Harris, Mr. Waterer, Messrs. Fewkes and Son, Messrs. Pitcher & Manda, Messrs. Peter Henderson & Co., and several amateurs and gentlemen's gardeners, who have all enriched the exhibitor's collections with either seedlings or importations, and in some cases both, and these are undoubtedly the growers who have been the cause of giving so great and so unexpected an impetus to the cultivation of the popular autumn flower in the States. Twelve years ago there was not much done in this way, and perhaps if it had not been for Dr. Walcott's efforts, seconded by Mr. John Thorpe's, the Chrysanthemum would not now rank so high as it does throughout the Union. A few years ago the entire season's sale by Mr. Thorpe was, as he himself tells us, less than 700 plants, while during the past one the number reached nearly 100,000. If this be so in his case, the increase may reasonably be placed at something approaching the same rate in the case of other American nurserymen, thus demonstrating the tremendous run on the plant which its beauty and utility have brought about.

It would be a matter of considerable convenience if our American friends could be persuaded to attempt something like classification in announcing their new flowers. I have pointed this out before, and as THE GARDEN has an important circulation in the States, this reiterated appeal may, it is hoped, be productive of some such attempt. The novelty hunter will not be slow to discover an addition to the hairy section besides those previously announced. Sparte is stated to be a cross between Mlle. M. Fabre and Mrs. Alpheus Hardy, having hairy-like filaments very prominent. Eva Hoyt, a Japanese large-flowering variety, is said to have cost the distributor £50 for control of its sale, and many of the varieties appear to have been successful in winning cups, medals, and certificates at the Madison Square Garden competition, the Pennsylvania Horticultural Society, at Boston, at Indianapolis, and other places.

It may be serviceable to note that the hairy variety W. A. Manda, alluded to in a former paper, has already a synonym in the shape of Patrick Barry, and that Louis Boehmer has sported to a rosy blush form called William Falconer.

Although the Americans are rather profuse in some instances in the wording of the descriptions, they unquestionably set a good example in nomenclature. No flowers could possibly have shorter, clearer, or better appellations than Chicago, Columbian, Dove, Duck, Herald, Heron, Kiku, Olga, Pawnee, Pigeon and the like, while many of the personal names are as brief as such names can be.

There appears to be a system in vogue in the States by which these names are registered, and it is a highly commendable one, because when once a grower has registered the name of a new seedling, nobody else has a right to use it for another flower. This system might with advantage be adopted on this side of the Atlantic if it could only be enforced in some authoritative way. When they are registered, the names are advertised in the *American Florist*, so that persons interested may be acquainted with those in use.

Ada H. Leroy (Spaulding).—Broad petals, deep rose-pink.

A. Ladenburg (Spaulding).—Japanese; rose-pink. Amy Carey (Spaulding).—Japanese; light brown. Baby Cleveland (Pitcher and Manda).—Japanese reflexed; broad petals, lilac-pink.

Belle of Orange (Spaulding).—Broad petals, rich canary-yellow.

C. B. Whitall (E. G. Hill).—Chinese; globular, velvet-maroon, reverse lighter.

C. F. Whiting (Spaulding).—Large bloom, chestnut, old gold and bronze, broad petals.

Chicago (Spaulding).—Shell-pink, passing to white, broad incurving petals.

Christopher Columbus (Spaulding).—Japanese; deep dark crimson.

Clara Bertermann (Vaughan).—Bronze, with purplish stripes, passing to golden-yellow.

Col. H. M. Boies (Pitcher and Manda).—Japanese incurved; rose-pink, veined lighter, petals twisted.

Col. Wm. B. Smith (Spaulding).—Broad petals, bright golden bronze.

Columbian (Spaulding).—Bright scarlet.

Cornelia Beckwith (Spaulding).—Broad, long incurving petals, snow white.

David Rose (Henderson).—Rosy claret, edged silvery white.

Dr. H. A. Mandeville (Pitcher and Manda).—Incurved; long petals, chrome-yellow.

Dr. Covert (E. G. Hill).—Japanese; golden yellow.

Dove (Pitcher and Manda).—Anemone; pure white.

Duck (Pitcher and Manda).—Anemone; pure white.

E. A. Wood (Thorpe).—Incurved; velvet-crimson, reverse shaded gold.

Eclat (Pitcher and Manda).—Anemone; pure white.

Edward Hatch (E. G. Hill).—Large globular bloom, soft lemon and bright pink.

Ella May (Henderson).—Primrose-yellow, centre apricot.

Elsinor (Spaulding).—Broad petals, bright orange.

Emma Hitzeroth (Spaulding).—Broad petals, lemon-yellow.

Ethel Paul (Spaulding).—Incurved; snow white.

Eva Hoyt (Spaulding).—Japanese; bright yellow.

Evening Glow (Henderson).—Centre yellow, shaded bronze-red towards tips of petals.

Fair Maid of Perth (Spaulding).—Pure white, tipped rose.

Faultless (Henderson).—Large bloom, golden yellow.

Frances Tarbox (Pitcher and Manda).—Japanese reflexed; broad petals, silvery pink, edged pale lilac, early.

Fred. Dörner (E. G. Hill).—Pure white, pencilled lavender.

George Savage (Pitcher and Manda).—Incurved; broad petals, white, dwarf.

George W. Childs.—Broad stiff petals, dark velvety crimson.

Gopnac (N. Smith and Son).—Japanese; sport from Mrs. Irving Clark, white.

Goldbach (Henderson).—Deep crimson, reverse light bronze.

Harry May (Pitcher and Manda).—Incurved; old gold, veined red, broad petals.

Harry Balsley (N. Smith and Son).—Pearl-pink, shading to mermet-pink, erect petals.

Hazel Gallagher (Thorpe).—Incurved; rose-pink, reverse silvery pink.

H. Ballantine (Pitcher and Manda).—Japanese incurved; bronze or terra-cotta, passing to straw-yellow, hairy variety.

Herald (Pitcher and Manda).—Anemone; golden yellow, single row of ray florets.

Heron (Pitcher and Manda).—Anemone; rose-pink.

H. F. Spaulding (Spaulding).—Japanese; apricot-yellow, shading to rose, centre clear yellow.

Indian Chief (Henderson).—Japanese; crimson.

John Bertermann (E. G. Hill).—Pure white, shading to cream in centre.

John H. Taylor (Thorpe).—Reflexed; white, mottled pink.

Jos. H. White (E. G. Hill).—Dahlia-like petals, white.

J. N. May (Spaulding).—Deep ox-blood-red, reverse coppery bronze.

J. Schuyler Matthews.—Incurved; red-bronze, reverse gold.

J. S. Fassett (Spaulding).—Japanese; lilac-crimson, shading to pink.

Julius Roehrs (Henderson).—Incurved; violet-rose, reverse silvery pink.

Kiku (Thorpe).—Deep pink, centre silvery pink.

King's Daughter (Vaughan).—Japanese; snow white, long petals.

Lilian Russell (Spaulding).—Incurved; broad petals, silvery pink, early.

Looking Backward (Spaulding).—Deep crimson.
Lord Brooke (Pitcher and Manda).—Japanese incurved; bronze-yellow, shaded red, stiff broad petals, dwarf.

Mamie Craig (Spaulding).—White, shaded pink in centre, passing to white.

Majesty (Henderson).—Deep red, larger and finer than Cullingfordi.

Marquede Jeffords (E. G. Hill).—Amber-yellow.

Miss Ada McVicker (Pitcher and Manda).—Japanese reflexed; creamy white, thick petals.

Miss Annie Manda (Pitcher and Manda).—Japanese incurved; pure white, sweet-scented, dwarf hairy variety; an improvement on Mrs. Alpheus Hardy.

Miss Helgett (Thorpe).—Violet-amaranth, reverse lighter.

Miss Lily Measures (Pitcher & Manda).—Japanese; large blooms, deep golden yellow, dwarf.

Miss M. C. Jate (Pitcher and Manda).—Incurved; broad petals, pure white.

Mohican (Pitcher and Manda).—Incurved; large blooms, mahogany colour.

Mr. A. G. Ramsay (Pitcher and Manda).—Japanese reflexed; broad petals, Indian red, yellowish at tips, reverse yellow, veined red.

Mrs. A. Rooke (Pitcher and Manda).—Japanese; creamy white, flushed rose, tipped yellow, sweet-scented.

Mrs. A. J. Drexel (E. G. Hill).—Large bloom, crimson-lake, early.

Mrs. C. D. Avery (N. Smith and Son).—Japanese; dandelion-yellow.

Mrs. Dr. H. A. Manderline (Pitcher and Manda).—Incurved; broad petals, terra-cotta-yellow.

Mrs. E. D. Adams (Pitcher and Manda).—Japanese reflexed; deep petals, white flushed rose, dwarf.

Mrs. E. D. Church (Pitcher and Manda).—Japanese; pink shaded, early.

Mrs. F. Schuchardt (Henderson).—Large blooms, centre creamy white, tipped rose.

Mrs. Gallagher (Pitcher and Manda).—Japanese reflexed; deep maroon and crimson.

Mrs. Georgie Cole (Vaughan).—Japanese; garnet-purple, reverse lighter.

Mrs. Gov. Fifer (N. Smith and Son).—Japanese; broad petals, pure white.

Mrs. Herbert Leon (Pitcher and Manda).—Japanese reflexed; large blooms, pink.

Mrs. I. Fosterman (Henderson).—Japanese incurved; snow white.

Mrs. Jerome Jones (Vaughan).—Incurved; white.

Mrs. J. L. Kearney (Spaulding).—Pearl-white, shading to peach-pink.

Mrs. J. Hood Wright (Pitcher & Manda).—Japanese reflexed; large blooms, petals twisted, pure white.

Mrs. John Eyermann (Pitcher and Manda).—Incurved; large blooms, rose-pink.

Mrs. J. W. Morrissey (Spaulding).—Large bloom, silvery pink and bright rose.

Mrs. L. C. Madeira (E. G. Hill).—Globular bloom, bright orange.

Mrs. Maria Simpson (E. G. Hill).—Japanese incurved; broad petals, chrome-yellow.

Mrs. Robert Craig (E. G. Hill).—Chinese; spherical bloom, colour snow white.

Mrs. T. F. Mercer (Pitcher and Manda).—Incurved; broad petals, bluish white.

Mrs. W. H. Phipps (Thorpe).—Japanese; pure white, like Domination, but later.

Mrs. W. S. Kimball (Pitcher & Manda).—Japanese reflexed; large blooms, pale bluish or creamy white, centre yellowish, broad petals.

Olga (Vaughan).—Soft rose, shaded magenta.

Oliver Wendell Holmes (Thorpe).—Light mahogany-red, reverse light yellow.

O. S. Hubbell (Spaulding).—Anemone; bright lemon-yellow, self.

O. P. Bassett (E. G. Hill).—Broad heavy petals, colour and form similar to Cullingfordi.

Patrick Barry (syn., W. A. Manda).

Pawnee (Pitcher and Manda).—Incurved; Indian red and yellow, late.

Pigeon (Pitcher & Manda).—Anemone; pale pink.

Popularity (Henderson).—Incurved; flesh-pink.

Redondo (N. Smith and Son).—Japanese incurved; orange, reverse old gold.

Roslyn (Spaulding).—Rose-pink.

Ruth Cleveland (Spaulding).—Broad petals, silvery pink.

Secretary Farson (Vaughan).—Incurved; clear yellow.

Shenandoah (Spaulding).—Very broad petals, deep chestnut-brown.

Spartel (N. Smith and Son).—Rose-pink, hairy variety from Mlle. M. Fabre. — Mrs. A. Hardy.

Surprise (Henderson).—Globular bloom, bronzy-red.

Sweet Lavender (Thorpe).—White, shaded blush, slightly scented.

T. H. French (Spaulding).—Scarlet, reverse rich gold.

Volcanic (Thorpe).—Canary-yellow, reverse lighter.

W. A. Manda (Pitcher and Manda).—Japanese incurved; deep golden-yellow, hairy variety.

William Falconer (Spaulding).—Rosy blush sport from Louis Bohmer. CHRYSANTH.

Early-flowering Chrysanthemums.—In an article on new hairy Chrysanthemums (p. 411) mention is made of the fact that the groups or sections into which this flower is divided are continually on the increase; thus it is noted that a few years ago there was no such section as the Japanese Anemone-flowered Chrysanthemum, and in a like manner summer-flowering varieties were known for a long time previous to the early-flowering exhibitions of the National Chrysanthemum Society being held. In proof of this I may mention the fact that in a catalogue of one of our principal nurserymen for 1870 eleven varieties are included under the head of summer-flowered pompons, viz.: Adrastus, mauve; Bordeaux, sulphur-white; Chromatella, dwarf yellow; Delphine Caboche, violet-rose; Frederic Pélé, bright crimson; Golden Button,



Gooseberry Whinham's Industry.

golden yellow; Jardin des Plantes, white; Mme. Alphonse Dufoy, white; Mexico, bright yellow; Scarlet Gem, scarlet-crimson; and Sicile, lilac and blush. All of the above are priced at one shilling each, and there are none cheaper than this in any section, so that the varieties in question could have been at that time by no means novelties. In the same list among the pompons occurs that useful summer-flowering variety *Précocité*, quoted at five shillings per plant. If for no other reason this list is interesting as showing the great difference between the prices then and at the present day, for now about one quarter the amount is charged for young plants of the general collection of Chrysanthemums. Though immense numbers of varieties have been put into commerce since the above list was published, we have some of the varieties there mentioned still in cultivation, viz.: Adrastus, Delphine Caboche, Frederic Pélé, Jardin des Plantes, Mme. A. Dufoy, Scarlet Gem, and *Précocité*.—T.

New Chrysanthemums, names of.—With the naming of the Continental Chrysanthemums recently given in THE GARDEN less fault than usual can be found this year; as the number of old names again employed are not great, still there are a few that may lead to confusion. Thus, *Curiosité*, considering the times it or the English equivalent have been employed, could be done without, while a variety bearing the name of Diane was sent out by M. Lemoine some years ago, and is to be found in the catalogue of the National Chrysanthemum Society. Again, such names as

H. J. Jones, M. V. Lemoine, Mme. Viviani-Morel, and Mrs. C. Harman Payne, differing as they do only in the initial letter from others already in cultivation, will furnish opportunities for mistakes unless great care be taken in this respect.—T.

"An unerring perception told the Greeks that the beautiful must also be the true, and recalled them back into the way. As in conduct they insisted on an energy which was rational, so in art and in literature they required of beauty that it, too, should be before all things rational."—PROFESSOR BUTCHER, in "Some Aspects of the Greek Genius."

NATURE AND CLIPPED YEW.

THE remarks quoted below on Nature and the clipping shears are not from Josh Billings, but from "The Formal Garden," of which the literary merit, we are told in the preface, belongs to Mr. Blomfield.

A clipped Yew tree is as much a part of Nature—that is, subject to natural laws—as a forest Oak; but the landscapist, by appealing to associations which surround the personification of Nature, holds up the clipped Yew tree to obloquy as something against Nature. So far as that goes, it is no more unnatural to clip a Yew tree than to cut Grass.

I believe we cut Grass when we want hay or soft turf to play on, but disfiguring a noble tree is not a necessary part of our work either for our profit or pleasure. Perhaps, as is probable, Mr. Blomfield has never noticed what a beautiful tree a Yew in its natural form is. It is not only on the hills he may see them. If he will come and see them in my own garden in a high wind some day, or when bronzed a little with a hard winter, he may change his amusing notions about clipped Yews.

I think I can give Mr. Blomfield a rational explanation of why it is foolish to clip so fair a tree or any tree.

I clip Yews when I want to make a hedge of them, but then I am clipping a hedge, and not a tree. I hold up "the clipped Yew tree to obloquy," as the tree in its natural form is the most beautiful ever-green tree of our western world—as fine as the Cedar in its plummy branches, and more beautiful than any Cedar in the colour of its stem. In our own day we have seen trees of the same great order as the Yew gathered from a thousand hills, from British Columbia, through North America and Europe to the Atlas Mountains, and not one of them has yet proved to be so beautiful as our native Yew when it is allowed to grow unclipped root or branch. But in gardens the quest for the strange and exotic is so constant, that few give a fair chance to the Yew as a tree, while in graveyards where it is so often seen in a very old state, the frequent destruction of the roots in grave-digging prevents the tree from reaching its full stature and beauty, though there are Yews in English churchyards that have lived through a thousand winters.

I do not clip my Yews, because clipping destroys the shape of one of the most delightful in form of all trees, beautiful too, in its plummy branching. It is not my own idea only that I urge here,

but that of all who have ever thought of form, foremost among which we must place artists who have the happiness of always drawing natural forms. Let Mr. Blomfield stand near one of the Cedar-like Yews by the Pilgrim's Way on the North Downs, and, comparing it with trees cut in the shape of an extinguisher, consider what the difference means to the artist who seeks beauty of form. Clipping such trees does not merely deserve "obloquy"; it is worse than idiotic, as there is a sad reason for the idiot's ways.

If I use what in the Surrey nurseries are called "hedging Yews" to form a hedge, high or low, I must clip them to form my hedge, and go on doing so if I wish to keep it, or the hedge would soon show me that it was "subject to natural laws," and escape from the shears.

What right have we to deform things given us so perfect and lovely in form? No cramming of Chinese feet into impossible

and shape among them, should mutilate some of the finest natural forms!

Thus while it may be right to clip a tree to form a wall, dividing-line, or hedge, it is never so to clip trees grown as single specimens or groups, as by clipping such we only get ugly forms—unnatural, too. Last autumn, in Hyde Park, I saw a man clipping Hollies at the Rotten Row end of the Serpentine, and asking him why it was done, he said it was to "keep them in shape," though, to do him justice, he added that he thought it would be better to let them alone. Men who clip so handsome a tree as the Holly when taking no part in a hedge or formal line are blind to beauty of form. To tolerate such clipped forms is to prove oneself callous to natural beauty of tree form, and to show that we cannot even see ugliness.

Take, again, the clipped Laurels by which many gardens and drives are disfigured. Laurel in its natural shape in the woods

greatly to the injury of the garden landscape. In the old gardens, where from other motives trees were clipped when people had very few Evergreens or shrubs of any kind, or where they wanted an object of a certain height, they had to clip. It is well to preserve such gardens, but never to imitate them, as has been done in various English and American gardens. If we want shelter, we can get it in various delightful ways without clipping, and, while getting it, we can enjoy the beautiful natural forms of the finest Evergreens. Hedges and wall-like dividing-lines of green living things will now and then be useful, and even may be artistically used; they are sometimes, however, used where a wall would be better, walls having the great advantage of not robbing the ground near. A wall, too, is easily made into a beautiful garden with so many lovely things, too, from great scrambling yellow Roses to alpine flowers. To anyone with the slightest sympathy with Nature or art these things need not be said.

W. R.

ORCHARD AND FRUIT GARDEN.

THE GOOSEBERRY.

THIS, to many, is the best of all fruits, and one, according to my estimation, far too much neglected in even good gardens. It is not only the cottager's friend, but at the same time fit for any nobleman's table. The culture of the Gooseberry, unlike that of the Vine, entails little or no expense; after being carefully planted, all it needs is good attention in the way of an annual top-dressing of rotten manure and pruning, or, I might say, proper thinning out of useless wood. Pruning has been very much altered of late years; now, in most cases, the bushes are merely thinned, all misplaced and cross branches are cut away, and as much fruit-bearing wood left as is consistent with the strength of the plant. The thinning of the wood is no doubt good practice when fruit in quantity is required and where it is used in a green state, but if fine, large, well-flavoured berries are the desideratum, the bushes ought to be kept quite open in the centre, and the main branches should stand quite apart from each other, thus allowing the admission of plenty of air and sunshine to impart flavour, which is so much valued in a Gooseberry. Another point where handsome fruit is desired is to thin the fruit well. This is rarely attended to, but are not Peaches, &c., thinned? Then why not the Gooseberry? This thinning process is all the more necessary in the case of bushes of pendent habit, which in many seasons are so weighed down with fruit, that it is utterly spoiled by lying on the ground. The spade ought under no circumstances to be used in a Gooseberry plantation. Early in the season apply a top-dressing of good rotten manure, thus causing the fibrous roots to find their way to the surface and invigorate the plant. Check all weed growth by means of the hoe, and there will be no necessity whatever to have recourse to digging in any form either with spade or fork.

Roseberry, one of the varieties here figured, is not very well known, but it is very sweet and pleasant, the fruits green, small and freely produced. Whinham's Industry, also figured, has been largely planted by market growers on



Gooseberry Roseberry.

shoes is half so wicked as the wilful distortion of the divinely beautiful forms of trees. The cost of this hideous distortion alone is one reason against it, as one may soon find out in places where miles of trees cut into wall-like shape have to be clipped, as at Versailles and Schönbrunn! This clipping is a mere survival of the day when gardens had very few trees, and it was necessary to clip the few they had to fit certain situations to conform to the architect's notion of "garden design." This is not design at all from any landscape point of view; and though the elements which go to form beautiful landscape, whether home landscape or the often higher landscape beauty of the open country, are often subtle, and though they are infinitely varied, they are none the less real. The fact that men when we had few trees clipped them into walls and grotesque shapes to make them serve their notions of "design" is surely not a reason why we, who have the trees of a thousand hills and with trees of almost every size

of west country or other places, where it is let alone, is often fine in form, though we may have too much of it. But it is planted everywhere without thought of its stature or fitness for the spot, and then it grows until the shears are called in, and we see nearly every day its fine leaves and free shoots cut short back into ugly banks and sharp wall-like, or formless masses, disfiguring many gardens without the slightest necessity. There is no place in which it is used clipped for which we could not get shrubs quite suitable that would not need mutilation. It is not only clipped trees that are ugly, but even trees like the Irish Yew, Wellingtonia, and some Arbor-vitæ, which frequently assume shapes like extinguishers or the forms of clipped trees. It often happens that these, when over-planted or planted near houses, so emphasise ugly forms about the house, that there is no beauty possible in the home landscape. Many of such ugly, formless trees have been planted within the last generation,

account of the early swelling of the fruit. Private gardeners ought also to plant this variety largely in the ensuing autumn, as early Gooseberries for pies are always appreciated.

T. W.

MULCHING STRAWBERRIES.

THERE is a diversity of opinion as to mulching Strawberries early in May. So far as my experience goes, much depends upon the soil whether it is heavy or light, as if the latter, the sooner mulching is done this month the better for the fruit. Where late mulching is practised it has several disadvantages, one of the first being the injury to the fruit, as it is much easier to mulch with only a small proportion of leafage. When the fruits are formed, the foliage has become heavy and the fruit-stalks long, and in places where there is a great quantity to do, the work must be gone on with before the season is far advanced. Another serious objection to late mulching, especially on light land, is that with drying winds the plants suffer, as being shallow-rooters and in active growth with heavy foliage, they require a lot of moisture to keep them in a healthy condition. Should they suffer in the least from drought the bloom is much poorer, and the fruit when once growth is arrested does not swell freely; indeed it often fails to swell at all, thus losing the first fruits, which are the best. Strawberries when in active growth require a large amount of moisture. They are also gross feeders, and I never care to see plants in active growth flagging, as if they suffer in this respect the fruit will be of bad shape and probably only half the crop set. Some people object to early mulching with long manure because the beds are thus kept too moist, and the moist atmosphere when the frost occurs at night assists in injuring the bloom instead of doing good. Such is not my experience, but, as I have previously observed, ours is a very light soil, and without early mulching our plants would soon suffer. I do not advise a thick mulch, and on heavy clay land where the work can be deferred I certainly would leave it later than on light soils, but even on the light soils I do not mulch heavily with straw or litter. If a heavy mulch is given early on cold land it keeps the ground colder, as the sun cannot penetrate through it; on the other hand, a light mulch sufficient to prevent dryness and to keep the fruits clean does not obstruct the sun heat, and in dry seasons retains the moisture. The objection to heavy mulching will be minimised if the old system of manuring between the rows early in spring is carried out. I believe it to be an excellent practice, as the manure is washed down to the roots just as the plants are making new growth, and when this is done there need be no hurry as regards mulching if clean material is used, but if stable litter in a wet state, it requires to be done early, so as to get the straw bleached and in a clean condition for the fruit to rest on. I make it a practice to give in the early spring a top-dressing of good manure in a thoroughly decayed condition; indeed in some seasons the work is done in February, by which date the manure is quite friable.

I have used spent Mushroom manure for this purpose early in the spring. If used for the Mushrooms with a fair amount of litter, the heavy rains wash the manure and leave the strawy material on the surface. I have seen sewage recommended for these fruit; and it has its advantages, provided it is applied at the proper time and not too strong. A few years ago I saw several acres of fruit destroyed by giving sewage too strong. I have also seen the bloom destroyed by the sewage. If this is applied it should not touch the plants, but be placed between the rows. I would prefer to give it before the final mulch. But with Strawberries grown on the one or two-year system, I do not like the use of sewage at all, as the plants get sufficient feeding material from the soil when ground is heavily manured, and a surface dressing the following year will be all that is necessary. When sewage is used, I would advise a thorough watering or flooding with clear water to carry it

down to the roots, and on heavy land I would not use it at all. I consider the early mulching does good by affording a certain amount of protection to the young growth if placed on the beds early in May. Water should be given before the final mulch when required and in all cases when the fruit is swelling, as Strawberries that ripen when dry at the root lack sweetness and are much smaller. Very often early Strawberries are on sloping borders, so that moisture is sooner required. There are various other materials occasionally used for the above work, but so far there is nothing better than clean short straw.

G. WYTHES.

Strawberries and the frost.—The backward condition of outdoor Strawberries this year would seem to have ensured them against the effects of the late severe frosts. I fear, however, that whatever hope may be entertained in this way will be rudely dispelled. I have just been looking over my beds, and during a period of twenty years I can safely say that I never witnessed such injury by frost on the Strawberry blossom. The first flowers are but just opening, and seeing that they were all black-eyed, I was induced to make a more careful examination. In the case of the early kinds the crop is almost destroyed. Nearly every bud has been frozen through, and many of the trusses do not seem to have a good bloom left on them. It is by no means uncommon for expanded Strawberry blossom to suffer severely from frost, but I never remember the buds to be killed in such a wholesale way before, as the calyx serves to protect them from some degrees of cold, but 16° or more of frost is too much in the month of May, and the wonder is that any fruit bud or blossom should survive such an ordeal. The best crops will undoubtedly be had this year from old stools, as young plants are always a little in advance and they have not so many old leaves to protect the trusses. Probably, too, growers in the north will fare best through the bloom being much later, except perhaps in such favoured southern localities as Southampton, which hard spring frosts and biting winds do not visit much. The earliest varieties are, of course, more badly hit than the later ones.—J. C. B.

Sharpless Strawberry.—Many interesting articles have of late appeared in the pages of THE GARDEN respecting the best Strawberry for early forcing; but as I do not see the above even mentioned, I presume it is not much grown for this purpose, nor, indeed, out of doors. It is, nevertheless, an excellent variety for both purposes. It is not new, of American origin, very early and a heavy cropper. I have grown it outdoors for years, and it ripens in advance of even Pauline. On it also I chiefly rely for forcing, and each year it turns out satisfactory in every respect. I honestly admit that, personally, I do not care for its flavour, but, on the other hand (and this is the point I have to study), my employers consider it by far the best flavoured of any—much superior in that respect to any other variety they taste here or elsewhere. This has been the expression each year, and has been repeated again this season, for I am happy to say I have been complimented on its delicious flavour and general fine quality. As tastes differ, it may be worthy of trial, if only on a small scale, at more places than now appears to be the case.—J. R.

Strawberries after forcing.—There will now be numbers of Strawberry plants turned out of their forcing quarters every few days as the fruit is gathered, and, unlike those forced earlier in the season, the plants are of better constitution, owing to the abundance of light they have received. Such plants as these are invaluable for forming new plantations; therefore every care should be taken of them, keeping them well supplied with water until the ground is ready to receive them. When early kidney Potatoes have been planted on newly-trenched ground, sufficient of these may be lifted at the earliest possible date and the Strawberry plants put out immediately after them. The cultivation necessary for the Potatoes and the lift-

ing render the ground just firm enough without any further digging. I have for several years adopted this plan with the very best results. I always try to get the new plantation of Strawberries made at latest by the end of the first week in July, and always take the precaution to well water them in after planting. The ground between the lines of newly-planted Strawberries makes an excellent place for sowing or planting out Lettuces.—C. WARREN, *Clarendon Park.*

YOUNG FRUIT TREES.

TREES may be made or marred during the first two seasons after planting. Merely sticking them into the ground and leaving them to take their chance is a poor or slovenly way of doing things, and which very rarely ends well. One has only to take a railway ride through Kent or any other fruit-growing district to mark the great difference between good culture and bad. In one case the trees are all planted slightly above the ordinary level, carefully staked, and in not a few instances well mulched at the roots. The growth made since planting by these well-attended-to trees is in most instances very regular, and neat well-balanced heads predominate, a good foundation being thereby laid. Such well-managed breadths of orchard trees will soon begin to prove remunerative, quite heavy crops of fine fruit being taken from them—the season being favourable—after they have been planted about four years.

On the other hand, where the trees are merely stuck into small holes cut out of grass land—and I have seen a lot of trees this spring so planted, the turf actually being replaced almost in its original position (a great mistake)—the growth is almost certain to be feeble and irregular. Especially is this the case with any not staked up properly. Unless carefully staked, wind-waving inevitably checks root-action, while the heads have a tendency to drop downwards. Using short stakes or any not more than half the length of the stems will not do, nor is there any economy in employing other than the most durable poles for the trees. Strong Ash or Hazel stakes, such as are used for Hop poles, are the most suitable for fruit trees. These should have the bottom 18 inches or thereabouts either charred or dipped in boiling creosote. When the latter preparation was first used for Hop poles it was thought that the roots of the plants would be injured by it, but experience has taught the growers otherwise, and a great saving in the expenditure on poles has been effected. Where wood of any kind decays most quickly is between wind and water—that is to say, just on the surface of the ground, and charring or creosote prevents rapid decay at that point. One stake to a tree is sufficient, and it should fit up closely to it, a bandage of old sacking surrounding the stem, where a tie of tar cord is made, to prevent injury to the bark by friction. Undoubtedly this is somewhat late in the day to offer hints upon staking young trees, but it is not yet too late to attend to this matter, and it is a point in fruit culture the importance of which to all appearance is not generally appreciated. What holds good with orchard trees applies with equal force to a few isolated garden trees, including pyramids if these are at all exposed to strong winds. If, as ought to be the case, they are planted sufficiently high for the collar or point of union of the uppermost roots with the stem to be either observable or easily come at by moving the soil with the hand, then winds are capable of constantly disturbing the roots, and, it may be, of driving the trees out of the perpendicular, while those more deeply planted soon form

quite a large hole about the stems, a state of affairs most prejudicial to the well-being of the trees. Supposing healthy young trees are put out in the first instance, these having a fairly large head already framed out, what is most needed during the following season is not so much a strong top-growth as a healthy, vigorous root-action. Not many of them are capable of making great progress both above and below ground, and I hold that if the roots were more studied than is often the case, top-growth would be of a far more satisfactory description the following summer. That is why I favour the plan of leaving all trees other than maidens, including those planted against walls, much as they are received from the nurseries. Very few of them will attempt to form strong shoots, and in most cases any that do start away strongly, notably at the end of the branches, should be early stopped. Thus treated, the tree's vigour is directed more to the formation of root-fibres, and which the leaves, freely produced in the shape of short breaks all through the length of unpruned branches, favour rather than otherwise. Other conditions to be attended to being favourable, the trees will be in a position to break strongly, a sufficiency of good firm shoots being available for furnishing blank space or laying the foundation of good heads, while a considerable number of fruit-buds will have also developed, a fruitful tree in many instances being had without any further trouble.

The other favourable conditions alluded to are of considerable importance and to be enforced at the present time. Newly-planted trees, being without many root-fibres and in perhaps lumpy soil of which they have as yet no hold, are among the first to suffer from drought, and if we are to have a dry, hot summer, something more than usually necessary will have to be done to assist them. Already the surface of the ground is dry and hard, and unless we get a soaking rain before these lines appear in print, watering ought to commence. Cultivators must not be misled by appearances, mere April or May showers being mistaken for a soaking downfall. If my advice is taken, the soil about young trees, whether planted this season or rather more than a year ago, will be examined to a good depth, and if found even approaching dryness, be given a good soaking with water, preferably that obtained from a pond. When extreme dryness is anticipated, a comparatively small quantity of water goes a long way; whereas if we wait till the soil is very dry, injury will have already accrued to the trees, and more than one heavy watering is needed to thoroughly re-moisten the ground again.

In connection with this early application of water to young trees I would also direct attention to the necessity for supplying a fertiliser of some kind to any planted on poor ground. A too free use of raw manure is undoubtedly objectionable, as being conducive to rank, unfruitful growth, but we may easily err in going to the other extreme. If given a very poor soil at the outset, both top and bottom growth are likely to be far too feeble, an abnormally productive and consequently much stunted tree being the sure outcome of this. We want fruit, but this must not be produced on young trees at the expense of wood growth. Fertilising matter may be most readily placed within reach of what roots there are by means of liquid manure, and not a few half-starved young trees would be greatly improved for the better if they received a good soaking of it now. Well-diluted farmyard liquid manure and sewage water are among the best fertilisers that can be applied, and a fairly

good substitute for the former may be had by soaking in large tubs of water the best manure obtainable from a mixed cattle run. Liquid manure when applied during the growing season should always follow either a heavy rain or a soaking of clear water, or otherwise it may prove either injurious to the roots or ineffective. Let young trees have some of this and a mulching of strawy manure in any case, and those planted upwards of twelve months ago may be allowed to mature a few fruits without detriment to the progress above and below ground. All newly-planted trees ought most certainly to have a mulching of strawy litter, this being applied after the surface has been firmed down, with a view to preventing rapid evaporation of moisture and the preservation of surface roots. I have noticed young fruit trees of various kinds flowering more freely than usual, but, failing an early and beneficial removal of the flower-buds, every fruit that sets should be at once picked off, it being most unwise to cripple trees for the sake of a few stunted, worthless samples.

W. IGGULDEN.

FLAVOUR IN APPLES AND PEARS.

SHOULD flavour be regarded as the principal quality in making awards to Apples and Pears was the subject recently discussed by the members of the Brighton and Sussex New Horticultural and Mutual Improvement Society. Mr. Spottiswood, one of the members, read a paper which was in the main a protest against these fruits being adjudicated on at a fruit show according to their size and colouring rather than upon their flavour. Flavour, it was contended, should be the prime consideration—size, symmetry, and colouring in the case of dessert Apples and Pears being matters of secondary importance. Mr. Spottiswood urged that in schedules of prizes it should be set forth that the quality of flavour of the fruit would be considered as of the chief importance, and that those called upon to award the prizes should be required to cut and taste the fruit, and judge accordingly. Several varieties of Apples were named which though of exquisite flavour would stand no chance at an exhibition as matters were at present arranged, because they are inferior in appearance to more showy fruit, but which are wanting in flavour, and it was contended that encouragement should be given to such classes, so that the best flavoured fruit should have justice done them. This is by no means a new contention, and one that should be fully and impartially discussed, but the principle is one hedged round with difficulties in reference to its adoption. In the first place what is required is an authoritative declaration as to what constitutes flavour in Apples and Pears. Who is competent to define with accuracy a standard of quality as to flavour which would find universal acceptance? Individuals apparently fully competent to decide on a matter of such importance are found differing in their estimates of flavour. It is pretty much a matter of something like caprice, and I have known three individuals to differ in their estimate of flavour in a Melon. In the absence of any authoritative standard, judging by flavour is a somewhat haphazard business, and there is great danger of failure when put to the test of experiment. The task of judging would be indefinitely prolonged, say, in a competition with twelve dishes of dessert Apples for flavour. Supposing six fruits of each were shown, to deal out strict justice every fruit of the dish should be cut. The palates of the judges would become nauseated, and there would be danger of the performance being reduced to an absurdity. Then a variety might be placed at the head for flavour that is a bad grower, a shy bearer, and uncertain in different localities and soils and in various positions. Also it is well known that Apples and Pears vary when grown upon different aspects. Especially is this true of some Pears when grown on bush trees in the open and against

walls. A variety that is highly flavoured in one locality may fail to be so in another, however good and reliable in other respects. As far as my experience goes, the present method of cutting Melons, Peaches, and Nectarines, and Apples and Pears for flavour is scarcely commendable. I have seen a Melon disappear altogether; Peaches, Nectarines, and Pears mangled so much, that visitors turn away from them with something akin to disgust. If Apples, Pears, and such like are to be shown for flavour and subject to being tasted, this feature should be arranged on a small scale, and not be made a prominent one. Visitors to flower shows are attracted by appearances, and the finest productions are the more greatly esteemed by them.

R. D.

THINNING THE BUDS OF PEACH TREES.

IT seems needful to remind "Y. A. H." (see p. 424) that there are buds and buds, and blossoms and blossoms. My remarks applied to Peach blossoms, including, of course, Nectarines and Plums, and I never could see that this thinning of the fruit blossoms on such trees was beneficial, or, what is more to the point, added sensibly to the security of the forthcoming crop. "Y. A. H." mixes up Roses, Orchids and Grapes, and reasons from these to Peach blossoms, as if they were all in the same boat. They are not by a long way, as anyone who will examine them on the tree will see for himself. Your correspondent cannot mean that a Peach bud, a score, or a hundred of them takes as much strength out of a Peach tree as a single fat *Maréchal Niel* Rose out of the Rose plant. In fact, all these comparisons as to the relief of Orchid plants through the cutting off of their flowering stems, the relief of the burden on heavily-cropped Grapes through reducing the number of bunches, the thinning of Rose buds, disbudding of *Chrysanthemums*, &c., might have some logical application had I or any other writer opposed the thinning of young Peach fruit. Peach blossoms take no strength nor growing force out of the trees until fully expanded and safely set. "M. T." evidently confounds fruit-blossom-thinning with the thinning of the fruit when he states so positively "when buds on Peaches and Nectarines are few and well placed, I invariably find them set well and the fruit proportionately large." A thin crop well placed, other conditions being favourable, always results in fine fruit whether the blooms were few or many.

"Y. A. H." makes some very sweeping assertions that can hardly be sustained by general experience, as, for example, the following: "Flowering is a very exhausting process, more or less according to the strength of the plant or tree." If "Y. A. H." would substitute fruiting for flowering, the statement would be more correct; but if Peach flowers are but beautifully painted or coloured leaves, it is difficult to see where the exhaustion comes in. The functions of such flowers are identical with those of leaves.

Then we have this sentence: "Thinning of the flower-buds of any plant or fruit-bearing subject means larger, stronger, and more fully developed flowers." Does it? This assertion really begs the whole question. Does "Y. A. H." really mean that by thinning Peach buds in the spring, the strength that he affirms would have gone to the thinned-off buds runs into those left? And does he hold that supplies of sap or food are thus convertible on the instant, and in time to be of service to the strength or size of the blooms left? If not, where is the benefit of thinning them off? I do not deny the theory or feasibility of the convertibility of sap or its diversion from one point to another, but "Y. A. H.," "M. T." and others apply it altogether too late to derive any practical benefit from it to the current year's Peach blossoms. To derive any possible advantage from the thinning of Peach blossoms, they ought to have been thinned last autumn. But accepting the unanimous testimony of all botanists that Peach blossoms strengthen rather than exhaust the trees, where is the sense in thinning them, and does not their loss

weaken rather than strengthen the whole tree as well as the blossoms left? But, asked by "Y. A. H.," "Have I never observed some Plum trees so crowded with blossoms, that no fruit whatever has formed? Possibly more young Peaches, Nectarines, Plums, Apricots and even Cherries cast their crops through over-luxuriance than from exhaustion or any other cause or error, cultural or otherwise. Has "Y. A. H." been so fortunate as never to have a fruit tree under his charge that grows out of or away from its crop through sheer wantonness of vigour?"

Notwithstanding the many high authorities to the contrary, I see no good, but a mere waste of time and force in the thinning of Peach blossoms; but I advocate severe thinning of the fruit and also of the wood shoots if the finest samples of the highest quality are to reward the cultivator. To those about to adopt "M. T.'s" summary method of clearing off all the back buds from their Peach shoots, my advice is, do not do it to trees in the open air. How often do we find, especially in such ungenial springs as that of last year and this which so far have been as like to each other as two Peas in their harsh, dry ungeniality, that while most or all of the foreright buds are frozen black, a crop may finally be scratched up through the back buds that have found sufficient warmth to save them between the Peach branches and the wall.—D. T. F.

— If the object were to grow big flowers instead of obtaining a crop of fruit, thinning the buds of Peach trees would be of use; but as fruit is what is aimed at, I maintain that the operation is not only a waste of time and useless, but that it is likely to lead to results quite different to those stated by "Y. A. H." and end in loss of a full crop. Whoever heard of a robust tree, or strong shoots that must, according to "Y. A. H.," have the largest and best flowers, being fertile? Instead of this it is just the reverse, for what do we find but the gross shoots unfruitful, and cultivators knowing all this, correct that tendency in their trees, and we see the Pear on the Quince full of blossom and fruit, and the same with the Apple on the Paradise stock. A few weeks ago I could have sent Peach and Nectarine shoots literally crowded with fruit, but, according to "Y. A. H.," the flowers should have been so weak as not to be able to set, and yet few failed, and I have had the great pleasure of thinning and leaving the fruit just where I liked, and shall have plenty to pull off after the stoning. It is this process that affects the strength of trees. If we look for fertility, we do not want big, fat, bloated flowers, and to bring forward the thinning of Roses and Chrysanthemums is a very weak point in support of "Y. A. H.'s" contention. As to flowering being such an exhausting process, as stated by "Y. A. H.," I differ wholly, and I think that scientists and most practical men will be on my side. If we want an animal to breed, do we fatten it and make it gross? No; and yet "Y. A. H." advocates the doing of this to flowers and making the fructifying organs, as he says, strong in every part; but strength instead of leading to fertility is a frequent cause of barrenness. In proof of this, compare a season when there is plenty of wet, and all outdoor plants grow freely and are full of vigour, with another that is dry and plants become starved, and what do we find but abundance of seed, thus showing plainly that it is not plethora and big blossoms that lead to fertility. Health and poverty are more active factors in bringing increase about, but, of course, poverty may be too extreme if too much fruit is borne. This is why we see trees that carry heavy crops one year refuse to bear the next, but that is simply because they could not do two things at the same time, perfect seed and form flower-buds. Who ever heard of a tree or plant even if loaded with flowers that were lost or cut off by frost or from other cause did not set that could not blossom as fully again the following season? Fancy anyone thinning Pear flowers, or Peaches or other fruit trees on walls in a spring like this where frosts are doing too much of such work, as out of the few none may be left.—S. D.

FRUIT NOTES.

THE notes which have appeared on the frost of April 14 and 15 show that severe weather prevailed in both eastern and western counties, the latter, however, suffering most severely. Here the lowest we registered was 15° of frost on the night of the 13th or early morning of the 14th, and again 13° on the next night. At the time the air was remarkably still, which was so far favourable, and accounts for less damage having been done than on the night preceding Whit Sunday last year. However, many things besides fruits suffered to some extent; all the racemes on the Wistarias were blackened, as were also the flowers of *Primula rosea*, young growths of the *Hoteia japonica*, and others. Apricots suffered more severely than any other fruit, and this in spite of three-fold fish-netting set at an angle sharp enough to keep out all snow, sleet, or rain, so the trees were thoroughly dry. An excellent crop had set, but this was reduced by at least 90 per cent.; the fruits were split open and the kernels blackened. Apples, of course, escaped, as they were not forward enough to be damaged, and there is every promise of a fine crop on most kinds. Pears were somewhat damaged by the frost; some of the forward fruits were discoloured and now show signs of cracking, but except here and there, there will be an ample crop if all goes well with them from this time. Peaches and Nectarines again prove hardier than Apricots, and were not in the least damaged. I never saw the trees so free from blister, and there is no sign of fly at present. Plums on walls lost most of their fruit by frost, and even bushes in the open suffered a little; still many kinds show well. Damsons were but little injured. Cherries are blooming well as is usual, but it is too early to say much about them. Raspberries did not suffer much from frost, and in this we are fortunate, as the buds suffered severely in western counties. Gooseberries are looking fairly well, and only a few of the upper and exposed blossoms were destroyed. Red and White Currants promise a fine crop, and Black Currants will probably be over the average, although the point buds on the bunches have been destroyed. Strawberries look very well, though they appeared to have suffered a good deal in the winter. My old favourite *Vicomtesse* shows very well, and none of the flowers were damaged, though those on Noble growing side by side with it are almost all showing black centres as they open, and there is no question that the flowers or embryo fruits of this variety are very tender, and that their not having opened is no guarantee against injury.

Taken all round, there is a good prospect of a fruitful season with favourable weather from now onwards. At present the nights, and I may say the days, are still cool, and vegetation generally is backward. There is not yet a bit of Hawthorn blossom to be found.

J. C. TALLACK.

Livermere Park, Bury St. Edmunds, May 21.

Setting Grapes.—Criticisms offered in a spirit similar to that shown by Mr. Engleheart on p. 438 are always welcomed by me, and when I am proved in the wrong, my corrector has my best thanks. In the matter of setting Grapes, however, I cannot help thinking Mr. Engleheart's knowledge of botany and study of Nature, though of the greatest service to him in his various experiments in raising Daffodils and other plants, would yet be a hindrance to successful Grape culture. Unless he could bring some previous experience to bear on the subject, he would find his knowledge of botany a dangerous thing if exercised upon such a queer subject as the Alnwick Seedling Grape. It is not the presence of moisture on the stigmas of a Grape flower that I object to, but rather its excess, and when I suggest removing this, I do not mean the word "dry" to be interpreted too literally. All that is necessary or even possible with the soft palm of a hand is to remove the bulk of the viscid matter, and thereby render it possible for the pollen to perform its functions. I have tried what letting those tiny globules of moisture alone would do in the case of Alnwick Seedling, and had a mass of stoneless

berries no larger than Peas for my pains. I certainly made no mistake in advising the removal of the viscid matter when this takes the form of "glistening gems," and when I wrote was perfectly well aware how necessary it is that there should be some moisture on the stigma. Where I did err was in not being more explicit about the use of the palm of a hand.—W. IGGULDEN.

GARDEN FLORA.

PLATE 859.

ONCIDIUM PHALÆNOPSIS.

(WITH A COLOURED PLATE.*)

THE plant here figured is a very beautiful small-growing kind, and one that is very variable. This plant is usually assigned a place as a variety of *O. cucullatum*, which was figured in these pages August 19, 1882 (p. 166). Although belonging to this group, I cannot agree with those who so describe it, for from plants which I had under observation when in charge of the nursery establishment of the Messrs. Rollisson, of Tooting, there appeared to be a very marked distinction between the two. The plants in question came from M. Linden's establishment in Brussels; the lip was more panduriform and the side lobes very large. It may be that the variety spoken of was an extreme form of the type, and that the plants known as *O. cucullatum*, *O. andigenum*, *O. nubigenum* and *O. Phalænopsis* are extreme forms of the one species. I prefer to keep the last-named as a distinct species and to uphold the name given it by Reichenbach when describing it in 1869. *O. cucullatum* was first found, we are told, by Dr. Jamieson, of Quito, some sixty years ago on the Andes at some 13,000 feet elevation, and it was named by Lindley *O. nubigenum*. The form which we here figure first came to the Belgian nurseries of M. Linden about twenty-five years ago from the consignment of Gustav Wallis, and it is one of the most beautiful of the small-growing Andean species, not well known or grown in many collections. These alpine species are too frequently overloaded with soil about their roots. This soon becomes sour and rotten by the constant wetting and the plants do not thrive. Naturally they grow upon the stems and branches of trees, and in this state their roots do not get much covering. It is best to grow this plant upon a block of wood; it also does well when grown in a shallow earthenware pan, drained well, using a small quantity of good peat fibre and Sphagnum cut up tolerably fine. Pot firmly and water freely. I have always found this plant thrive well when grown in the same temperature as *Odontoglossum crispum* and treated in a similar manner, giving it as much light as possible. The following kinds, whether species or varieties, belong to this group of plants. They are found at a very high altitude in the Andes of South America, and all may be justly termed alpine Orchids:—

O. PHALÆNOPSIS is a small-growing evergreen plant, having pseudo-bulbs oblong in outline, somewhat ribbed with age, and from 1 inch to 2 inches in length; leaves narrow at the base, increasing in width upwards, some 6 inches or more long, pale green. The scapes are slender, three to six-flowered, flowers large and gaily coloured, sepals and petals creamy white, transversely barred with reddish purple, tinged with violet; lip creamy white, the narrow claw being profusely spotted with crimson-violet, the crest golden yellow. It is a very beautiful plant, worthy of more extended cultivation. Native of Ecuador.

* Drawn for THE GARDEN by Gertrude Hamilton, in Messrs. Sander and Co.'s nursery, February 6, 1892. Lithographed and printed by Guillaume Severyns.



ONCHIDIUM PHAI-ENOTIS.

O. CUCULLATUM.—This appears to be the plant first found by Dr. Jamieson. It was figured in the *Botanical Magazine*, t. 5708, under the name of *O. nubigenum*. The above name was afterwards given to the typical form in reference to its hooded anther, which, however, does not appear to be especially peculiar to this one species of *Oncidium*. It is a very variable plant both in size and in the colours of its flowers. In a good form the sepals and petals are usually olive-brown and the lip rosy purple, spotted with deeper purple. The colours, however, vary considerably.

O. CUCULLATUM ANDIGENUM is a form of this plant which I have only seen once, and that was in the collection of the late Mr. Buchan, of Southampton. It had been named by Reichenbach, so that we may reasonably conclude it was true. The sepals and petals were greenish yellow; lip white, spotted with purple.

O. CUCULLATUM MACROCHILUM.—This form is sometimes called *giganteum*. It is a much stronger grower and it makes a longer spike, which bears many flowers in a raceme. The sepals and petals are generally of a rich bronzy purple and the large lip purple, spotted more or less with very deep violet. The flowers are much larger, and it is by far the most desirable form to grow.

O. CUCULLATUM OLIVACEUM.—This is a very fine form which sometimes goes by the name of *flavidum*. The sepals and petals are usually of an olive-brown, but sometimes of a brownish yellow; lip large, light rosy purple, profusely spotted with deeper purple. WM. HUGH GOWER.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

CAULIFLOWERS.—The dry weather which we have been experiencing will be against the well-doing of early Cauliflowers, especially on those soils which are not very moisture-holding and which may also lack manure. These early Cauliflowers are liable to button prematurely often upon the least check, so it behoves those who are in charge to see that they do not lack for moisture. The value of deeply-drawn drills will now be apparent, as water, or, better still, liquid manure, can be applied with advantage, pouring it well along the drills. This should be followed by the hoe to draw the soil into the drills and against the legs of the plants, thus conserving the moisture. The evil of planting on the level in dry or sandy soils is very apparent in a season like the present, as there is a difficulty in applying moisture. From plants under handlights the covers should now be removed, but the outer framework of the ordinary square handlight need not be taken away unless needed for other purposes.

SUCCESSIONAL CAULIFLOWERS.—The plants of successional Cauliflowers, of which we may instance Walcheren, Sutton's Autumn Mammoth, Eclipse and Autumn Giant, should be put out as soon as ready. The first, being of such a delicate flavour and also coming in in advance, is well worthy of extended culture, as the fault generally with these successional kinds is that they are often strong in flavour. Like other crops, they are best by themselves, and should not be put out between rows of Potatoes unless actually necessary. The ground must be in a well-pulverised and manured condition, as it is useless to expect good Cauliflowers from poor ground. Set out the plants in rather deeply-drawn drills not less than 30 inches apart. The value of deep drills for even these successional kinds will be very apparent.

EARLY PEAS.—Although, considering the season, these are looking very well, yet if this dry weather continues they will be very apt to suffer, especially on light and gravelly soils. On cold land this is not likely to be the case yet awhile, as being moisture-holding, the dry weather is in their favour. But on dry land something will have to be done if a change does not come quickly, especially, as is generally the case, the rows of early Peas are

located on south borders. The earliest are now forming their pods, and these would undoubtedly be benefited by a good soaking of water or even weak liquid manure, to be followed quickly by a mulch of some sort. This will assist in filling out the pods and prolonging the supply. Those which have been planted out from pots will certainly be greatly benefited by some such assistance if warm rains do not come very quickly. The value of the early dwarf kinds is very apparent this season, as they are looking better than even the early rounds, the dry weather affecting them apparently but very little.

SOWING PEAS FOR SUCCESSION.—It is of the utmost importance that the taller growers, of which I may instance *Ne Plus Ultra*, should have ample space for their development, as the wider apart the rows are the more likely are the Peas to turn out satisfactorily. A few rows distributed about will economise space if this should not be plentiful, as other dwarf growing crops may approach to within 30 inches of the rows. Dwarfing growers may, of course, run along in parallel rows, taking the precaution to arrange them far enough apart so that direct light may reach to the bottom of the rows. This will also be the means of rains reaching the soil, as when the rows are so close together, this desirable element is kept off. On cold or heavy soils, if they are in a well-worked and pulverised condition, and also have had plenty of manure and burned refuse, all that will be necessary will be to draw wide flat-bottomed drills at the least 6 inches wide, this preventing crowded growth, which is very apt to take place with the drills drawn V shaped with the corner of the hoe. Take care to form the drills deep enough to allow the seeds to be covered with 2 inches or even 3 inches of soil, this ensuring a more regular germination, which is of the utmost importance during a dry time. When covered too thinly and a dry time should follow, the seeds may fail to germinate. On light soils, sowing in prepared trenches is the best mode to adopt, as by this means a richer root run is provided, and the trenches also form receptacles for receiving whatever is applied in the form of water or liquid manure. Unless the Peas are duly supplied with these elements, they collapse during a dry time, either through drought or mildew. All that is necessary is to take out trenches from 15 inches to 18 inches in width and 1 foot deep, taking the precaution to fork up the bottom previous to putting in the manure, which should be the best procurable. Over the manure place a layer of the best soil taken out, filling up to within 3 inches of the top. The seeds should be sown thinly, leaving a depression along the trenches for receiving the water. A. YOUNG.

HARDY FRUITS.

APRICOTS.—These in the more southern counties had a favourable flowering time, the severe frosts subsequently experienced not greatly affecting trees protected with copings and blinds, grand crops being the order of the day. These ought long since to have been partially thinned, bunches of fruit being lightened and any fruit badly placed for swelling pulled off. Nor is this sufficient, as it is most unwise to over-crop. When more are left on the trees than are capable of swelling to their full size, the fruits are of second-rate quality, while the chances are that very light crops will be had in the following year. Therefore, go over the trees again before the stoning period rather than afterwards, that is to say, after the mischief has been already done. Moorpark attains the largest size and might well be thinned out as freely as Peaches or Nectarines—a fruit to every 8 inches square of tree surface being a good crop. Hemskirk freely thinned also grows to a large size, while Early Moorpark, Royal, Kaisha and such like may be left more thickly, but seeing that fully grown fruits are the best for all purposes, clusters ought not to be tolerated. The growth is naturally more forward under the coping, and it is there where disbudding should be rather severe. Wholly remove many of the shoots pressing against the glass

and thin out the rest, stopping those reserved to a length of about 2 inches. Also attend to the other parts of the tree, thinning out the shoots to about 3 inches apart and stopping those not required for furnishing, as well as any on the fruiting spurs. Remember the advice previously given as to the advisability of laying in young wood, either for the purpose of covering naked stems or for wholly replacing exhausted old branches, healthy young wood invariably producing the best fruit. This season has once more demonstrated the comparative worthlessness of foreright spurs. Remove foreright shoots, therefore, from young branches, selecting and reserving those more on the sides. Those trees under copings will now require another good soaking of water and liquid manure, and, if not already done, no longer neglect mulching all the clear portions of the border with strawy manure. Apricots in cooler quarters or localities flowered at a very bad time, and those not well protected with blinds are very thinly set with fruit. If there are any clusters, these should be lightened at once, the disbudding, stopping, watering and mulching being attended to without delay.

PEACHES AND NECTARINES.—These are an agreeable surprise to a great many growers, the flowers of the species being evidently hardier than those of Plums or Pears. Trees protected with double fish netting are all well furnished with fruit, and in some gardens where no protection of any kind was afforded the fruit has set surprisingly well. The progress made is also most satisfactory. There ought not to be the slightest delay in freely lightening such heavy crops, leaving only the best-placed fruit about 4 inches apart along the shoots, this being at least double what ought in most cases to be left at the final thinning. Since the last advice on this subject was penned, green-fly has shown on the trees, and a few of the leaves have blistered badly from some other as yet unexplained cause. The young shoots, however, are so far advanced in growth, that there need be no hesitation about thinning them out freely. Reserve and lay in the leaders and also a well-placed growth on the upper side of comparatively short-fruited shoots, two or three more being left thinly on the long shoots, the aim being to have a good, yet not crowded supply of young wood for bearing fruit next season. Any shoots not required for furnishing and at the base of which a fruit is swelling should only be stopped at the fourth or fifth leaf, a few leaves about the fruit assisting to swell this to its full size. The operator, in going over the trees, should take every opportunity of removing dead flowers and blistered leaves, and of separating any clusters of leaves in which insects are harbouring or are likely to do so. Avoid the use of strong insecticides of any kind, as these may easily do more harm than good, the delicate skins of Nectarines and the hairy-skinned Peaches being equally susceptible of injury from anything strong enough to kill insects. Soot water is an excellent preventive of the spread of insects, a free use of the syringe and soft water also doing much towards keeping the trees clean. The former should be nearly clear, and this can be best attained by soaking a bushel of soot in thirty-six gallons of water for about a week prior to use. Do not stir up from the bottom, but dip it out from the top, a 6-inch potful being enough for three gallons of syringing water.

GOOSEBERRIES.—Those permanently or only temporarily protected from birds ought now to have either the side netting taken down from the structure, or else the wire-covered shutters removed, so as to give insect-eating birds every opportunity of clearing the bushes of caterpillars. That birds are of assistance in keeping Gooseberries and Currants clean there is no denying, their absence being only too apparent in many cases where the bushes are closely netted in all the year round. As yet caterpillars are not particularly numerous, and if the precaution is taken of hunting for and destroying what few there are, subsequent attacks may be even lighter. If no attempt is made to check their progress, the bushes will soon be stripped of leaves and be seriously crippled, the crop failing to mature, also next season's bear-

ing wood being ruined. Various remedies, most of them of a poisonous nature, are recommended for clearing the bushes of caterpillars, but next to hand-picking, syringing either with quite hot water or water and sulphur is to be preferred, as being both effective and safe. In order to make sulphur mix freely with water, well work it through a muslin bag, a handful of flour of sulphur being enough for two gallons of water. Freely dusting among the bushes when just moist with dew with flour of sulphur also answers well, this and syringing also being good preventives of red spider, another enemy to some varieties of Gooseberries.

W. J. GULDEN.

PLANT HOUSES.

STOVES.—PROPAGATING.—The maintaining of a young stock of various kinds of plants that are the most useful as permanent objects of ornament in the stove should receive attention now or as soon as possible. Propagation can be better effected whilst there is still a fair amount of fire-heat maintained; if deferred for a few weeks longer, the possibility is that artificial warmth from this source will be reduced to a minimum, barely sufficient in some instances being kept up to dispel the superfluous moisture. Cuttings of Crotons in approved kinds, for instance, will now strike well. After having already made a good growth, the most promising cuttings can be chosen with advantage, striking more quickly than when taken off with too much of the old wood. If the plants are required for decoration, more particularly in small pots, the better way will be to strike them in 2½-inch pots. With care and attention they may be struck most successfully, every leaf being retained intact as the cutting was inserted. The slower process of binding Moss around the stem after having partially severed the intended young plant need never be entertained where there is good convenience for striking in close pits. For use in quite a small state Croton Van Oerstedii is a most serviceable variety, being a good companion plant to Caladium argyrites. Capital plants of this Croton may be grown in 3-inch pots, being thus well suited to many purposes. C. Chelsoni is another excellent as well as elegant kind of small growth. Small offsets from Pandanus Veitchii should be looked after also. Plants that have grown kindly this season will be pushing forth several suckers from the base; these should be taken whilst still quite small and struck in 2½-inch pots. For these suckers or offsets too much moisture is not desirable, not nearly so much as in the case of Crotons being required. A young stock of Fittonia argyryneura and its companion plant Gymnostachyum Pearcei, with the varieties of Cyrtodeira, are all beautiful things when well managed in small pots. Another beautiful plant which appears thus far to have escaped notice is Phrynium variegatum; it somewhat resembles a Maranta in style of growth, but is quite compact. If the stock of Caladium argyrites is short and a few plants can be spared to break up, this operation may be performed with advantage for another season. Cuttings of Acalypha in either one or more varieties if struck now will grow into useful plants for the autumn and winter season. A. Macfleckana is one of the best, and when well grown is a gorgeous plant. The Bertolonina family are now, and that rightly too, coming into more prominent notice, whilst the nearly related varieties of Sonerila are also worthy of more attention. The Tradescantias, particularly vars. of T. discolor, are of very quick growth; hence will be found useful in many ways with Panicum variegatum and other dwarf-growing plants.

Of flowering plants not nearly enough use is made of the varieties of Ixora now in cultivation; these are gorgeous plants when well grown, flowering quite as freely as the Hydrangea, whilst when their culture is understood in an intelligent manner and means are at disposal in the way of heat and moisture, they will grow as freely as that well-known shrub. The idea that Ixoras are merely exhibition plants is a popular delusion; they are

amongst the finest of all stove flowering plants, the gorgeous trusses being extremely useful upon the plants as well as most suitable for many purposes in a cut state. Cuttings of this season's growth that are not already showing for flower will, if treated as in the case of Crotons, strike quite as freely and make nice stuff by the autumn. The cuttings will strike in autumn if room is short, potting into small-sized pots when rooting commences; wherever possible, however, I would prefer to strike straight away in small pots with the assistance of bottom-heat. We have now a good stock of young plants struck two years ago last autumn which fill three good-sized lights of an old Pine pit, not quite thirty plants in all; these will soon be in flower, promising to yield a good crop for cutting. As in the case of other plants, it is the mealy bug that is the great nuisance; get rid of this and then grow the Ixoras instead; they will be found extremely useful.

Cuttings of Dipladenia boliviensis taken with a heel will now be obtainable; these as a rule strike well, and although the process of growth may be slow for the first few months, when a really good start is made the progress is most satisfactory, whilst its free-flowering qualities leave nothing to be desired. The better mode of training is upon wires or strings near to the glass. Allamandas, with the exception of A. grandiflora, which succeeds best when grafted, may now be readily struck from short growths; so also may the shrubby Clerodendron fallax. Where the stock of Gardenias is at all low, or the plants are old, no time ought to be lost in working up another batch to take their place. Shoots with five or six breaks upon them may be taken; these will soon make plants when once rooted. Gardenias now going out of flower should receive a pruning to keep them within due bounds; straggling plants take too much room. The much neglected Tabernaemontana coronaria fl.-pl. should receive similar treatment to the Gardenia; a young stock to supply the place of old stools will be found, as in the case of that plant, to be the most remunerative. A few cuttings of Stephanotis to provide a young stock will be in due course advisable.

J. HUDSON.

STOVE AND GREENHOUSE.

TWO GOOD PELARGONIUMS.

MESSRS. HAYES, of Edmonton, are well known to all cultivators of the Pelargonium, for, unlike most of our market growers, they are frequently represented at the summer exhibitions by numbers of magnificently grown plants, while many varieties have been obtained by them either as seedlings or sports. Their varieties, as a rule, belong to the regal or decorative class, the one essential being that they are of good habit and constitution—in fact, such as will make desirable market plants. The show varieties with their upper petals in some cases almost black are many of them gorgeously coloured and greatly admired, but, as a rule, they are not robust enough to gain favour with the market grower. Two of Messrs. Hayes' varieties recently noted in splendid condition and most desirable in other respects are Duchess of Fife and Fimbriatum Album. Duchess of Fife is apparently descended from Mme. Thibaut, there being now several of this class, but the latest addition is, I think, by far the richest coloured. Like the others of this group, it is of sturdy habit, with the large clusters of flowers thrown well above the foliage. The individual blooms are of a rich bright carmine colour, with a large white centre and a clearly defined edge of the same tint. Towards the centre of the flower, just at the junction of the carmine and white, there is a tinge of violet, which varies in different plants. The edges of the petals are prettily undulated. Fimbriatum album is a pure white flower, and one superior to most of that tint. Many of the so-called white flowers are pencilled with purple towards the centre, in some cases to a considerable extent, but as far as I have seen, the variety in question is totally without these mark-

ings. The flowers of this are semi-double, with the edges undulated and crisped, and when partially expanded this character is especially noticeable. It is unusually dwarf and very free-flowering, while the blooms are borne in large rounded trusses. When on the subject of Pelargoniums a word may well be spared a third variety, viz., Empress of India, for which Messrs. Hayes were awarded a certificate by the Royal Botanic Society two years ago. This is a free-growing variety with very large trusses of enormous blooms; indeed its individual flowers are among the very largest of all Pelargoniums. The colour of the flowers is a bright salmon-scarlet with a light centre, while the two upper petals are blotched with dark crimson. The flowers of this are almost, if not quite, regular enough to give it a place among the show varieties, but in any case it should be made a note of, as it yields a magnificent display, and can be readily picked out from any other variety in cultivation. There is little doubt that Empress of India owes its origin to Gold Mine either as a seedling or a sport. This last-named variety was put into commerce by the same firm a few years previously.

H. P.

Amaryllis formosissima.—Though many beautiful varieties of Amaryllis have been raised within the last few years, this old and at one time favourite kind must on no account be overlooked, for the flowers are very richly coloured, while their distinct shape will be sure to arrest attention. It is also known as Sprekelia formosissima, as well as by its English name of the Jacobean Lily. It is of easy culture if one or two points are taken into consideration, and the principal of these are—grow it in a good light position, see that the bulbs are thoroughly ripened, and winter in a cool house secure from frost. The pots should be well drained, and the soil used principally composed of sandy loam, as this will keep fresh for a long time without renewal.—H. P.

Good white Azaleas.—For early blooming the variety Deutsche Perle is now grown to a greater extent than any other kind, but later in the season other varieties claim attention, and among the most desirable the following were recently noted: Niobe, a very beautiful flower almost pure white, the greenish tinge being limited to just a suspicion in the centre; the blooms are of good size, double, and with the edges undulated in a pleasing manner. It is also a free-growing and very free-flowering variety. Bernhard Andreas alba, an old and well-known kind for late blooming, is still one of the best, but the blooms are not so double as in the preceding. A good late white with single blossoms is Bertha Fräbel, in which the flowers are very pure in tint, the edges of the petals crisped. The varieties in cultivation are now so numerous that a selection is always necessary, and the above may be taken as representing some of the best.—H. P.

Impatiens Micholitzii appears to be a provisional name given to a very fine Balsam from New Guinea. It is of dwarf branching habit, producing abundance of its fine blooms, which are pure white with a crimson eye—a magnificent plant. Another form, which will take the name of rosea, is a stronger grower, but equally as free-flowering. Its flowers are as large as those of the white form, the colour being deep rose with a white eye. This seemed to me to be the type plant and the white one the variety; but, be that as it may, they are two splendid subjects for stove decoration and apparently quite new to cultivation.—W. H. G.

Bossia linophylla.—Greenhouse plants of a hard-wooded character which are natives of the Cape districts or of New Holland seem to be advancing somewhat in popularity, and certainly their merits entitle them to a greater share of attention than has fallen to their lot lately. Among the New Holland plants several members of the order Leguminosae are represented, of which the Chorozemas and some of the Acacias are now grown in considerable numbers. For grace and elegance, Bossia lino-

phylla is, however, unsurpassed by any other plant that I am acquainted with, and as a specimen 6 feet high it is very beautiful even when out of flower. It is seen to great advantage when the main stem or principal branches are secured in an upright position, and all the minor branches allowed to dispose themselves at will, as the long slender shoots have a drooping tendency, and this is increased when every twig is laden with blossom. The branches are clothed with small narrow leaves, while the golden-coloured blossoms are produced for a considerable distance along the principal shoots. It succeeds under much the same treatment as the *Chorozemas* and others of this class.—T.

SOWING CYCLAMEN SEED.

I AM not at all surprised at the successful result obtained by sowing *Cyclamen* seed in June. "The Grower" mentioned on p. 420 of THE GARDEN certainly shows good sense in so doing, and it would be well if his practice were more generally imitated. There is nothing to be gained and much to be lost by deferring sowing until late autumn, as is so commonly done. In the old days of *Cyclamen* culture two years at least were deemed indispensable to bring the bulbs to blooming size; now that we have got into a more rapid cultural method we seem to have rushed into another extreme, contracting the growing season to its narrowest limits—so much so indeed, that some do not sow until the days are shortening. It certainly is a proof of skill when a man can grow a *Cyclamen* in less than a year from sowing into a good blooming specimen, but it is in a great measure skill misapplied. It is wisest to take the easiest as well as the safest way in plant culture, and in *Cyclamen* culture early sowing is one way of ensuring good results, for although the cultural period is lengthened, there is not so much care needed. With young plants then so far advanced in growth, one does not need to apply warmth until March, which is a distinct gain as regards economy of fuel—an important item when it is a question of profit. When I began *Cyclamen* culture, I, like most others at that time, had no idea that plants could be brought to marketable size in twelve months from sowing, but I thought I could do so in about eighteen months. I therefore sowed in May, pricked out the seedlings in pans, potted them off and started them into growth the first week in March. Results are the true test of sound practice, and in my case they were eminently satisfactory, as by the middle of September many of the plants had expanded blooms, and their quality may be judged by the fact that they made from 18s. to 30s. per dozen in Covent Garden Market, but prices were higher than at the present time. In the case of the Chinese *Primula*, successional sowings are necessary to prolong the flowering season, but it is not so with the *Cyclamen*, as however early, buds form, and will continue to do so until November.—J. C. B.

—Some amateur growers of *Cyclamens* desirous of improving the strain they grow allow their plants to carry a few seed-pods, and these are now ripening off as fast as the season will permit; a double strain is thus put upon the plants—in flowering and bearing seed, and then close attention is needed to assist them in recouping their energies. When recently at Reading I saw in Messrs. Sutton and Sons' Portland Nursery a number of plants maturing their seed, and in answer to my inquiry as to how the plants were treated when the seeds were gathered, I was informed they were laid on their sides under the stage of the house until they began to lose their leaves, and then about the month of June placed in the open, also on their sides, with the plant facing the north. Should wooden labels be in the pots of any, the plants should be so laid that the pressure of soil is on the label. In July the corms put forth signs of growth; they are then stood in cold frames on an ash bottom and air given freely night and day. A good watering is given, and as soon as active growth commences they are repotted according as they are rooted, some in larger pots than others.

When potted, the corm is placed a little lower in the soil than it was before, care being taken not to cover the crown, as in the case of seedling plants. The plants when repotted are returned to the cold frame, kept close for a time, but not in a dry heat, as cool treatment and a little moisture combined are the most suitable. At the end of September they should go into a small, light, span-roofed house to flower, a little helpful fire-heat being employed as required. A good compost for the *Cyclamen* at this stage is one made of three parts of good loam and another of leaf soil with a sprinkling of wood ashes and rough sand.—R. D.

***Vallota purpurea*.**—I am quite sure that the application of the starving process to this plant, which is still applied by some growers, is a mistake. A gardener in my neighbourhood grows it somewhat largely, and he proceeds upon the principle of getting his plants well established in warmth in spring; the specimens then put on a vigorous growth and they bloom freely and finely. The plants are allowed to become somewhat pot-bound, but they have liquid manure two or three times a week. They are never dried off. During the resting period less water is given, but it is not wholly withheld. Some growers prefer to repot annually in autumn, but take care to grow their specimens on freely in spring. What an excellent window plant the *Vallota* makes. I have seen fine specimens in country districts carrying excellent blooms, and in some instances the housewife keeps her plant in a saucer of water—to its manifest advantage.—R. D.

***Protea nana*.**—Over half a century ago *Proteas* were grown in much greater numbers than is now the case. At that time between twenty and thirty species were in cultivation, whereas now the list is reduced to about half-a-dozen, and these, as a rule, are only to be seen in botanic gardens. How well the genus would repay being brought into wider notice is shown by a charming species now flowering in the Cape house at Kew named *P. nana*. It is a dwarf plant, 1½ feet high, with the younger parts of the branches clothed with needle-like leaves each about 1 inch in length. Like all the *Proteas*, the flowers are gathered into a composite head terminating the branch. They themselves are not showy, the attraction being due to the several whorls of bracts by which they are surrounded, the upper ones of which are crimson-scarlet and over an inch in length. The whole flower-head is nearly 3 inches across. The species is a native of South Africa and requires cool greenhouse treatment throughout the year.

***Veltheimia viridifolia*.**—Of the three species which make up the genus *Veltheimia*, so far as is known at present, *V. viridifolia* is the one which is most commonly grown. Both in regard to its foliage and inflorescence, it is a striking and decidedly handsome plant. The leaves are about ten in number and each upwards of 1 foot long, dark green, stout in texture, and handsomely undulated. The scape springs direct from the centre of the bulb and is from 1 foot to 18 inches high, the flowers being crowded into a dense raceme at the top, after the fashion of a *Kniphofia*, to which genus, indeed, the *Veltheimias* are allied. The perianth is narrow, 1½ inches long, and of a reddish purple colour; it is, however, somewhat variable, and occasionally has a distinctly yellow tinge. The species is a native of the Cape of Good Hope, whence it was introduced over 120 years ago. It is a very easily grown plant, and does well in the greenhouse or intermediate house, potting it in a light loamy soil.—B.

***Eranthemum cinnabarinum*.**—This species, which was introduced about a dozen years ago, is one of the largest growing members of the genus, and also one of the most showy. It is a bold strong-growing plant, which under liberal treatment will in a single season run up to a height of 4 feet or more, though if freely stopped, dwarfier flowering plants can be obtained. It blooms during the spring and early summer months, while flowers are occasionally produced in the winter, but they are

much smaller and not nearly so showy as those borne later on. The blooms are larger than in most of the other species and of a bright magenta-crimson colour while being borne in long branching terminal racemes they stand out very conspicuously, especially when grouped with dwarfier growing subjects. In common with other members of the genus, it is of easy propagation and culture, for cuttings strike readily enough in the spring, and if grown on freely will form effective flowering plants by the following season. At the same time if larger specimens are required, the old plants may, after flowering, be cut back and repotted as soon as they again start into growth.—H. P.

***Boronia elatior*.**—The advent of *B. heterophylla* and the great popularity quickly attained by it has no doubt a good deal to do with the fact that we do not see *B. elatior* at the present day grown to anything like the same extent as was the case a few years ago. It can readily be grown in the shape of neat little freely-branched bushes, somewhat upright in habit, and clothed with bright green pinnate leaves, while the flowers, which are borne in great profusion, are of a rosy carmine colour. They are less globose in shape than those of *B. heterophylla*, but like them are drooping in character, and borne for some distance along the shoots. *B. elatior* was introduced from Western Australia in 1874 by Messrs. Veitch, and after that time quickly became popular. An additional claim to recognition is that it is at its best when most of the other species are over, or nearly so.—T.

HERBACEOUS PHLOXES IN THE CONSERVATORY.

WHERE large established stools of these exist in the borders, abundant material will now be forthcoming and of a very suitable kind for propagating. Few plants present so gay and striking an appearance as these when well grown in the open, and for this purpose they are well and largely grown in many gardens. Few, however, have taken them in hand as pot plants on the same lines as the *Chrysanthemum* for example, striking batches of cuttings annually and growing them on liberally from the first. It may be thought that, having *Chrysanthemums* in such great variety, *Phloxes* are scarcely needed. I rather incline to the belief, however, that some of the more select kinds, with their handsome trusses of flowers, some of the purest white, others of the richest crimson and most vivid scarlet, would constitute a very pleasing and desirable change among the autumn occupants of the conservatory. Cuttings of these *Phloxes* if inserted at once in sandy soil and placed in a close, warm manure frame or similar place will quickly send forth roots, and should then be potted on and given a liberal treatment. The general culture is much the same as in the case of the *Chrysanthemum*. Cuttings of the young shoots 4 inches long and stout in proportion are the best, selecting them from the exposed part of the stool rather than the more crowded shoots, which are sure to be thin and weakly and better removed altogether. Assuming that the midseason and later kinds of the *decussata* section are selected for the purpose indicated, these would flower in October and November ensuing. In the few instances known to me where these *Phloxes* have been grown thus they have always been warily appreciated, and the delicate fragrance of their flowers always welcome.

The plants may be flowered in 8-inch pots, supplying them abundantly with liquid manure as soon as the roots have full possession of the soil. When flowering is finished these plants should be transferred to the open ground, or some may be shifted into 12-inch pots for another year, in which case they should be plunged to their full depth in the open air. Here they will be safe for the winter season, and having due regard to their moisture-loving nature during the summer, they will, when lifted in early autumn, make a rich and effective display and flower nearer their usual time in the second year. Though perfectly hardy, I see

no reason why such handsome subjects should not play a part in the embellishment of the conservatory, while their rich variety and large fragrant heads of flowers would, I feel sure, meet with many admirers. E. J.

Fuchsia corymbiflora.—I observed plants of this very beautiful but somewhat rarely grown old Fuchsia in one of the houses at Ruxley Lodge recently. These plants were raised from cuttings struck in the spring of last year. It is the rule to grow a quantity in this way every season for winter blooming. The pendulous habit of the plants and the rich crimson-red hue of the large corymbs of flowers prove very attractive in the winter season.—A.

Begonia corallina.—This plant, which I noted some three or four years ago as being so remarkably fine in the Botanic Gardens at Rouen, in France, I see, has been largely used by Mr. Sander for the decoration of one side of his magnificent Cattleya house. The plant is an erect grower, making long shoots like a Bamboo. It produces large pendent panicles of rich coral-red flowers, and just now these are quite a feature in the house. I cannot recommend this plant too strongly. It appears to be an almost perpetual bloomer, and it carries good-sized, rich green leaves, which afford a striking contrast.—W. H. G.

Rhododendron Aucklandi.—Foremost in a group of several species and hybrids sent to the Drill Hall on May 17 from the Royal Gardens, Kew, was a truss of *Rhododendron Aucklandi*. Taken altogether, this form may be considered the finest of all the Himalayan species for greenhouse or conservatory work, and where sufficient space can be afforded for its perfect development it should never be absent. In the size of its flowers it is only equalled by *R. Nuttallii*, a species, however, that does not prove so amenable to cultivation as *R. Aucklandi* does. About five flowers are borne in a cluster, the corolla being of the purest white and frequently 6 inches in diameter. It is distinct on account of having little or no tube. The leaves are 6 inches to 1 foot long and of a rich green. The plant may be recognised at all times by its peeling bark and grey stems. It was introduced to cultivation by Sir J. Hooker, who found it at elevations of 7000 feet to 9000 feet, and was named by him in honour of the then Governor-General of India (Lord Auckland). By this name it is now generally known, but an older one, and one which properly belongs to it, is *R. Griffithianum*.

ARCHES AND BASKETS.

THE more variety we can get in our gardens, the more pleasing they will be. Just at this most delightful time of the year the outdoor garden becomes a source of constant pleasure and interest. It is not too warm in leisure time for actual work, nor is it too cold to sit down and enjoy the spring flowers and plan out the intended arrangements for the summer. Nor is this confined to large gardens where there is scope for ample variety, but even the small garden of a vicarage or a villa affords room happily for making new designs and working in new directions year by year. There should, if possible, be an arch for climbers in every garden, or, if not that, what comes nearest to it, a good large basket with a tall arching handle. This latter has one great advantage in that it does not come in the way so much by throwing a shadow as the loftier archway, which has no doubt a more striking and prettier effect, but which has always the indictment to be brought against it also that it throws a broad shadow on the border beside it. Of course, in some places this is of no consequence, as things which like shade in summer can be placed where the shadow of the arch falls. But in small gardens, where every inch

of space has to be thought of, the shade caused by an arch or series of arches is very detrimental. Perhaps the best place to put an arch is, if possible, where four ways meet in the garden walks. Sometimes it is necessary to have a certain amount of stiffness in the garden walks because of surrounding walls, and in such a case usually one walk crosses another at right angles. When this is so, it is a fine opportunity for a good arch having four standards or pillars and crossing one another at a central point. Such an arch may be made to look very graceful and pleasing, and it affords an opportunity for growing plants which otherwise, without some such protection and stay, could not be grown at all. The two best things for an arch of this kind occupying a conspicuous place in the centre of a garden, or at all events constantly in sight, are Roses and Clematis. They are both vigorous growers, soon reaching the top of the wire to which they are fastened, and varieties of both can easily be procured which will give abundance of flowers during the summer and make the arch an object of beauty for a long period. A Japanese Honeysuckle should always be added, the reticulated leaves are so extremely pretty, and the light sprays hanging gracefully from their support are always beautiful in themselves and most useful for decoration when gathered.

A series of arches has a fine effect, especially if through the vista underneath the climbing plants some special object of interest, or a landscape of rounded and well-wooded hills, opens out to the eye as we walk underneath the shade of such a natural colonnade. But this requires space; wherever it can be done, however, it adds greatly to the effect of any garden. And what a variety of plants can be grown in this way, and how they flourish sustained by mutual support, tenderly embracing one another, and sheltered by the long row of arches almost as much as if they were growing against a wall. Where permanent climbers are thus planted, unless care is taken the struggle for life will end in the survival only of the fittest and strongest. It is no place for the beautiful tender growing climbing annuals, yet how very delicate and graceful they are and how abundantly they flower. We do not see them nearly often enough, partly, I suppose, because they are troublesome, as they must be given proper support, and then in early autumn with the first frost all is over. Nevertheless, when we do come across the old-fashioned *Maurandya Barclayana* and *Lophospermum scandens*, we cannot help stopping to admire them, and all the more because we so seldom meet with them. *Maurandya* grows with such exceedingly fine and tender shoots that it is easily smothered, but it is very free-flowering and showy on the handle of a basket, and *Lophospermum* will look well on the opposite side. It is more easily trained, but its pretty flowers are a good deal hidden among the soft green leaves.

Those who are fortunate enough to have a really good kind of *Tropeolum Lobbianum*, which by the way I have never succeeded in getting from seed, have one of the most valuable climbers for an arch or a basket handle in a hot dry summer. The mass of fiery red flowers which this *Tropeolum* will produce is wonderful, and it gives no trouble except an occasional tie. The only way to keep up a stock of this plant is to strike cuttings in the autumn and to treat it the same as a scarlet Geranium. If there is a warm greenhouse and young plants are allowed to grow up wires along the roof, what an immense quantity of brilliant flowers this *Tropeolum* will afford during the winter months. It is, however, singularly ugly in its

mode of growth in the winter when grown in pots, for the flowers are produced at the expense of the vigour of the leaves, and the result is an uncanny-looking arrangement of long, thin, bony branches covered with scarlet flowers.

Baskets are always effective and useful. They are easily made by driving in a number of stout round pieces of wood, sloping outwards, and projecting about 1 ft. or 18 in. from the ground. An oval shape is best. Then put a strong arching handle made of withy across it and fill the basket with good rich earth. In summer it can easily be kept full of flowering plants, and if filled in autumn with various bulbs it will be beautiful in early spring. It is like an immovable tub garden. The margin will be admirably adapted for trailing plants, or even the Canary Creeper; the centre can be occupied with any flowers especially interesting or beautiful. Cork would be thrown away on such a basket as I have described, because the wooden sides slope so much that it would not be seen, and in the country a basket of this kind could be easily made almost free of expense, as the wood can usually be obtained without any difficulty. It will not, of course, last very long, but in this changing world we get to like alterations, which perhaps are not always improvements, but generally increase our interest in the things about us. So when the basket wears out, something else can be put in its place, or the old one renewed by fresh stumps being placed where the former ones have rotted away. I do not think that anyone will regret taking some trouble to place a basket or an arch in the garden if an appropriate place can at all be found for it. It will be an object of beauty in itself, and, what is still more to the purpose, it will afford an opportunity for growing plants which otherwise must be shut out of the precincts of the garden.

A GLOUCESTERSHIRE PARSON.

ORCHIDS.

CATTLEYA MOSSIÆ.

THIS form of the summer-flowering labiate is just now grand in many gardens, and the manner in which this and many others are flowering is truly remarkable considering the absence of sunshine during the past summer. I recently received some very fine forms of this plant from Mr. Broome, of Llandudno, and two of these he suggests "might be worth a specific name." Although the varieties are very fine, I cannot see any reason for increasing the named varieties of this plant. The late Mr. Thos. Moore described about thirty-six varieties from the fine collection of Mr. Robert Warner, then of Broomfield Lodge, Chelmsford, and many others have been named and described since, so that there is plenty of range to find a place for most of the forms that crop up. Mr. Broome sent me last year a fine form which I named *majestica*. This year I have a flower finer than that of last year. It is close upon 9 inches across, the petals 2½ inches in width. These, with the sepals, are of good substance and deep rose in colour. The lip is very long and broad, beautifully frilled round the margin, some 3 inches or more long, the ground colour deep rose, flushed with rich orange at its base, streaked and blotched with violet-purple and crimson-purple in the centre. The other two forms are very fine, but I cannot suggest any names.

From "M. T. M." I have received another form, which I think is that named *Exquisite*. It is not remarkable for its size, being in fact a somewhat small flower, but very stout and

firm in texture, the sepals and petals pure white, the lip prettily streaked and blotched with deep rosy violet. It is a very neat and chaste flower. From Mr. Hardy, of Pickering Lodge, Timperley, I have amongst many others a very fine flower of the variety known as *Reineckiana* measuring nearly 8 inches across, sepals and petals of the purest white, the latter some $2\frac{1}{2}$ inches in width and prettily frilled; lip wide and spreading, pure white, the throat veined with deep purple and stained bright yellow, the front portion being deep lilac-mauve passing into crimson-purple, with a broad marginal border of pure white, beautifully lobed and fringed. It is a superb flower of good substance, and Mr. Hardy tells me the plant is bearing fourteen blooms. I also have another form for a name from "H. B." This I cannot distinguish from Williamsi of Moore. He tells me there are nine flowers open upon the plant. This measures 8 inches across, the sepals and petals being stout and of good substance, white flushed with pinkish rose; lip large, orange at the base, marbled with rose in front, having a broad marginal border of pale rose. This, although not a deep-coloured flower, is very distinct and handsome. Mr. Seeger, of Dulwich, sends me a bloom of the pure white-flowered *C. Mossie Wageneri*, which still remains a rare plant. The flower measures nearly 8 inches across, the sepals and petals being thick and fleshy in texture and pure white; lip large and spreading, pure white, saving the throat, which is stained with yellow, the border being beautifully frilled.

Cattleya Mossie comes from the Caracas district of Venezuela, and this is its usual flowering season. Soon after the flowers are past it commences to make fresh growth, and upon this the flowers for next May and June will appear. See that the plants are in good condition after flowering, and if they require shifting, then is the time to do it, but if only top-dressing, let it forthwith be done, taking care that the drainage is in perfect order. Keep a nice moist atmosphere in the growing house, but do not keep the roots too wet and do not syringe the plants over-head. Syringing, however, between the pots will be very beneficial. When growth is finished, these plants require a rest; therefore, watering must be stopped and the heat be reduced, so that the young shoots do not start before the flowers. Where this occurs, in all probability the flowers will not start at all, and so a season is thus lost. Keep the plants cool, allowing the thermometer to fall as low as 50° for the minimum through the winter months, raising it some 5° or 10° during the day. During this time the plants should have just enough water to keep the bulbs in a plump condition, and no more. WM. HUGH GOWER.

SHORT NOTES.—ORCHIDS.

Cypripedium Amesianum (J. Jones).—This appears to be the nearest form to your seedling flower, and the parents—*C. venustum* and *C. villosum*—are the same. At any rate, it is so nearly like the variety named above, that I should not encumber the long list of names we now have of the hybrid forms with another.—W. H. G.

Cypripedium Robelini (D. Urquhart).—This flower appears to be somewhat different to the form of *C. philippinense* sent home some years ago by Mr. John Veitch, and named by Bateman *C. lævigatum*. It appears to be narrower and darker in the petals and the lip not so deep in colour. This, however, does not form a specific distinction, and I, moreover, have not a flower of *C. philippinense* at hand to compare it with, so I cannot say that your flower is distinct. I rather favour the idea

that they are but varieties of the same plant, the slight variations being brought about by climatic influence.—W. H. G.

Cattleya Patini (Wayfarer).—I have never seen this plant flowering well. From what I have seen of it, I should say it was a medium-sized species. The colour of the sepals and petals is a soft rose. I cannot tell you the colour of the lip, for, singularly enough, the only three flowers I have seen, although upon as many plants and in different collections, were all destitute of that organ.—W. H. G.

Lycaste Skinneri (J. Nisbitt).—Yours is a very fine variety. The flower sent has the sepals white, flushed all over with deep flesh colour, the petals being slightly deeper and the lip of a dark velvety crimson. I should be inclined to divide it if possible, and keep on increasing it in the same manner from time to time as opportunity offers. It is a good form and the colour very rich, whilst the size is good and may improve.—W.

Cattleya Warocqueana (G. Nunn).—This is undoubtedly the right name of the flower sent, whatever you may have bought it for. The sepals and petals are rose-coloured, and the lip is rich velvety crimson in front. It is a very beautiful form of Lindley's old species, *C. labiata*, but, like all the forms of this plant, varies much in colour, as does *C. labiata* Mossie, *C. l. Mendeli*, *C. l. Triane*, and I have no doubt so also does the plant which Lindley called *labiata*.—W.

FRENCH NOTES.

VEXATIOUS INTERFERENCE WITH THE PLANT TRADE IN AMERICA.—We have just received from Rochester (U.S.A.) the following letter, the original of which had been sent to a member of Congress at Washington with the object of drawing his attention to a law which is positively astonishing, even to Americans, who are seldom astonished by anything:—

The Pomological Department at Washington has just sent me a copy of Law No. 3876, dated Jan. 15, 1892, and introduced by Mr. Caminetti, of California. This law would deal a deadly blow at nine tenths of the nurserymen of our country, whose business transactions represent many millions of dollars. It enacts that every nurseryman who sends out trees containing the germs of any disease whatever, or the eggs of insects, shall be visited with a heavy penalty, and that the same punitive steps shall be taken against railway companies for carrying any trees so affected. Now, the fact of the matter is, that in such cases both the germs of plant diseases and the eggs of insects are so minute, that they cannot be rendered visible without the aid of a very powerful lens, and in many instances cannot be discovered at all. The germs of the canker of the Apple tree, of mildew, and of some other diseases are so microscopically small, that very few nurserymen are able to distinguish them; and many of these diseases are entirely unknown, so far as regards the history of the earliest stages of their development, the jaundice or yellow disease of the Peach tree, for instance, in the study of which the Pomological Department has kept a man at work for six years without succeeding in discovering anything worth speaking of as regards the origin of the malady, or proving whether it exists or not on young and vigorous trees. May I rely upon your doing all you can to knock this law on the head?

In reading of such an outrageous proceeding as this one seems to be dreaming, and the first impulse is to look upon the whole thing as a coarse piece of pleasantry. Henceforth, are all the nurserymen in the United States to be seen, armed with official microscopes, inspecting every cranny in the bark of their trees without discovering anything, and yet liable to be punished if they send out any fungus germs or eggs of insects? The law—for law it is now—seems to be a still-born one, which we hope will be buried under a mountain of ridicule.

BUD-DROPPING IN PEACH TREES.—The cause of this is unknown, and consequently no certain or specific preventive measures can be adopted, and when the malady makes its ap-

pearance, it is too late not only to cure it, but sometimes even to moderate it. The affection, however, appears to be brought on by certain atmospheric disturbances, which, reacting on the organism of the tree, arrest the flow of the sap either wholly or partially, and so produce sudden internal changes, of which bud-dropping is the necessary result. Two kinds of preventive measures are to be recommended, namely, to shelter the trees from violent inclemencies of weather with screens of matting. Before this is done, and before the buds are fully formed, the trees should be smeared with Fichet's "insecticide régénérateur," or with his "bouillie parisienne." The other method is to prune late and lightly, thereby retaining many flowers, and so multiplying the chances of their setting, and, consequently, of a good crop of fruit. We do not hesitate, therefore, to recommend this method, which bears with it a promise of fruit, while at the same time the trees are likely to be kept in good condition and the regularity of their wood is maintained. The only drawback, perhaps, which can be objected to in pruning after this fashion is that it does not always produce that architectural regularity of outline which gratifies the eye; but, on the other hand, in exchange for that wonderful regularity of shoots, branches, and flowers which is obtained by pruning for effect merely, we have the advantage of getting a good crop of fruit, which many people would consider an ample compensation for any loss of effect in the appearance of the trees. Pruning late and lightly, then, ensures the production of fruit, and does not always entirely hinder us from having handsome-looking trees.

DAMAGE TO STRAWBERRIES BY THE SEVERE WINTER OF 1891-92.—Last winter was hard on some kinds of plants, and especially so on Strawberries, which suffered most of all from the severe weather in the latter part of February, when the thermometer for several days recorded a night temperature of from 4° to 6° , and even 10° below zero, while in the daytime the snow, which lay very deep, was here and there almost completely melted by a very hot sun. This destroyed the plants. At and about Meaux we saw fields of Strawberries entirely ruined where a few days before the plants were green and many of them showing flower. Yet, while some varieties were very badly cut up, there were others which did not suffer, and amongst these were two new kinds, raised by M. Ed. Lefort, secretary-general to the horticultural society of the district of Meaux. The names of these two new varieties are General Raoul and The Czar. Both belong to the section of large-fruited Strawberries, and are extremely vigorous-growing and fertile kinds. The fruit of both is not only large and very handsome, but also of quite superior quality. Amongst the kinds of Strawberries that suffered very much was the long-established Héricart de Thury, which in most places has been almost completely destroyed. Strawberries are not the only kind of plant that suffered in these late frosts. Spring vegetables, Cabbages, Lettuces, white Onions, Radishes, &c., were equally badly hit. We may add that farm plants did not come off entirely scot-free. We know a few districts in which some of the cereals, notably Wheat, were frost-bitten, and we were also told of some localities near Corbeil in which hundreds of acres of these crops were similarly cut up.

STACHYS FLORIDANA.—M. Chappelier has presented the Horticultural Society with some tubers of *Stachys floridana*, which he received through the kindly agency of M. Maurice de Vilmorin. In appearance these tubers exactly resemble those of *Stachys*

tuberifera (popularly named "le Crosne"), but M. Chappelier could not say anything about their quality as a vegetable for table use. The number of tubers which he received being limited, he could not spare any to make trial of them in cooking, and the sender of them had given no information on this point. However, the name of Florida Artichoke, which they bear in their native country, would lead one to suppose that they are cultivated there for their edible properties. M. Chappelier draws attention to the fact that the tubers which he received have not yet commenced to sprout, although they come from a country where the climate is warmer than ours, and from this he infers that they would surpass the Chinese Artichoke (*S. tuberifera*), which is already extensively grown in gardens, by keeping much longer in a condition for table use, as the tubers of the last-named species begin to decay in the month of February, and very soon become unfit for cooking.

DEATH OF M. DURANDO. M. Durando, a botanist as distinguished as he was modest, has just passed away at Algiers. He was worthy of better treatment than the neglect in which he was allowed to spend his last years, for he was a man of learning, passionately fond of the study of plants, and of a remarkably benevolent disposition. An enthusiastic disciple of Fourier, he carried his philanthropy even to the point of excess. He spent his fortune in endeavouring to develop the doctrine and system of Phalansterianism, or living in small communities, and so ruined himself. At the time of his decease he was rural professor of botany, and he died much respected and beloved by all who were acquainted with him. *Revue Horticole.*

FLOWER GARDEN.

TUFTED PANSIES.

THESE are amongst the most delightful of spring flowers, although we can now prolong their season through summer and autumn. I think we never appreciate them so fully nor admire them so much as in the spring-time. If we have made some new plantations in autumn of strong young plants, a few fine days suffice to bring forth the usual profusion of lovely blossoms. This type of Pansy as seen in the flower garden is so infinitely superior to every other, as to justify its exclusive use for garden decoration. With the growing popularity of tufted Pansies, there comes as a natural result a great increase of varieties. It is so with every popular flower, but to realise the full beauty of the tufted Pansies and enjoy their greatest charm, it is in the highest degree important to avoid a collection and grow a good selection. I do not wish to say anything against those who work to supply new kinds. In the improvement of any race or family of flowers there will ever be a select few of more conspicuous merit than their fellows. It is these that I keep and grow. I do not grow many kinds and none of them are new, yet in their particular colours they have not yet been surpassed. Recent kinds, some of which are very good, embrace different shades of colour, and this is a gain and simplifies the matter of selection, for we can choose those that produce flowers of the hues that we like best, and, growing them in quantity, we shall not fail to reap full satisfaction. Some merits that particular varieties possess, such as earliness or lateness or continuity of bloom, are only discovered after

several seasons' experience, or it would be more correct to say that they are proved after several years' observation, and we find fixed characteristics peculiar to certain kinds. The two kinds that at present (May 9) are most conspicuous are Skylark and Abercorn Gem. These with me are always the earliest to bloom; in fact flowers are upon them more or less throughout the winter, and, therefore, it is not surprising that they so quickly respond to a little genial weather. But further, they withstand summer heat and comparative drought better than any other kinds I grow, and although late in the season, the individual flowers, as might be expected, are small, yet they are numerous. The lovely pencil edging of blue around the creamy petals of the variety Skylark is always most delicate and clearly defined during spring, as with the advent of summer it becomes more pronounced and runs into the ground colour of the flower. The lovely pale Quaker Maid follows, but is always somewhat behind the two previously named kinds. It is decidedly prettiest during the first few weeks of its blooming, as later on, whether in sun or shade, the flowers develop a considerable change of colour, a deeper tint, quite distinct from that of any other kind. Mrs. Gray and Countess of Hopetoun remain two of the best whites, or perhaps cream colour is the nearest. The former is rather rambling, the second more tufted, the shape and size of flower differing considerably. Archie Grant follows in close succession, and I still think this is the very best of the rich plum-purple kinds. Max Kolb was spoken of as likely to supersede it, but it will not do so. Ariel is quite the latest; at present only its buds are showing. It is a decided gain to have such kinds springing up fresh from week to week, thus enhancing the interest in these flowers. This and several other kinds such as *stricta azurea* were raised from a cross with a Himalayan species, and doubtless their lateness may be but the result of their parentage. Although all of us can grow these lovely Pansies if we wish to, they are peculiarly and specially adapted to gardens situated in districts where the rainfall is above the average, and sunny days are few in consequence. A. H.

NOTES ON HARDY PLANTS.

Gentiana Fortunei.—Something has been said to the effect that this and *arvenensis* are the same species. I have them growing side by side, and at the present time they seem very different plants. I admit the varying features are in the foliage, and chiefly colour or tint features. It may be but a geographical difference, but it is one, and very distinct.

Saxifraga sancta.—This is in every way easy to cultivate, but it is a reasonable question to put, whether the plant may not be rendered more free-flowering by contact with limestone? Anyhow, I think it would be advisable to plant it in that way. An account of Dr. Lowther's experience with this plant may furnish ample cultural hints. In 1886 he planted a very small bit, which is now 20 inches across, of regular, compact, globular shape. It flowers with him (Grange-over-Sands) in March. This year it showed flower during the first week, and remained showy all the month. It was planted in the natural soil of his garden, which is calcareous, being formed from the mountain limestone on which it rests, with the addition of a little prepared peat and sand. In spring it receives a slight dressing of new soil, mixed with old hotbed material and rough sand.

Rubus Chamæmorus.—This native creeper is not much cultivated, but where it can be made happy, nothing could be prettier or more interesting on a rockery. Many rightly suppose that it cannot be readily made to flourish, but its needs

are very simple. Let the plant be set in any black stuff, as sandy peat or well-rotted leaves, in a dipped part of the rockery where moisture will collect. The flowers are large for the size of this humble plant, and the fruits, of course, are its conspicuous feature. It can even be grown well in pots in spongy peat and without drainage.

Rubus arcticus.—This beautiful alpine Raspberry, though only here reaching a height of 6 inches, has splendid crimson-purple flowers the size of a shilling. It is very free both in growth and production of bloom. Its running habit may be objected to by some, but if properly placed in relation to its neighbours, it may with advantage be allowed freedom, for though spreading it is not coarse, and distributes itself but thinly. Growing here in one rock-bed for three or four years, it has made its way into the Grass, and the growth there is so pleasing, that one beheld it with reluctance at mowing time.

Gentiana verna.—This may certainly be grown in most gardens if it is not considered too much trouble to specially provide for it. Enough has lately been said as to its general requirements. But with regard to the aid of stones another word may be added. Where the garden ground is bare, a fair-sized stone close to its collar and overlapping its roots will doubtless be helpful.

Gentiana acaulis.—The long cold spring seems to have suited this plant. Even in gardens where it generally does well it has excelled both in brilliancy and size of bloom this year. There is a certain sort of free, yet rich loam, very heavy, and without vegetable matter, which it is not easy to describe, and which is not met with in many districts, that this plant seems to peculiarly like. Of course, a damp situation is always essential. I have not yet met with anyone who could explain why in some gardens the plant could be grown so well and yet flower so indifferently. This is, however, a curious fact in connection with *Gentianella*, which, being one of the very finest hardy plants in cultivation, it would be good news to learn how to treat, so as to make it produce its brilliant flowers in normal fashion. Many, I believe, have formed the opinion somewhat strongly that the plant resents smoky districts. I cannot accept this, because I know of gardens well away from smoke where it grows, but keeps flowerless, year after year. On the other hand, I know a garden where close to smoky works it flowers freely.

Woodville, Kirkstall.

J. WOOD.

DOUBLE AURICULAS.

I HAVE this season succeeded in obtaining what I have long desired to possess—a thoroughly good double white Auricula. I am unable to give its exact parentage, but I think it came from a pale sulphur-coloured double variety. I have several double yellow Auriculas, all of which are decided improvements upon the old one known in some catalogues as Prince of Orange. It is rarely met with now, and I can see it only in the collection of Auriculas in the Royal Nursery, Slough. I have given up growing it, having yellows that are decided advances upon it. All the double yellows I have have mealy foliage more or less, but the double white has leaves as free from meal as it is possible to be, and no green-edged Auricula has less farina upon its foliage. I have long tried to get a white Auricula from the Continent, either single or double. Some years ago I got what was represented to be a double white which had mealy foliage, and when it bloomed I found it to be almost single. I saved a few seeds from it on two or three occasions, but never succeeded in securing an improvement upon it. It was at best a creamy white with large ill-formed flowers. The flowers of the double white I have bloomed this season for the first time open of a pale sulphur colour, and as they mature they take on a fine shape and become quite white, while the blossoms are highly fragrant. It is a good grower and certainly full of promise.

Last autumn I obtained from the Continent under the name of *Auricula Boule de Neige* a variety with decidedly mealy foliage, and I had great hopes it would give me something distinct. When it bloomed I found it to be a counterpart of *Primula nivea*, having large trusses of small flowers of a similar character to those of the species, but which open of a pale sulphur colour and change to white. It is of vigorous and free growth and free flowering, but later in point of time and quite fragrant. It appears inclined to seed, and I hope I may succeed in securing a few grains.

I have now a select collection of about a dozen double *Auriculas*, all distinct, fully double, and good growers. They are late in flowering, and I cannot get them into bloom at the time of the *Auricula show*. R. D.

NOTES FROM WALES.

AT last we have signs of spring weather, for yesterday (the 13th) we had warm genial rain throughout the day and well through the night, which was greatly needed. Until then we had been easterly winds, parching dry days and nightly frosts more or less severe, so that vegetation made but slight progress and many fruit crops were destroyed or nearly so. Even in this short time—since the rain—the change is marvellous, and the scenery far more pleasing and all around far more cheering. The woods, that are chiefly composed of Oak and Ash, still have a wintry aspect, but a Birch or a clump of Mountain Ash here and there throughout and amongst them adds grace and lightness to the sombreness. A plantation on a steep hillside struck my fancy wonderfully this morning. The lower part as well as one end of it is composed entirely of stately Beech trees of goodly proportions and of fair age. Beyond these is a young and mixed plantation of Larch and Scotch Firs. Viewed from opposite and lower ground, the effect is beautiful. The exquisite delicate green of the Beech, the now deeper green of the Larch, and the sombre hue of the Firs blending in one whole and lovely picture are truly worthy of admiration.

As yet, the garden proper does not come up to calendar date, but the prospects are brightening, and with a continuance of favourable weather we shall eventually be as gay as becomes the latter part of the “*merrie monthe of Maye*.” The herbaceous borders, what with repeated checks to growth and destruction of flower-buds and stems, are still comparatively bare of bloom—*Anemones*, *Doronicums*, Iceland Poppies, Lupines, Violas and Forget-me-nots being about the sum total, but most seem to be commencing a strong growth, which gives hopes of better displays later. Owing to shoots and flower-buds of early-blooming climbers being killed, no flowers adorn our walls, excepting *Cydonia japonica*, Clematises and Barberries.

On the rockery, or, more correctly, rocks, both large patches and solitary clumps of St. Brigid *Anemones* are very telling and showy, while dwarfier and not so glaring, but still very beautiful, are *Aubrietias*, *Saxifrages* (notably *aromatica*), *Iberis gibraltarica*, alpine *Auriculas*, *Primulas*, alpine *Phloxes*, *Gentians*, *Myosotis*, Iceland Poppies, early-flowering Heaths, &c. Countless tufts, shoots and buds hold out a promise of a prolonged, varied and interesting flowering period.

Our losses of plants on these rocks during the past winter have been, practically, *nil*. The position is open and exposed and has sunny and shady aspects with ample and natural facilities for carrying off surplus moisture quickly. By far the most attractive spots at this season are the less dressed portions of the grounds, for in these we find the carpeting of acres of Blue-bells and Soap-worts, and coiling heads of Ferns uprising, all as if to hide the modest Violets, *Primroses*, and Wood *Anemones* from view, now their beauties are fading. The fallen blooms of double Cheries, resembling snowflakes, clothe the ground, contrasting beautifully with the blue of the Hyacinth and the pink of the *Saponaria*; while yet the Gorse,

Broom, and Azaleas take a prominent part in the adornment of these semi-wild spots. The Hawthorns are only now putting on colour, but before these lines are in print they will have spread their fragrance around, and will be objects of admiration. Laburnums, &c., will soon follow. After many checks and reverses, *Rhododendrons* are again to the fore. The early bloomers were destroyed in the height of their beauty, and forward buds dropped by thousands.

Most conspicuous of those now in bloom are some white and light-coloured seedlings of *catawbiense* planted amongst the Oaks, consequently sheltered and shaded. Less meritorious varieties than these have received grand names. Prominent amongst named varieties are *atro-coccineum*, *Broughtoni*, *campanulatum*, *Gem*, *giganteum*, *Grand Arab*, *Mooreanum*, *Old Port*, *Sir Robert Peel*, &c. With genial favourable weather hosts of others will follow, and we shall have a fuller and richer display of the later varieties than we have had for years, for the buds are plump and plentiful and plants vigorous. J. R.

***Saxifraga muscoides atro-purpurea*.**—This is one of the neatest and most compact of its section in this large and varied genus. When once planted in suitable places and soil—and it is certainly not a fastidious kind—it quickly covers the soil with an extremely dense carpet of green, which in spring for a very long time is thickly studded with innumerable bright rosy crimson flowers, which render it extremely attractive. It is the more attractive, perhaps, because so many members of the mossy section of *Saxifrages* have white flowers, while those of the variety under notice are of a distinct hue altogether. In common with a very large number of allied forms, this one may be increased to almost any extent by pulling it to pieces either in autumn or early spring and dibbling it in over a large surface at a few inches apart each way. When once it has taken to the soil it spreads quite freely and quickly, and patches several feet across are easily secured. On a smaller scale, it is admirably adapted for filling crevices in rockwork, and if a companion plant is needed, the charming *S. Rheii*, with salmon-pink blossoms, is just the thing.—E.

Hybrid Potentillas.—The spring time is usually the best for dividing and replanting these showy perennials. Some years ago it was customary to perform this work in the autumn, but it was invariably attended with many losses, consequent, I believe, upon the long time that the plants remained inactive afterwards. April and May are both excellent months for dividing and replanting these things, the former easily accomplished with a sharp knife when the soil is well shaken from the crowns. In planting it is important that the plants be made quite firm about the collar, inserting them to the level of the young heart leaves. Should dry weather succeed, soak thoroughly with water. In moist ground young fibrous roots are quickly emitted, and where carefully done the losses are reduced to a minimum.—E. J.

***Saxifraga Rocheliana* var. *coriophylla*.**—This charming kind has been in flower for quite three weeks, but is now on the wane. During the time stated it has had many admirers, and that deservedly, for it is without doubt one of the best as also one of the most free flowering of its group, and should, therefore, be found in all collections worthy the name. Some very good examples of this and also *S. Rocheliana* were exhibited at one of the recent meetings at the Drill Hall, but none that I have seen in the south can in any degree compare with the grand tufts of this lovely plant as grown in some parts of Scotland, where it grows like a weed. I have seen the most perfect cushions of it of such a size as to exactly fit into a half-bushel basket, and sufficiently so as to need no packing to ensure its safe arrival. In these parts we consider a plant 6 inches across a good specimen, much less one nearly three times this diameter. Such a plant in full flower would be a grand sight, and not easily forgotten. Undoubtedly

altitude and a pure bracing atmosphere play a very important part in the successful cultivation of this pleasing alpine.—E. J.

NARCISSUS CALATHINUS.

I SEND you two photographs (half natural size) of the above. The specimens are home-grown from seeds. *N. calathinus* is a little gem, very scarce and most beautiful. It is a native of Glenans. It grows on a small island about 100 yards across, on granite rocks. The largest bulbs are found amongst Grasses and Brakes, and in the interstices of the rocks up to the top of the island small bulbs are found, but always on the north side. The soil is a very dry, light sandy peat. It has been said that its cultivation is very difficult, but it is not the case with me. I grow it in a very light, dry granite soil (no peat at all), and my plants are far superior to any I have seen in the Glenans. I sow the seeds in pans in July as soon as ripe, and the seedlings come up in about a month. I keep them under cover during the first winter; the following autumn I plant them in the open ground, where they stay, until they flower; the third season a few bulbs flower, but in the fourth and fifth years nearly every one will bloom. The time of planting is from July to November, but those planted first produce the finest blooms; a depth of 1½ inches is sufficient. Frosts do not hurt the bulbs. In the sharp winter of 1890 I had several thousands in the open ground not protected, and they did not suffer at all, although we had 17° centigrade below zero. In sharp weather, however, a light protection will be advisable chiefly against rain. I have said that this plant grows wild, and that I grow it in a very dry soil, but in the spring if the bulbs can get plenty of moisture the flowers will be much larger and will keep a fortnight longer. In Nantes this *Narcissus* flowers from the 20th of March until the 15th of May. Each bulb produces one stem (I have never seen two); each stem gives one or two flowers, never three. I grow this plant apart from other *Narcissi*, and I have never seen any hybrids amongst my seedlings. Imported bulbs are most difficult to manage, some of the medium-sized giving the largest flowers, while many of the largest bulbs do not flower at all.—D. GUTHENEUF, Nantes.

—The biggest and best of all the white forms of *Narcissus triandrus* is undoubtedly this *Ile Bretonne* plant figured by Redouté in “*Les Liliacées*” in 1804 and grown at intervals in French and British gardens ever since that time. Many years ago M. Blanchard, of the Naval Hospital garden at Brest, told us that the collected bulbs of this plant were short-lived under cultivation, and he suggested rearing the plant from seed, a process since effected by other growers. M. D. Guib-neuf, of Nantes, has flowered it well treated in this way. Mr. H. J. Elwes paid a visit to the islands where this rare plant grows a year or two ago, and from bulbs which he then collected we have now in bloom several which are certainly stronger and more free flowering than when they came. Our system of culture is very similar to that adopted by the late Rev. A. Rawson, who grew *N. triandrus* splendidly in pots at Fallbarrow, near Windermere. Five bulbs were originally placed in a well-drained pot of peat and loamy compost on a well-drained bottom, the surface of the pot for half an inch or so being covered with dry sea sand. This sand serves several useful purposes; it prevents undue evaporation from the soil, and it contains a modicum of saline matter which I am convinced that many, even if not most, kinds of *Narcissus* enjoy. It also acts as a deterrent to the marauding slugs that otherwise like to eat off the tender young flower-scapes just as they appear above the soil. So far as I know, this identical variety is only found on the *Ile Drénec* and on the *Ile St. Nicholas*, in the Glenans group. We have from near Oporto large and fine forms of the typical *N. triandrus albus* with flowers quite as large, but they are not the same in leafage, and in every instance I have yet seen out of many the perianth divisions of the Portuguese plant are longer than the cup, and there are other

differences palpably evident as the plants are seen growing under cultivation side by side. For grace of habit and delicacy of flower it would be difficult to get anything finer than this *Glenans Narcissus* and the forms of *N. triandrus* now known to grow wild in Portugal.—F. W. B.

Anemone apennina.—There is no more charming hardy flower than this, but, unfortunately, the blooms are rather lacking in power to resist spring frosts, and as the season rarely passes without a visitation from them, the fine colour of this Windflower is apt to get much tarnished. Hardy flowers that are liable to suffer in this way should, where practicable, get some shelter when in bloom. A very little suffices, such as that afforded by deciduous trees, and then *Anemone apennina* thus placed will be ensured against injury. The soil under trees is apt as in this season to get very dry, but this is counterbalanced by the protection from hot sun and parching winds. And this little *Anemone* does not seem to need so much moisture as the majority of spring flowers. It is wonderful what a very little shelter does in prolonging the beauty of hardy flowers that open in April or May. I happened last autumn to lay in some Primroses under Plum trees. They were forgotten, and although it is about the driest place in the garden they have remained in perfect condition, untouched by frost, and beautiful in colour and freshness when all the remainder of my plants were cruelly punished. It is a lesson that will not easily be forgotten. *Anemone apennina* is one of the easiest things to naturalise under or among trees, and when a thousand or more blooms are expanded at the same time, they have a charming effect. Established among Grass not too rank of growth, the lovely blue flowers are shown up to the greatest advantage.—J. C. B.

Narcissi on Grass.—I think it is a fair question to ask of anyone who has much experience of *Narcissi* permanently planted on Grass as to the duration of the bulbs under such conditions. As such large breadths of these Daffodils have been planted at Kew for several years, perhaps Mr. Dewar could give the results of the Kew experience, including also the sorts largely planted and which are found to thrive best under this form of culture. I refer to this matter, because our chief *Narcissi* growers lay so much stress upon the importance of lifting the bulbs every year and of replanting them in fresh soil. Good ripening by exposure to the sun seems to be strongly emphasised also. If bulbs soon wear out after being planted on Grass, the results would, of course, be disappointing. Perhaps there are varieties which will thrive well under these conditions. Of course, the old double yellow does very well, but then always so much better in deep retentive soil than in dry arid soils, especially on elevated positions where tree roots abound. Even wild Daffodils invariably prefer deep alluvial soils to those which are thin and stony.—A. D.

The Bog Bean (*Menyanthes trifoliata*).—Summer is generally near at hand before many of the water flowers appear, but one notable exception is the subject of this note, which is now in bloom. Although a native, its beauty is such that it can be compared with many a choice exotic. It lives and thrives in the bog, but I have always seen it most vigorous in growth and profuse in bloom when growing in the water. Its great trifoliate leaves are pretty, but much more so is the quaint white-bearded flower, every petal being covered with little hairy appendages.—A. H.

St. Brigid Anemones.—There can be no two opinions respecting the merits of the strain of *Anemone* which goes under this name. The colours are delightfully varied, and some of the flowers exhibit tints that it would be difficult to describe. The individual blooms come with good culture to a remarkable size, many of the semi-doubles attaining under the most favourable conditions to the dimensions of a cricket ball. A large bed of these giant-flowered *Anemones* under the influence of May sunshine is a really gorgeous sight. All that

is wanted now is a good soaking rain to fully develop their beauty, for with the ground in a dusty condition and a parching wind playing on the blooms they cannot naturally attain the highest size and colour. Sharp frosts at night, too, take much colour out of the bright-hued forms. *Anemones* like rich soil, and for this reason are certainly better for annual transplanting. They will do very well for years on the let-alone principle, but the blooms will not come to the dimensions that yearly lifting and replanting in well-stirred, richly-manured ground impart to them. Transplanting may be done at any time after the foliage has died down until November, but the earlier in autumn the better. It is not now too late to sow seeds of the St. Brigid strain, and if done at once the young plants will give some blooms in September and October. Some sow in pans and prick out the seedlings in the open ground, but I prefer to sow in the open, as in this way the young plants go away freely without the check that root disturbance involves. All that one has to do to ensure germination is to cover the seed-bed with

it comes true from seed and blooms freely the same season, after which the stock can be perpetuated in the usual way by cuttings) ought to secure it a prominent position as a desirable plant for the embellishment of beds and borders, especially for supplying cut flowers. During last summer a sport appeared in our stock identical in every point, perfume and all, excepting colour, which is a kind of rosy-magenta, a shade I cannot describe. I claim no merit for it, but it affords variety of colour.—J. R.

GRASS OF PARNASSUS.

This is an extremely interesting and pretty little genus of bog plants, chief amongst which is the subject of the illustration, *Parnassia palustris*, a native of Britain. *P. nubicola* from the Himalayas, *P. fimbriata*, *P. asarifolia* and *P. caroliniana* from North America, have all larger flowers than our native species, but they rarely, if ever, bloom so freely or do so well under the treatment we usually subject them to in the garden. The American species will exist away from a bog, and we have had them all growing on a western exposure for some years, and they often bloom well. On marshy land or in bogs in the rock garden *P. palustris* is one of the most charming flowers we can at present recall to mind. It is by no means an uncommon plant in gardens, and when taken in hand and cultivated it is really surprising to see what a fine effect it gives. The other species noted above, though not so free-flowering, are well worth growing, especially *P. fimbriata* and *P. nubicola*, which are handsome, and if cared for and periodically raised from seed do well and bloom freely the second and third years. We grow them mostly in a moist sandy peat, and we find this answers well for all the species. They are readily raised from seed, and most of them may be increased by division.

P. ASARIFOLIA, introduced from North America in 1812, is an extremely pretty plant with *Asarum*-like leaves and larger flowers than the British species. The flowers are large, white, and produced in summer.

P. CAROLINIANA, from the North American swamps, has large white flowers netted with green or purple lines, and when doing well is very effective.

P. FIMBRIATA, with large prettily fringed flowers, is the most beautiful of the North American forms, and is well worth special care. The leaves are curiously hollowed out near the base and look like pedate leaves.

P. NUBICOLA, introduced a few years ago from the Himalayas, is a fine robust species with large white or straw-coloured flowers. The leaves are elliptic and very fine when the plant is healthy.

P. PALUSTRIS, the common Grass of Parnassus, has white flowers and cordate stem-clasping leaves. It is one of the freest bloomers and, in our opinion, the best of the genus for culture in an ordinary artificial bog. K.

Bedding Pelargoniums.—Having at one time or another tried most of the varieties of bedding *Pelargoniums*, I have now reduced the list to a small, but select number, the best for the purpose, at least here. Amongst the whole that have been tried I failed to find a white-flowered kind that was satisfactory, so none of the colour are now grown. Of scarlet zonals I have but two, the well-known *Henri Jacoby* and *West Brighton Gem*, while for pink I rely solely on *Mme. Crousse*, an Ivy-leaved semi-double of lovely salmon-



The Grass of Parnassus (*Parnassia palustris*).

mats, which serve to keep the soil in a uniform state of moisture, taking them off as soon as the young plants appear. Through the summer they must be kept growing by means of frequent waterings when needful, and they will make tubers large enough to flower by the autumn. A little liquid manure now and then will help to push them along.—J. C. B.

Verbena Sea Foam.—In a consignment received from America last year a packet of seeds of the above was included. I am not given to laud novelties until thoroughly tested, and although my experience of this *Verbena* is so short, yet I am so favourably impressed with its merits, that I wish to draw attention to it, even at the risk of being suspected of jumping to hasty conclusions. It is of free spreading growth, requiring no pegging, as it roots freely along the creeping stems, has no signs of disease, and blooms profusely and for a long period; flowers white and exquisitely fragrant—a decided Cowslip perfume. It is on account of this latter quality that I mainly wish to draw attention to it. This delicious perfume and its easy cultivation (for

pink colour, altogether the best wet-weather Geranium I am acquainted with. This is certainly a variety that should be more generally grown for bedding than is the case at present. Of tricolors, I suppose there is none better, taken altogether, than the old Mrs. Pollock, while in the bronze section Maréchal McMahon still holds its own. Of silvers, Chelsea Gem is the best of its class, of dwarf bushy habit, and with beautiful silvery foliage; nothing I have tried can approach it. The well-known Crystal Palace Gem is still retained as a golden variety. The scented-leaved varieties are grown as bushes anywhere among miscellaneous plants for supplying foliage to use with cut flowers, so are not included in those used for more formal beds and borders.—J. R.

SOCIETIES AND EXHIBITIONS.

TEMPLE SHOW.

MAY 25 & 26.

THE exhibition of Orchids at this large gathering, taken as an entire display, must certainly be considered one of, if not the very finest yet seen at these annual shows in the Temple Gardens. There were not, it is true, many separate exhibits from private gardens, but such rare collections of the choicest, and in many instances unique, plants shown by Sir Trevor Lawrence (the president) and by Baron Schröder amply made amends for this. Two such groups as these gentlemen staged are seldom seen in any exhibition. From the large trade growers, the choice collection, occupying a large space in the grand marquee, from Messrs. Sander and Co. deserves especial notice. So do the extensive displays from Messrs. Hugh Low and Co. and from Messrs. Charlesworth, Shuttleworth and Co., Bradford; whilst, from a cultural point of view, the splendid exhibits of Messrs. B. S. Williams and Son and of Mr. James Cypher claim particular attention. The often-discussed question of pruning Dendrobiums, which is a moot point with many growers, has the matter, to a great extent, set at rest in the grand plants of Dendrobium nobile from the collection of Viscountess Portman, Buxted Park, Sussex; larger or more perfect examples of cultivation than these, it is safe to say, have never been exhibited, nor any so well bloomed.

From Sir Trevor Lawrence came one of the best arranged groups in the whole exhibition; the plants were not so much crowded as in a few other instances, whilst considerable relief was afforded by the graceful Palms and a few Ferns interspersed here and there. The great feature here was rarity combined with fine culture. Of Cattleyas there were many grand examples; particularly noteworthy was *C. Mossiæ* Wageri (the white Mossiæ), a most lovely variety with pure white flowers, having a faint shading of pale yellow upon the inner portion of the lip; *C. Mendeli* was well represented in the finest forms, one a light coloured variety being particularly chaste in its colours, with the lip richly coloured; *C. citrina* was also shown here with flowers of a deep shade. *Odontoglossum luteo-purpureum radiatum*, a distinct and splendid variety; *O. excellens*, with particularly bright-coloured flowers; and *O. citrosimum* in various forms, one with the flowers faintly flushed with yellow, were especially noteworthy. *Masdevallia Harryana* was here remarkably rich in colour, whilst the smaller growing sections were well represented. *Dendrobium Dearei* was in the finest health; so also was *D. thyrsoiflorum*, *D. Jamesianum* being also shown. Of *Cypripediums*, *C. Lawrenceanum* was in fine form, whilst the distinct *C. philippinense* and several good plants of *C. bellatulum* were staged. *Vanda teres*, *Aerides falcatum* in two distinct forms, and *Phalænopsis grandiflora*, bearing a spike with nine grand blooms, well represented the tropical section. *Anguloa Ruckeriana sanguinea* was also shown. Awarded a silver cup.

From Baron Schröder's well-known collection came a splendid group, lacking only one point, that of more room to display in the best manner the

superb examples of the highest possible degree of culture and rarity. Here were to be seen several of the finest forms of *Odontoglossums* in cultivation, as *O. crispum apiatum*, a noble variety; *O. Pescatorei leucoxanthum*, a pure white form with a small yellow blotch on the lip; *O. vexillarium Cobbianum*, a splendid variety with extra large flowers. *O. excellens*, *O. crispum* (several superb varieties), with *O. polyxanthum*, *O. maculatum*, and *O. cirrhosum* were some of the finest. Of large-sized specimens mention should be made of those of *Cymbidium Lowianum* with about a dozen spikes; *Cattleya Skinneri*, a richly coloured form with trusses of extra vigour; and *Lælia purpurata* in fine condition, with a unique example of the Necklace Orchid (*Cœlogyne Dayana*), with a dozen spikes, some of which measured $3\frac{1}{2}$ feet in length. A separate award of a silver Banksian medal was given for the *Cœlogyne*. Other good things in this group consisted of *Dendrobium Jamesianum* and *D. nobile nobilium*, very rich in colour; *Cypripedium grande* (one of the finest Veitchian hybrids), *C. caudatum* and *C. Lawrenceanum* Hyeatum, with its pale green and white flowers so delicate in their markings; *Masdevallia Houtteana*, one of the dwarf species, densely flowered; and *M. Harryana*, with exceedingly rich shades in its blooms; *Cattleya Mossiæ* and *C. Mendeli*, with *C. Schröderi*, were represented by the choicest forms; *Odontoglossum Wilckeanum* (a grand spike), *Masdevallia Veitchi grandiflora* (a superb form), *Aerides Fieldingi* and *A. Savageanum* were also in fine condition. To this collection a silver cup was awarded and the Williams' Memorial medal for special culture. Mr. Lucas, Warnham Court, Horsham, showed a smaller collection, but one which contained many excellent things, the most noteworthy being *Lælia purpurata* Warnham Court var., in which the rich purple colour of the lip extends into the petals to a singular extent. *Cattleya Mossiæ* and *C. Mendeli*, particularly a form of the latter called *delicata*, were here shown in beautiful condition, the latter quite a superior variety. *Cypripedium caudatum* was here to be seen rich in colour, also *Odontoglossum vexillarium*, *O. Karnioinski* and a particularly fine *Cattleya gigas Sanderiana*. Awarded a silver cup.

Mr. Wigan sent from his well-grown collection at Clare Lawn, East Sheen, a small, but excellent group, wherein were included *Dendrobium Dearei* and *D. suavisimum*, *Cypripedium barbatum* (best var.) and *C. Lawrenceanum*, a most notable plant of *Cattleya Mendeli*, a fine specimen and equally fine variety with the lip exceedingly rich and deep in colour, and *Masdevallia Harryana* Crimson King in which the colour was much intensified; *Grammatophyllum maculatum*, with long spikes, the flowers profusely spotted with dark brown on a pale green ground—a singular contrast. Awarded a silver-gilt Flora medal.

Mr. Jacob, Cheam Park, Surrey, staged a fine group of well-grown *Cattleyas* and *Lælias*, the varieties in each instance being superior. Here also were a fine form of *Cattleya gigas* and a good example of *Dendrobium thyrsoiflorum*. This collection completed the exhibits on one side of the centre of the large marquee. Awarded a silver Flora medal.

On the opposite side were three large trade collections from well-known growers, that at one end coming from Messrs. B. S. Williams and Son, in which were several well-grown and healthy *Vandas*, chiefly forms of *V. suavis* and *V. tricolor*, a variety of the latter called *V. formosa* being one of the best. The seldom-seen *Cattleya masuca* was here staged in splendid condition, with numbers of its spikes and violet-shaded flowers. *Cymbidium Lowianum* was a large specimen, whilst there were very superior forms of *Odontoglossum vexillarium*, *O. cordatum* and *O. hastilabium*, with *O. luteo-purpureum* bearing extra strong spikes. *Miltonia stellata* was here shown in good form; so also were *Cypripedium caudatum roseum*, *C. selligerum majus* and *C. Morganii*; whilst the bright yellow *Oncidium concolor* was in profuse flower. *Dendrobium thyrsoiflorum* (Walker's var.), here included, bore racemes of unusual length and of fine colour. *Lælias* and *Cattleyas* were also well represented (silver-gilt Flora medal).

The next group was from Messrs. Sander and Co. It was comprised chiefly of new varieties, many of which were remarkably fine forms of well-known species, cool house Orchids being strongly represented, evoking a great amount of interest from the visitors to the show. Some of these will be found more fully described amongst certificated plants. *Odontoglossum Pescatorei ampliatus* is a choice variety with light-coloured flowers of extra size, almost destitute of spots. *Odontoglossum Coradinei* is a fine form of *O. triumphans* with light brown markings. *Odontoglossum excellens* is also represented by a delicately marked form; *O. Amesii* is a major variety of *O. Alexandræ*, with well defined and richly coloured flowers borne upon a strong spike; *O. crispum Wellsianum* is a fine form, the flowers of a light ground colour with dark spottings; *O. vexillarium Sanderi* is a variety with flowers of extra size, the lip pure in colour, the sepals and petals deeply shaded; *O. Pescatorei Schröderi* is a pure white variety with a golden blotch on the base of the lip; *O. cuspidatum* represents a fine kind. Several plants of *Cypripedium Chamberlainianum* were here shown, being already well established. With this was to be seen a lighter variety to which an award of merit was made; *C. Wallisi*, after *C. caudatum*, has much lighter coloured flowers, more of a pale green; *Oncidium Gravesianum* was recently alluded to in THE GARDEN, April 23, p. 385; *Lælia grandis tenebrosa* is remarkably rich in colour; *Vanda Sanderiana* is well shown, the spike bearing eight large flowers; a very fine plant of *Dendrobium Dearei* completes a rich and choice exhibit. Awarded a silver cup.

Messrs. Charlesworth, Shuttleworth, and Co., Bradford, exhibited a fine group of plants, too much crowded to do them justice, being one mass of bloom; here was shown *Oncidium macranthum* as fine as it has ever been seen, many splendid examples being staged representing this grand Orchid in its best form. Another remarkable plant is *O. crispum*, with unusually fine spikes crowded with their brown flowers. *Odontoglossum Wilckeanum nobilium* is a pale brown form of surprising beauty; *O. triumphans* and *O. Alexandræ* are both well represented; so are *O. vexillarium*, *O. Alexandræ* Charlesworthianum, one of the richest coloured forms with flowers of remarkable size. *Cattleya intermedia alba* and *Lælia grandis tenebrosa* are both shown well; so also is *L. purpurata* (award silver medal). In another tent Messrs. Low and Co. staged an immense quantity of *Cattleyas* and *Lælias*, with *Dendrobiums*; these consist chiefly of the best types of *C. Mossiæ*, one called *Venus* being a decidedly superior form with a well-marked lip with pure white margin. *C. Mendeli* is here also shown well, also *Lælia purpurata* and *L. grandis tenebrosa*. Another most noteworthy exhibit is *Dendrobium macranthum*, now rarely seen in such quantity or flowered so profusely; several other good *Dendrobiums* are also shown, as *D. thyrsoiflorum* and *D. dioxanthum*. In point of numbers and freshness this group is a remarkable one. Award, silver-gilt Flora medal. Mr. Cypher, Cheltenham, staged a group of finely cultivated plants, consisting of several of the best forms of *L. purpurata* in the entire show, all being vigorous examples. *L. purpurata* Lawrenceana, a very pure form, should be noted, also another to which a certificate was awarded. *Cattleya Mendeli* and *Mossiæ* are in strong force, so also are *Odontoglossum vexillarium* and the var. *giganteum* and *Oncidium concolor*; *Odontoglossum cirrhosum* and *Epidendrum radicans* were also shown with *Dendrobium Bensoniæ*, *Calanthe veratrifolia*, *Cattleya citrina*, and *C. Skinneri*, with several plants of *Dendrobium Devonianum*, very bright and fresh, and *D. Parishii*, a species of compact growth, seldom seen so good. Award a silver cup. Messrs. Lewis and Co., Southgate, showed a small group in which were staged *Odontoglossum Uro-Skinneri*, *O. vexillarium*, *Oncidium macranthum*, good *Cattleya Mossiæ* and *C. Mendeli*, with *Lælia grandis* and a distinct variety of *Cymbidium Lowianum* called *viride*, to which a certificate was given. This group received a silver-gilt Flora medal.

Next to it is another group from Messrs. Heath

and Co., Cheltenham, in which was an extra large, evidently bedded-out example of *Cypripedium Lawrenceanum* bearing, however, a host of grand flowers; *Cattleya intermedia* was here staged, a fine specimen plant, very fresh in colour; *Cattleya Schroederæ*, C. Mossiae, and C. Mendeli were also in good order. Awarded also a silver-gilt Flora medal. Last, but not by any means least, are the three grand plants of *Dendrobium nobile*, brought up from Buxted Park, Sussex, by Mr. Prinsep; these plants have been rapidly grown upon the pruning system, and clearly demonstrate the advantages thereof in this instance; these superb specimens are more than 6 feet in diameter, with individual growths more than 4 feet in length, these being clothed with flowers from base to summit. The award of a silver-gilt Flora medal was made, but some more distinguishing mark for good culture might be added thereto.

Entering the long tent from the eastern end, lines of bright plants and flowers met the eye. Messrs. James Carter and Co., seed merchants, Holborn, contributed from their Forest Hill Nurseries groups of charming *Petunias* in pots, Holborn White and Mrs. James Carter (rose) being excellent. This firm also had their fine strain of *Mimulus*, a very fine lot of *Gloxinias*, also *Calceolarias* and *Cacti*, in each case tastefully arranged with fine-foliaged plants and flowers. Next followed a large and varied collection of cut flowers from Messrs. Barr and Son, King Street, Covent Garden, who had *Pæonies*, *Tulips*, *Iberis gibraltarica*, and others, *Lupines*, *Lithospermum prostratum*, *Phlox subulata* in variety, *Funkias*, *Delphinium nudicaule*, a very large collection of self-coloured *Tulips*, *Iris*, *Ixias*, *Sparaxis*, &c. On the opposite side, Messrs. W. Cutbush and Son, nurserymen, Highgate, had a large collection of cut flowers, which comprised *Centaureas*, *Narcissi*, *Pæonies*, *Doronicums*, *Gladioli*, *Trollius*, *Anemones*, *Papaver*, *Liliums*, &c., arranged with fine-foliaged plants. Next followed one of those remarkable collections of cut flowers Messrs. Kelway and Sons, nurserymen, Langport, are in the habit of sending to London at this season of the year. It included collections of cut *Iris*es, *Cannas*, single *Pyrethrums*, which flower earlier than the double forms, and which included *Ayrshire*, bright carmine; *Carneum*, bluish; *Albert Victor*, brilliant deep carmine; *Mary Anderson*, large bluish, &c. Of *Pæonies*, there were tree and herbaceous types; of the former, *James Kelway*, bright scarlet; *Rev. W. Wilks*, bluish; *Orme*, crimson-maroon; *Pearl*, white; *Prince George*, purple; *Will*, deep pink; *A. J. Balfour*, carmine; *Mrs. Stuckey*, white, and two or three fine varieties of officinalis. Messrs. J. Laing and Sons, Stanstead Park Nurseries, Forest Hill, also staged a large collection of cut flowers, including *Stocks*, *Narcissi*, *Triteleia*, *Scillas*, *Doronicum*, *Ranunculus*, *Iberis*, *Tulips*, *Alyssum*, *Aubrietias*, *Trollius*, and many others, all of an interesting character. Then came a fine collection of tuberous-rooted *Begonias* from Mr. T. S. Ware, Hale Farm Nurseries, Tottenham; among them, *Duchess of Teck*, yellow; *Triomphe de Nancy*, sulphur; *Solferino*, sulphur-yellow; *Mrs. F. Fell*, rose; *Una*, white; *Bexley Gem*, bright deep rose; *Viscountess Cranbrook*, pale carmine, &c. In the centre Messrs. W. and J. Birkenhead, Sale, Cheshire, had a remarkable collection of hardy Ferns, containing many choice species and varieties, such as *Pteris nobilis*, *P. tremula Smithiana*, *P. serrulata parvula*, *Notholaena rufa*, *Scolopendrium digitatum majus*, *S. crispum variegatum*, &c. Messrs. Reid and Borne-man, nurserymen, Sydenham, had a collection of flowering plants, *Begonias*, *Pelargoniums*, &c., set off with *Palms* and other foliage plants. Messrs. J. James and Son, florists, Farnham Royal, Slough, had a collection of their dwarf strain of herbaceous *Calceolarias* excellently grown and flowered, and a collection of good quality came also from Mr. Thomas Gabriel, Elmstead, Streatham. Messrs. Veitch and Sons, Royal Exotic Nurseries, King's Road, Chelsea, S.W., staged a very fine and striking group of *Streptocarpi* of varied colours. These have been greatly improved of late years, and have increased in size and beauty. They also had a

superb collection of *Gloxinias*, the rich carmine colours being particularly noticeable in such varieties as *Monarch*, *Comet*, and Mr. J. Donaldson. The netted and margined varieties were also very fine.

In the next tent, forming a continuation of the line running from east to west, the centre stage was as usual filled mainly with *Orchids*. Mr. Anthony Waterer, Knap Hill Nursery, Woking, occupied one portion of the centre with a group of seedling *American Azaleas* (single and double), showing great improvement upon the older varieties. Among them was Mrs. Anthony Waterer, a very fine white variety approaching the *Indian Azaleas* in size and form, the upper portions stained with pale yellow, and an unnamed double white seedling of very fine quality. On the other portion of the centre stage was a group of mainly new decorative *Pelargoniums* from Messrs. J. and J. Hayes, nurserymen, Edmonton. It included *Gold Mine*, very bright; *Mr. Stanley*, *Princess May*, soft salmon-pink, a charming variety; *Purple Emperor*, *Lady Isabel*, *Martial*, *The Bard* and *Mrs. Stanley*, all varieties of great decorative value. Next came a group of *Pelargoniums* from Mr. H. J. Jones, Ryecroft Nurseries, Lewisham, small specimens, but admirably grown and bloomed. Here were the fine and striking groups of *Begonias*, which are usually seen at the Temple show. On one side, Messrs. Henry Cannell and Sons, nurserymen, Swanley, and on the other, Messrs. John Laing and Sons, Stanstead Park Nurseries, Forest Hill, each put up a very fine and striking collection. Messrs. Cannell had of single varieties *Countess of Brownlow*, gold; *Sir T. Lawrence*, crimson; *Miss E. King*, deep pink; *The Lady*, bluish; *Duchess of Westminster*, salmon and buff and orange centre; *Mrs. Alexander*, white; and *Princess of Wales*, edged and suffused with carmine. Of double varieties: *Mrs. Lynch*, soft pink; *Mrs. Beresford*, delicate rose; *J. Lynn*, crimson; *Leopold de Rothschild*, rich scarlet, very fine indeed; *Mrs. W. B. Miller*, salmon-blush; *Miss Lilian Lopes*, clear pale red; *W. H. Fowler*, rich crimson, &c. These were tastefully backed and mingled with *Palms*, *Ferns*, &c. Equally meritorious was the collection sent by Messrs. J. Laing and Sons, and it also included several fine new varieties, such as *single Duchess of Westminster*, very rich carmine, extra fine; *Princess Sophie*, bright pale rosy scarlet; *Rival*, orange-salmon, side petals margined buff, very distinct; *Mrs. R. Dean* (*Picotee*), edged carmine; *Leah*, yellow; *Princess of Wales*, bright scarlet; *Prince Albert Victor*, orange-scarlet; *Mr. J. Chamberlain*, delicate bluish. Doubles: *Mr. F. Nettlefold*, bluish-pink (*Picotee*), edged carmine, quite novel; *Countess of Zetland*, sulphur; *Purity*, white; *Laing's Triumph*, soft salmon-rose; and *Baron Schroeder*, pink. This group also was backed with *Palms* and edged with *Caladium argyrites* and *Ferns*.

The large tent was a gay and striking show in itself. The centre stage was wholly occupied with *Orchids*, with the exception of a group of flowering plants of *Carnation Almira*, a yellow ground variety of excellent quality. These came from Mr. Jennings, gardener to Mr. Leopold de Rothschild, Ascott, Leighton Buzzard. On the right was a massive group of *Roses* in pots from the nurseries of Messrs. Paul and Son, Cheshunt, some standards among them. Such varieties as *Magna Charta*, *Cheshunt Hybrid*, *Ulrich Brunner*, *Innocent Pirola* (*Tea*), *Mme. de Watteville* (*Tea*), very beautiful; *Camille Bernardin*, *Mme. Lacharme*, *Her Majesty*, &c., form a very fine and effective group. At the other end of the tent Messrs. W. Paul and Son, Waltham Cross, set up an equally effective group also of standard and dwarf *Roses*, including several plants of the new *Moss Rose Zenobia*, which is a remarkably good grower and very free; *Baroness Rothschild*, *Mrs. J. Laing*, *Comtesse de Serenye*, *Queen of Queens*, *François Levet*, *Merveille de Lyon*, &c. In addition, there were a number of boxes of cut blooms. Messrs. J. Laing and Sons had a very fine and striking group of *Palms*, *Cannas*, *Orchids*, *Dracænas*, *Crotons*, *Gloxinias*, *Clivias*, &c., including several novelties—an admirable piece of effective group-ing. In this tent Messrs. Richard Smith and Co.,

St. John's Nursery, Worcester, had a group of specimen *Clematises* of large size, finely grown and flowered, of such varieties as *Mme. van Houtte*, white; *Blue Gem*, *Marie Lefebvre*, *Excelsior*, *Purpurea elegans*, *Fairy Queen*, *Mrs. George Jackman*, *Sensation*, *Lady Caroline Neville*, and the double white *Lucie Lemoine*. These were intermixed with Japanese *Maples* and edged with dwarf *Ericas*, *Boronia elatior*, &c.

Messrs. Veitch and Sons staged a remarkably fine group of hardy flowering shrubs and also of hardy fine-foliaged plants, arranged with excellent taste. Conspicuous among them were some standard bushes of *Cytisus scoparius Andreanus*, *Lilacs*, *Azalea mollis* and *American varieties*, *Pæonies*, Japanese *Maples*, and other subjects equally effective.

Messrs. E. D. Shuttleworth and Co., Albert Nursery, Peckham Rye, staged two large groups of fine-foliaged plants; in one of them were some noble *Kentias*, *Crotons*, &c., mingled with *Lilies*, and the other was formed of *Palms*, edged with dwarf *Cycads*, *Ferns*, &c. Mr. George Phippen, nurseryman, Reading, set up a bold group of white *Lilies* and green-foliaged plants, the white and green going well together; in the centre were two large specimens of *Anthurium Scherzerianum*. Mr. Charles Turner, Royal Nursery, Slough, had a large group of specimen large flowering and fancy *Pelargoniums*, some of them, such as *Achievement*, *Excellent*, and *Duke of York*, being very bright, *Ruth* being a very soft coloured variety. Messrs. J. Peed and Sons had a group in which *Palms* and *Anthurium Scherzerianum* in variety, edged with dwarf *Ferns* and foliaged plants, were conspicuous. Messrs. W. Rumsey and Son, nurserymen, Waltham Cross, had specimen *Roses*, standard and dwarf, intermingled with *Palms*, edged with *Aspidistras* and *Ferns*. Messrs. W. Cutbush and Son also staged a fine group, consisting of hardy *Rhododendrons*, *Azaleas*, *Lilies*, *Spiræa astilboides*, &c., thoroughly bold and effective.

Messrs. H. Low and Co., the nurseries, Clapton, had a large collection of *Ericas* of various types, *Pimeleas*, *Cestrum aurantiacum*, &c., and also a group of decorative *Pelargoniums*. Mr. H. B. May, Dyson's Lane Nursery, Edmonton, had a large and extremely interesting collection of *Ferns*, among them *Adiantum excelsum*, *Pteris serrulata gracilis*, a beautiful variety; *P. moluccana*, and *Selaginella elegans*, a distinct dwarf form.

In the long tent on the upper side of the gardens table decorations were a prominent feature. They were furnished by Messrs. Perkins and Sons, of Coventry, who had various arrangements worked out in their excellent style. Mr. J. R. Chard, Brunswick Nursery, Stoke Newington, had illustrations of his pretty arcadian table decorations. Miss C. A. Hassell, Southfleet, Gravesend, had some elegant arrangements also. Messrs. Dobbie and Co., florists, Rothesay, had a large collection of tufted *Pansies* tastefully set up in glasses; some new varieties were included, but no information was forthcoming as to the habit of the plants. A collection also came from Messrs. J. Cheal and Sons, Lowfield Nurseries, Crawley, set up in neat bunches. Dr. Hogg, Stillyans, Sussex, and Mr. J. Douglas, gardener to Mrs. Whitbourn, Great Gearies, Ilford, had collections of florists' *Tulips*, *bizarres*, *roses*, *byblemens*, and breeders. Mr. H. Collins, Field Lane, Alveston, Derby, sent some boxes of *Maréchal Niel* *Roses*, fine flowers of good colour. Miss M. Reeves, Douglas, Cork, had flowers of *Pæonies* and *Ranunculus*. Messrs. Paul and Son, Cheshunt, had a large collection of hardy herbaceous and alpine plants in pots and bunches of cut hardy flowers. On the centre stage Messrs. B. S. Williams and Son, Victoria Nurseries, Holloway, had a group of hardy flowering shrubs, *Amaryllis*, *Rhododendron Williamsi*, *Cytisus scoparius Andreanus*, &c. From M. Linden, nurseryman, Brussels, came a collection of new plants which will be referred to under the report of the floral committee. One of the leading features in this tent was a collection of alpine plants arranged in the form of an alpine rockery from Messrs. Backhouse and Son, nurserymen, York. Some charming things were here seen to the best advantage, such

as *Gentiana verna*, *Dodecatheon integrifolium*, *Dianthus alpinus*, &c. Mr. M. Pritchard, Southbourne, Christchurch, also had a group of alpine and other hardy plants of an instructive character.

From Messrs. Rivers and Son, Sawbridgeworth, came a large collection of fruit trees in pots, mainly composed of their new Nectarine exhibited last year. This is a splendid early variety, somewhat after Lord Napier, but much earlier and very productive, as very small trees were bearing heavy crops. There were good Early Beatrice and Alexander Peaches, good May Duke Cherries, Apple Duchess of Oldenburg and a new seedling Pear named Parrot, somewhat after Doyenné d'Été. It is very free-bearing and an excellent variety for orchard-house culture. Oranges and a few dishes of Apples and Pears (the Belle de Pontoise and Rockingham among the Apples being very fine) were also shown (large silver-gilt medal). From Mr. A. H. Smee, The Grange, Wallington (Mr. Cummins, gardener), was sent a collection of Apples and Pears in good condition, the best dishes being Lane's Prince Albert, Lord Derby, Hoary Morning, Melon, Sturmer Pippin, and good Pius IX., Mme. Millet, Catillac and Uvedale's St. Germain Pears (silver Banksian medal). Messrs. Veitch and Sons, Chelsea, contributed sixty dishes of Apples, the fruit being very fine for so late in the season, some of the dishes, notably Newtown Pippin, Grand Duke Constantine, Greave's Pippin, Brownlow's Russet, Boston Russet, Baumann's Reinette, Sturmer Pippin, Ribston, Seaton House and Lane's Prince Albert being very good (silver Banksian medal). The Department of Agriculture of Victoria sent forty varieties of Apples, many with local colonial names, forming an interesting exhibit. From the Marquis of Salisbury, Hatfield (Mr. Norman, gardener), came six boxes of very fine Strawberries, Auguste Nicaise being of enormous size. Sir C. Napier was also very fine, the other varieties being President, Noble, Marguerite and Vicomtesse Héricart de Thury. A plant in fruit of each variety was also exhibited. A silver-gilt medal was deservedly awarded. A collection of Melons of nice size came from Mr. Henderson, gardener to Earl Manvers, Thoresby Hall, Notts. Some fine Mushrooms, also two large baskets of Apples, were sent from Lord Foley's garden at Esher. Sutton's Matchless Cucumber, certificated last year, was shown in splendid condition, eighteen fruits being shown; also Lockie's Perfection for comparison as to size. Large red Tomato in perfection was also sent in fine condition. All the above Cucumbers were sent by Mr. Mortimer, Swiss Nursery, Farnham (bronze Banksian medal). Six nice fruits of Sutton's Hero of Lockinge Melon came from Mr. Bowie, The Gardens, Sutherland, Reading. A fine brace of Lockie's Perfection Cucumber was sent by Mrs. Baker, Upper Court, Slough (gardener, Mr. Wilds). A dish of Brown Turkey Figs was sent from Lord St. Oswald's gardens, Nostell Priory, York. A good dish of Peaches came from Mr. W. Armstrong, Toddington Nursery, Winchcombe, Gloucester. A fine dish of Strawberries was sent by Messrs. Wells, Hatton-hurst, Hounslow (gardener Mr. Thomson). A new Lettuce named Harbinger from Mr. Beckett, Aldenham House, Elstree, should prove a first-class variety for forcing.

Orchid Committee.

First-class certificates were awarded to the following:—

ODONTOGLOSSUM CRISPUM SANDERÆ.—An exceedingly beautiful variety, the ground colour bordering on a rich rosy crimson with lighter shades, a very choice form. From Sander and Co.

O. BLEUI SPLENDIDISSIMUM.—A hybrid between *O. vexillarium* and *O. Roezli*; the lip is large and pure in its colour, after the best types of the former parent, the sepals and petals more in the way of those of the latter, having also the radiating lines seen in the lips of the same at the base. Messrs. Sander and Co.

O. LOWRYANUM.—A stout-looking variety with broad sepals and petals, the ground colour a light

yellowish brown with darker bars and spots. From Sander and Co.

PHAIUS SANDERIANUS, previously given an award of merit (and described at p. 430 in *GARDEN* for May 7), but now shown in much better condition.

CYPRIPEDIUM SOUTHGATENSE.—An extra dark hybrid, of which *C. bellatulum* is one of the parents, the colour of its spots suffusing the offspring; the only flower of it shown was partially faded; it is, however, an acquisition. Messrs. Lewis and Co., Southgate.

C. VIPAN (*C. lævigatum* × *C. niveum*).—This hybrid is of a pure white ground colour throughout, with veins of a rosy purple in some parts faint, in others of a darker shade; a very distinct variety. From Captain Vipian, Wansford.

Awards of merit were given to—

CATTLEYA MENDELI (Cookson's var.).—This is one of the largest forms yet seen of this popular species, with richly coloured sepals and petals and the lip of equal proportions with *C. gigas*, and of a deep colour. Messrs. Sander and Co.

CYPRIPEDIUM CHAMBERLAINIANUM EXCELLENS, in which the distinguishing feature is the much lighter coloured dorsal sepal, otherwise it resembles the type. Sander and Co.

CYMBIDIUM LOWIANUM VIRIDE, in which the lip is entirely destitute of the dark crimson markings, giving it quite a distinct appearance. Messrs. Lewis and Co.

LELIA PURPURATA HUNDLEYANA.—A very superior form of *L. purpurata* with a broad lip, the sepals and petals corresponding. Mr. James Cypher.

ODONTOGLOSSUM WILKEANUM NOBILIUS.—A paler form than the type, but equally beautiful. Messrs. Charlesworth, Shuttleworth, and Co.

Botanical certificates were given to Messrs. Sander for *Epidendrum Godseffianum*, a tall growing species, with rather dull yellowish flowers produced on long spikes; and for *Oncidium Rolfeanum*, much resembling *O. crispum*, but smaller. To Mr. Lucas for *Zygopetalum graminifolium*, a slender Grass-like species, with dark purple flowers and a paler coloured lip.

Floral Committee.

First-class certificates were awarded to—

PTERIS TREMULA Densa.—A close-growing form, with its fronds resembling a good strain of Parsley, appearing to be of an enduring constitution. From Messrs. Smith and Co., Worcester.

DICHORISANDRA MUSAICA GIGANTEA.—A superior variety of much stronger growth of this handsome foliage plant. Mons. Linden.

LAVIDIA SMARAGDINA.—A dwarf and close-growing plant from Borneo with linear lustrous green foliage. Mons. Linden.

SMILAX ARGYREA.—A scandent-growing variety, with its foliage of a dark green, mottled with a silvery shade. Mons. Linden.

STENANDRIUM LINDENI.—A dwarf-growing plant with foliage of an olive-green shade, with silvery veins. Mons. Linden.

TRADESCANTIA REGINÆ AND T. SUPERBA.—Two quite major forms of robust growth, the latter being of the two the better-marked form; the ground colour a dark green with silvery stripes, as in other kinds, but in both cases the growth is semi-erect. Mons. Linden.

AZALEA MRS. ANTHONY WATERER.—A lovely white variety with a faint yellow blotch, the flowers as large as those of *A. mollis*, but of better shape; a promising addition to the hardy kinds. Mr. A. Waterer, Knap Hill.

PTERIS SERRULATA GRACILIS.—A form similar in its fronds to the type, but much narrower, the growth also more compact; an elegant plant. Mr. H. B. May.

SCOLOPENDRIUM CRISPUM FIMBRIATUM.—A beautifully fimbriated variety with long fronds of a light green colour. Messrs. Birkenhead and Co.

SCOLOPENDRIUM DIGITATUM MAJUS.—A crested variety with the fronds also forked, growth compact. Messrs. Birkenhead and Co.

SELAGINELLA ELEGANS, which comes nearest to, but is at the same time superior to *S. apoda*, being of free growth. From H. B. May.

Awards of merit were given to:—

BEGONIA (tuberous) **LEOPOLD DE ROTHSCHILD.**—An extra fine double variety, with deep scarlet flowers of large size and much substance. Messrs. Cannell and Sons.

BEGONIA (single) **DUCHESS OF WESTMINSTER.**—With finely formed flowers of a bright orange-yellow. From Messrs. Cannell and Sons.

BEGONIA (tuberous) **PICOTÉE.**—The flowers, which are of large size, are beautifully edged with rosy-pink, the centre of a much lighter shade. Messrs. Laing and Sons.

BEGONIA LAING'S TRIUMPH.—A splendid double kind with large rosy-pink flowers, very full and of fine form. Messrs. Laing and Sons.

BEGONIA DUCHESS OF WESTMINSTER.—A single variety with flowers of a vivid crimson-scarlet and a light centre, very distinct. Messrs. Laing and Sons.

PEONY SNOWFLAKE.—A semi-double form with satiny white flowers of good size, a lovely variety. Mr. T. S. Ware.

H. T. ROSE PRINCESS MAY, in which the colour is that of H. P. Baroness de Rothschild with the Tea habit. W. Paul and Son.

GLOXINIA CLIO.—A deep rose colour with a broad white margin. Messrs. Veitch and Sons.

GLOXINIA CICELY.—A blue ground with white margin and densely spotted throat. Messrs. Veitch and Sons.

GLOXINIA CLARIBEL.—One of the purest white-flowered kinds yet seen with faint spots, the flowers of extra size, and the plant of vigorous habit. Messrs. Veitch and Sons.

CARNATION MRS. H. CANNELL, with clove-scented flowers of a rich pink, very full, and not given to split the pod to any extent. Messrs. Cannell and Sons.

DRACÆNA BARTLETTI.—A dark kind, relieved with crimson, the habit good. Laing and Sons.

CROTON REIDI, previously certificated at Regent's Park, resembles *C. Andreanus*, but with redder markings. Laing and Sons.

Fruit Committee.

First-class certificates were awarded to the following:—

CUCUMBER SUTTON'S SUCCESS.—A cross between Sutton's A 1 and Prize-winner. It is very much like the last-named in colour with the good bearing qualities of A 1. It is a beautiful shaped fruit of a dark green colour, with few spines and excellent flavour. Shown by Mr. Mortimer, Swiss Nursery, Farnham.

APPLE ARMOREL.—This is a new seedling Apple of great merit, the flesh being firm and of splendid quality. The colour is yellow flushed with russet. A very fine dessert variety. From Mr. C. Ross, Welford Park Gardens, Newbury.

Death of Mr. Edmund Cole.—We regret to have to announce the death of Mr. Cole, on May 9, at Althorp Park, Northampton, at the age of fifty-two, from chronic Bright's disease. This well-known gardener entered the service of Mr. F. W. Dolman, of Alverstoke House, Gosport, in 1871, where he proved himself a most successful grower and exhibitor of plants, fruits, and vegetables. He was very successful with his Grapes, and was the first to exhibit pot Vines at the Southsea Exhibition, his black and white Grapes in pots on arches being the principal feature of the show. In January, 1878, he entered the service of Earl Spencer, K.G., at Althorp Park, Northampton. He remodelled the somewhat extensive pleasure grounds, also the fruit and plant houses. In 1882 he introduced into commerce the now famous Potato Cole's Favourite raised at Althorp, it having taken the prize of 10 guineas at the Northampton Seedling Potato Exhibition for three successive seasons. Mr. Cole had been a member of the Gardeners' Royal Benevolent Institution fourteen years, and of the Gardeners' Orphan Fund since it started in 1887. He leaves a widow and six children to mourn his loss.

WOODS AND FORESTS.

HARD-WOODED TREES FOR ECONOMIC PLANTING.

(Continued from p. 410)

THE OAK.—This may be placed at the head of the list of hard-wooded trees that are valuable in an economic sense, the timber realising a higher price than that of any other tree that may be widely cultivated in this country. No other commonly cultivated tree is more accommodating in the way of soil and situation than the Oak, it having a wide range of capability in this way, succeeding in almost every soil save that of the most waterlogged character. For some time back I have been puzzling myself trying to find out the particular class of soil that is best suited for the Oak, and I must candidly confess that I am still at a loss, several distinct kinds being equally suitable. The famous and once largest forest of Oak in the British Isles—the ancient Andredes Weald—extending through several of the southern English counties, but particularly the Weald of Kent, may be taken as a good example, the quality of soil in three of the counties through which it formerly passed being widely different, and yet the size of trees and quality of timber did not vary in a like proportion.

A comparison, too, of this forest with others of historic note leads one still further to believe that the Oak has a very wide range of soil capability as well as of situation. The biggest trees, strange to say, are not found on the richest soils, a fact that has led me to entertain the idea that there are several distinct forms, so far at least as size is concerned, and that attention to these might lead ultimately to the great improvement of the tree. Throughout the Weald of Kent, where some of our finest Oak timber is and has been produced, the soil is what is termed the weald clay, but it varies a good deal in different parts, a strong loam resting either on beds of gravel or clay being of frequent occurrence.

No perceptible difference between the Oak trees growing on these different formations is to be recorded, individual trees of immense bulk being frequently met with on each of the distinct classes, while the average timber production of the trees is unusually large. On the higher grounds by the keeper's lodge at Lullingstone Castle I was surprised to find exceptionally large trees of the Oak, Ash, and Beech growing side by side—trees containing, or rather that had contained, fully 200 feet of wood and whose stems girthed from 15 feet to 25 feet being more the rule than the exception. In some of the remnants of the old Kentish forests around London the quality of soil varies to a marked extent, and yet the Oak trees do not appreciably differ in size, at least the differences are not very pronounced. At Holwood the soil is loam of fair quality overlying gravel; that is where the Oak grows best, but it also succeeds well and attains to a large size where a good depth of rather plastic loam comes atop of the chalk drift. Many very large trees are, however, growing where hardly a foot of soil covers beds of shingly gravel, and all these cases clearly point out that an open subsoil, be the top soil whatever it may, is most conducive to the free growth of the tree. Damp soils, but particularly in the lower strata, are very inimical to the free growth or great longevity of the tree, and stagnant water is worse still.

Perhaps, on the whole no other tree is more accommodating than the Oak, and that is so

far as we consider soil, altitude, and situation. It clothes the hillsides of many Scotch and English counties, not, perhaps, with the largest of timber, but, unless the soil is unusually rocky, with that of fair size, while in the straths and valleys it raises its head far above those of most trees of its kind, and that, too, in places where the natural soil is of the most diverse description. Neither is any other timber so serviceable as that of the Oak, few purposes for which wood is suitable coming amiss to the stout and beautifully grained timber. Even with the great reduction in the price of Oak timber that has taken place during the past century, it is very questionable whether when the general average is taken any other wood of home production sells equally well with that under notice. One other point that must not be overlooked is that the Oak even in a sapling state may be utilised to advantage, and that, too, at an age when much timber would be all but worthless. Good sound trees of large size, and felled at the proper season, can be sold at 2s. 6d. per foot, although speaking generally for the British Isles, about 2s. is the regular market price. Then Oak bark even at the low price of £5 per ton leaves still a margin of profit. Comparing these prices with what are usually obtained for any other class of timber of equal age and size, we cannot but come to the conclusion that the Oak not only merits its title of the "king of the forest," but is also the most profitable hard-wooded tree, speaking generally, that is cultivated in these isles.

A. D. W.

THE ESTABLISHMENT OF BRACKEN.

In addition to establishing Bracken by raising seedlings, as recommended on p. 436, I venture with confidence to recommend the equally safe and more expeditious method of establishing new colonies of Bracken, in parks, woods, pleasure grounds and gardens through transplantation. I agree with the editor and the suspicions of your correspondent that the transplantation of Bracken in the usual way seldom proves very successful. But that fact simply led to the universal method of transplanting Bracken in the mass, which, so far as I am aware, has never failed. This consists in digging the Bracken up as far as practicable in blocks of a square yard, and a foot or 18 inches deep. The writer tried many times to lift the best root-stocks or crowns with large balls with very partial success and many failures. He then simply took carts and men with sharp spades to the Bracken on moorland or woods, and filled them with huge blocks of the plants and their soil without the slightest attempt to discriminate individual crowns or roots. These masses of soil and Bracken were carted to the new quarters and trenched in, covering crowns and long fleshy roots with from 3 inches to 6 inches of suitable soil. Masses with large crowns were treated in this way, and but little time was devoted to special planting of either crowns or running roots.

The Bracken is late this spring, and unless "T. W. G." is in a forward locality, he might at once try this rough-and-ready mode of transplanting Bracken. The writer was in a large wood of Bracken a few days since and saw no signs of life amongst it. April, as a rule, is perhaps the most favourable month for this sort of work, and as this season is very late, the transplantation in rough blocks might yet be tried with good hope of success.

It may be done at any season from December to April or May. On the whole the early spring is the best time, as then the plants soon become established. And once this stage is reached, the new colony of Bracken is safely and quickly established. To reach the highest possible success in this rapid, rough and ready mode of colonising Bracken, one more point should be carefully considered. It is

this—let the soil, site, and surroundings of the new colony be made as like the old home as can be. Those who transplant Bracken out of a wood almost knee-deep in tree leaves, decayed fronds, fibrous peat, &c., on to a clay soil or stiff loam in an open park can hardly expect a very brilliant success. Neither would seedlings succeed any or much better under the same conditions.

On the other hand, few having sandy, peaty, or fair loamy soils need despair of growing good thriving breadths of Bracken on these, especially if planted bodily as here described, and liberally top-dressed also with soil from their old home. Neither need anyone despair of growing Bracken on new sites, especially where the plants abound within easy distance or on the same estate, for by carrying the system of transplantation only a little further, whole blocks of Bracken with rooting and covering soil to boot might be transferred from any old quarters to a new position, and few plants would more speedily or liberally repay the cost of such bodily removal as our native Bracken, so useful for game cover and the protection of Roses and fruit tree blossoms, and as beautiful almost in faded ruin as in the pride and verdure of its summer-tide beauty.

D. T. F.

Bostrichus laricis is unusually plentiful this season, but the damage it does is by no means serious. Numerous persons have sent affected foliage and branches for naming—hence this note. The insects are small and black at first, but they gradually whiten as they weave the thick woolly-like covering.—A. D. W.

Beetles in Pine shoots (*Phillips*). The insects infesting your Austrian Pines are the Pine beetles (*Hylurga piniperda*), and what you say about the leading shoots being broken over by the wind is caused, as you will see, by the galleries of the beetles weakening the stem, so that it breaks across readily when exposed to wind. The only cure is to cut off the infested parts, or, if the trees are small, pull them out altogether and burn them. Look well around that there are no thinnings of Pine lying about your woods, these making a capital breeding place for the insect. The Austrian Pine is not often attacked, perhaps, but I have seen a very large plantation of this very tree almost ruined by the Pine beetle.—A. D. W.

Horse Chestnut diseased (*Flowers*).—The peculiarly thickened bark is due, I believe, in the first instance to the puncture of a small insect, which cankers the trunk and produces the curious growths sent. It is by no means uncommon, and I do not think that soil has ought to do with the bark eruption, as I have noticed it when the trees were growing under unusually favourable circumstances. Manure water would be rather injurious than otherwise. The only way to partially arrest the growth is by paring it off neatly with a sharp knife, and the present is the best time to take such in hand. If so treated, the fresh bark will soon cover the old wound. Injuries to the stem of a tree will frequently cause the corky excrescences you send, but in the majority of cases an insect is at the bottom of the evil.—A. D. W.

"The Garden" Monthly Parts—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols., price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

Hardy Flowers.—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 8d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

No. 1072. SATURDAY, June 4, 1892. Vol. XLI.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare*.

CHRYSEANTHEMUMS.

CHRYSANTHEMUM NOTES.

OWING no doubt to the dwarfer and more stocky habit of growth of the newer kinds, the practice of cutting down does not appear to be on the increase. To those, however, who either form groups for home display or for competition it is advantageous. By this means we may get the plants with foliage to the pot's rim. At country shows a want of this is often particularly noticeable, the front and sides of groups offending the eye with bare stems and sticks. For this reason alone the awards sometimes go to groups otherwise inferior. It is well in selecting a few plants for treating as cut-backs to choose those sorts only which possess naturally good foliage. It is preferable to operate upon the plants before they have been placed in their flowering pots, although in this latter case there need not be any fear as to results if proper care be taken. The middle of June is a capital time to begin with kinds like Sunflower, Val d'Andorre, Mrs. J. S. Fogg, and Mme. C. Audiguier (all Japanese sorts). The incurred flowers give a variety in groups which judges do not fail to note, and a few of these forms should be grown for the purpose. Those known as the Princess of Teck family (Hero of Stoke Newington, Mrs. Norman Davis, and Lady Dorothy being the most distinct) are useful, as they are among the best of sorts with fine foliage. The middle of June should suit these, as well as the best of the Queen of England family (Lord Alcester, Golden Empress, Emily Dale, and Empress of India). After being cut back to within 6 inches of the soil the plants may be returned to frames, so that in the case of continued rain they may have the lights placed over them. Be careful to keep them on the dry side till they have well broken into new growth. Especially is this care necessary when the plants are in their flowering pots, as the roots until new shoots start will be relieved of their functions, and in the large bulk of soil may be easily killed. Towards the end of the month named will be the time to apply the knife to the sorts that bloom earlier if left naturally. In this category may be named Avalanche, Mlle. Lacroix, Wm. Tricker, Sarah Owen, Mme. J. Laing, W. H. Lincoln, Vivian Morel, Etoile de Lyon, E. Molyneux, Mlle. Marie Hoste, and W. Holmes. I would not select less than six shoots to a plant, which will allow for mishaps, nor would I give them too much room, but stake each shoot so that the one flower on each may in the end be near its neighbour, and the specimen of loose, yet symmetrical form.

This season we have been so far singularly free from insect pests. Green aphid, although the most tiresome, is easily got rid of, and even prevented from coming, by an occasional puff of tobacco powder on the tip of each shoot. This, too, will settle thrips, which are a frequent cause of blind flower-buds. The mining fly, which operates between the tissues of the leaf, is this season conspicuous by its absence, but if it should appear it must be at once destroyed. A grub similar to the worm in the bud which attacks Roses is sometimes troublesome, especially when large trees are growing near. By

the leaves on the points of the shoots curling together its whereabouts is indicated, and it must be keenly sought for, or the tender tip may be eaten away and a stoppage in the stem's growth be made before it is wanted. Most cultivators of plants know the value of rain water, and means are generally devised to have a good supply of it. But a few weeks of continued fair weather is a strain upon even large resources; therefore it is advisable to point out that it is very wise indeed to allow hard water from the mains and such sources to stand for some hours in tanks, so that it may be softened by the rays of the sun before being used. Watering will now engage much of the cultivator's attention, and undesirable results will follow neglect of this. To keep the plants healthy and vigorous, a dose or two of soot water or weak liquid manure may be given should potting through any cause be delayed. H. S.

Croydon.

FERNS.

POLYBOTRYAS.

THESE are bold-growing, useful Ferns. They are all natives of South America and the West Indies, having a stout and scandent stem, and bearing fronds some 3 feet or 4 feet in length. These plants make grand objects when trained up a short dead stem of a Tree Fern which used to be so readily obtainable. In the event of not being able to procure Fern stems, wire cylinders should be filled with peat, or peat may be placed round a pillar with a wire casing. In this way charming specimens can be had, useful to decorate and hide the bare iron pillars. I cannot think why people do not avail themselves of this style of decoration to a greater extent, instead of having bare iron supports, when there is plenty of plants amongst the Ferns which would be available besides the Polybotryas. Care should be taken to prevent the plants from becoming infested with thrips. Ferns that are natives of the temperate regions are very liable to attacks from the black thrips; this is brought about mostly through keeping them in too high a temperature. Polybotryas being tropical are not so liable to thrips through an overheated atmosphere, and yet I have seen them smothered in all stages, simply through aridity and improper ventilation; therefore, take every precaution if the temperature is high to have the atmosphere well charged with moisture and to admit a proper amount of air. They should be potted in well-drained pots, using for soil, peat, and loam in about equal parts, made sandy; they should have an abundant supply of water to their roots, and the atmosphere should be kept charged with moisture. These plants assume a very beautiful appearance when fertile. The frond itself is not contracted; but while that grows as large as the sterile one, the pinnae are all very narrow and covered with brown sori. The chief kinds known to be in cultivation are *P. acuminata*, *P. canaliculata*, *P. caudata*, *P. incisa*, and *P. osmundacea*.

W. HUGH GOWER.

Colysis spectrum.—G. Abbott sends me a specimen of this rare Fern, of which he says a friend has sent him some plants from the Sandwich Islands. I have imported plants of the same Fern several times, but on every occasion they were dead. Once I had the plant in a living state, but I cannot say if the specimen is still in existence. I have been told the plant is not common in its native country. The frond sent measures about 10

inches long and some 3 inches wide. It is the *Polypodium spectrum* of some authors.—W. H. G.

Dictyopteris Camerooniana (*J. McInnis*).—This is the name of the large *Aspidium*-looking Fern you send. It is a fine bold-growing Fern, very *Aspidium*-like, but the veins are less netted, and it is without any indusium—at least, I never could find any upon the plant. It is well worthy a place in any collection, as it makes a handsome specimen. I have found this and one or two others of this genus somewhat subject to the attacks of scale, which should be well looked after when young.—W. H. G.

POTTING FERNS.

MOST kinds, both large and small-growing varieties, will now be throwing up their young fronds. To keep them in good condition should be the aim of the cultivator, whether it be in the case of large quantities or where a few only are grown. This desirable object may be facilitated in various ways, according to the kinds grown. Broadly speaking, Ferns are oftentimes far over-potted from some mistaken view or other of their requirements. I knew two growers of Ferns who used to keep their plants in what some would think a far too restricted condition at the root. Not so, however, for the plants were the picture of health. In one instance particularly the plants were in such small pots, as to necessitate their being stood in pans similar to those used by some who force Strawberries. This was requisite to safeguard them against any oversight in watering. Some might urge that repotting would have been more desirable. That, however, would have meant increased vigour with more room required to grow them than could be conveniently spared under the circumstances. In the other instance the plants were apparently given the best of soil suited to each kind; this, combined with careful potting, had the desired results. These latter were usually in rather larger pots than the former, being more what might be termed half specimens, the plants themselves, the picture of health, being difficult to beat in competition when examples of much larger kinds were pitted against them. These instances are cited to show, as many will no doubt have already gathered, that the over-potting of Ferns is a fallacy. This it truly is, done without doubt I do not for one moment dispute with good intentions, but, all the same, wrong in practice. For a time the plants may thrive well, and all seem to be going on as satisfactorily as one could desire, but the time comes when the soil gets into a sour and inert condition. This is not the result of the Ferns appropriating the nutriment in the soil nearly so much as it is of repeated waterings, which send the best of its properties away through the drainage hole instead of being assimilated by the plants through the roots. When a plant is potted before its proper time, the roots rush away again into the fresh soil a long time before they have withdrawn all the nourishment from their previous shift; this will tend possibly to greater vigour for a time, but decline comes all the sooner through the roots being spread over a greater space, thus not in many cases being able to absorb the properties of the soil whilst it is still in a fit condition. This vigorous growth for a time has to be supported, but when the season of rest (or partially so) comes round, then there is often a perceptible decline. The best plan to adopt with Ferns is to give moderate shifts only, and the better the soil, the better will be the ultimate results. Poor soil, to which some fertiliser has been added, may answer for a time and be an incentive to rapid growth, but when this is exhausted, then the plant quickly becomes impoverished unless it be repeatedly fed by some manurial agency. In the first case to which I alluded the grower used to water his Ferns with weak guano water with the best results. Peruvian guano, when it can be had pure and unadulterated, is still an excellent manure for many pot plants. When Ferns are well potted and in a

firm manner compared with soft-wooded plants in general, using good soil, the growth they make will be much more enduring. Thus treated, they can be watered far more liberally than when the soil is poor or has a tendency to be sour. I have noticed particularly when growing *Gymnogrammas* what an amount of water they will take when the soil is in good condition and, of course, full of roots. In the case of *Adiantums*, it is readily discernible whether the plants are being potted freely or left somewhat pot-bound by the size of the pinnae. For instance, take note of plants of *A. cuneatum*. When grown under what might be termed a generous treatment, that is freely potted, the pinnae will be considerably larger, and, if they are also shaded, of a much deeper green. Such a growth is never of so lasting a character; it has a tendency to damp off if overcrowded, whilst if used in a cut state it will not last nearly so long as well-hardened fronds from plants grown under less congenial conditions. Some Ferns, such as the *Davallias* and *Gleichenias*, for instance, are very shallow rooters, preferring to root near the surface. The creeping rhizomes of these Ferns root as they extend when they come into contact with the soil; hence shallow pans or pots drained at least half way up should be used for these and similar rooting kinds. It is not advisable to be led away with the idea that shifting a stock of Ferns is necessary more than once in a season; young quick-growing seedlings may, it is true, need the second shift, whilst, on the other hand, many Ferns with good management will stand over for two years. Even Tree Ferns when grown on from small plants do not require such frequent repotting. Some Ferns, such, for instance, as the various forms of *Pteris cretica*, *P. serrulata*, and the smaller types of the *Aspleniums*, seem to be peculiarly adapted for cultivation in small pots.

FILICES.

NOTES OF THE WEEK.

Habrothamnus fasciculatus in Cornwall.

—I send a few flowering sprays of the above just to show how well it has stood outdoors during the two last severe winters. It is now in full flower, covering the greater part of the front of my cottage right up to the eaves.—SANGUINEA.

Orchis latifolia.—The difference between the British and Madeira forms of *Orchis latifolia* is very marked indeed, especially in habit. The form from the latter place is three times as tall with proportionately larger and finer flowers. *O. foliosa* from the same habitat is said by many to be only a South European *O. mascula*. Is this true?—K.

Hardy plants from Aberdeen.—Messrs. J. Cocker and Son send us a gathering of hardy flowers consisting mainly of forms of *Trollius* and *Doronicums*. The most interesting plants among those sent are the forms of *Polyanthus*. These include *Polyanthus Jack* in the Green, the ordinary form as well as a variety with white flowers, 'P. Derneloughi, and P. Queen Victoria, double varieties.

Tomato disease in the Canary Islands.—For a considerable time past rumours have been rife concerning a disease which has attacked the Tomato, rendering its produce in many instances quite unfit for exportation. Every endeavour has been made to localise the mischief, but without success, and it is reported that crops in all parts of the Canary Islands are seriously affected, and that growers view the prospect of the approaching season with considerable apprehension.

Primula japonica.—I am sending you some flowering spikes of what I consider a very good strain of *Primula japonica*, which I do not think is nearly so well known as it deserves to be, or it would be more extensively grown, being of the easiest possible culture, growing in almost any soil or situation. But the spot it loves best is by the side of a pond with its toes in the water, where it grows most luxuriantly and reproduces itself from seed by thousands. I believe it is hardy enough to stand the winter in any part of

England if the crowns be covered with Bracken or light litter. Here the plants never get any protection whatever. The flowers sent are from self-sown plants two years old.—SANGUINEA, *Trelissick*.
* * * They look like great stems of water Reeds, so large and succulent are they.—ED.

—The Japan Primrose still holds its own, perhaps as much on account of the little trouble it gives as on account of its great beauty. Now when semi wild gardening is receiving a deal of attention, no better plant can be used than *Primula japonica*. Choose an open situation on rich, stiffish soil, and plant a few; they will very soon take possession, and no more trouble need be anticipated. The plants seed freely, and the only attention required will be to thin them out to 4 inches or 6 inches apart so as to give them space to develop into good strong specimens. Amongst such self-sown seedlings and in the open air there are sure to be a few good varieties, and these may be marked and the seed saved for special sowing. In any moist spot on the rockery *P. japonica* will be found to do well, and as it blooms at a time when crimson coloured flowers are somewhat scarce, it should find a place on every rockery.

Delphinium trolliifolium.—This is one of the best, if not the very best early Larkspur, a native of North America, and perfectly hardy. For its introduction we are indebted to Mr. Thompson, of Ipswich, who has given us so many of these rare and beautiful American plants. This species grows about 3 feet high, the stems strong and not requiring support, and surmounted by large heads of bright rich blue flowers, that at present form one of the features of the rockery. *D. nudicaule* and *D. grandiflorum* fl.-pl., both charming rock plants, are also in flower, and help to give a bright appearance to the rock garden. They are both easily grown, both hardy, and never fail to flower in early summer.

Saxifraga longifolia.—All our large tufts of this are flowering this year. For this we blame the long drought in early spring, as many things that are somewhat shy in ordinary years are now showing plenty of flowers. These tufts are of different ages, some being ten or twelve years old, others only a few. *S. longifolia*, whether in a large or small state, is a most delightful plant. Its rarity makes it even more valuable in the eyes of growers, as in how few collections can really handsome, well-grown tufts of this superb plant be found. It is of course a true alpine, and always does best in the fissures of rocks almost or quite perpendicular, and where the roots can run down to something cool and rich. During the growing season in early spring it stands any amount of water.

Royal Horticultural Society.—The next meeting of the society will be held in the Drill Hall, James Street, Victoria Street, Westminster, on Tuesday, June 7, when the Fruit, Floral, and Orchid Committees will again assemble at 12 o'clock. In the afternoon at 3 a paper on "Summer Pruning and Training of Fruit Trees" will be contributed by Mr. A. Young, of Abberley Hall Gardens, Stourport. Amateurs who grow hardy Rhododendrons and Orchids will on this occasion have an opportunity of competing for the prizes offered in the society's schedule, and a silver-gilt Flora medal is also to be awarded to the raiser (amateur or professional) of the best new seedling Orchid. Intending exhibitors are requested to send particulars of their exhibits to the Superintendent, R. H. S. Gardens, Chiswick, without delay.

Tufted Pansies from Dr. Stuart.—Dr. Stuart, of Chirnside, has sent us a delightful batch of his lovely self-coloured Pansies—delightful even after their long journey. The most charming of all is one called *Sylvia*. It is of a delicate primrose colour with yellow eye, and has no wiry stripes whatever. There is also a pretty seedling from *Violetta* called *Picotee*, which is creamy-white with azure lines to the edge of the flower. There is a good lavender-coloured one called *Lavender*. They are all Pansies of the true tufted race which Dr. Stuart is likely to add many good things to. He is getting back to the effects

of the true alpine Pansies which one sees in early summer waving on the mountains clear above the silvery turf from which they spring, and he will get us their pure and most refined colours with some of the vigour and size of the Pansy.

Meconopsis cambrica is a common weed with us, but withal such a delightful one, that we allow it to roam at will unless when interfering with any delicate alpine that may be near. It is the only perennial *Meconopsis* known to us, and for crumbling walls is a capital companion to *Corydalis lutea*, *Veronica cymbalaria*, and other plants that seem to thrive best in such situations. The Welsh *Meconopsis* forms a dense groundwork of very ornamental foliage, surmounted by a wealth of large yellow Poppy flowers, and at the present time it is certainly one of the most attractive plants on the rockery. It gives us no trouble whatever unless keeping it from other things, and that we find comparatively easy. It may be propagated to any extent by division, or it may be raised by sowing the seeds where the plants are intended to grow on old crumbling walls or parts of the rockery abounding in crevices. It does not require a large soil surface, and indeed does almost anywhere.

The famous Rockwood Lily (*Ranunculus Lyalli*), which is now in full flower in the open rockery at Kew, may well be described as the monarch of the genus. It is certainly the finest of this popular genus in cultivation, and is truly a magnificent hardy plant. Its hardiness is undoubted; indeed, it seems rather to be a question of how to grow it cold enough, and the past two winters so destructive to many supposed hardy plants seem to have suited the Rockwood Lily to a nicety. The plant now in flower is one of the survivors of the 1885 consignment, and is probably the type of the *Botanical Magazine* figure. It is growing in a deep peaty bed sheltered from the north and east, and has been without protection of any kind for over two years. How to get the seed of this charming plant to germinate is the nut we have now to crack; several importations in recent years have entirely failed. These have been subjected to the well-known ingenuity of the English gardener, but in vain so far. It does not appear to have any special requirements, and like many other similar plants seems to do best when let alone.

Strelitzia reginae.—There are several species of *Strelitzia* which, although very rarely seen in gardens, are well worth cultivation. The whole of them are easily grown, and give no trouble in regard to insect pests. The flowers, too, are unsurpassed in the whole range of indoor plants in their striking and brilliant colour contrasts. The oldest species is *S. reginae*, which was introduced from the Cape of Good Hope in 1773. It is occasionally met with in country gardens, but usually in those long established. A large plant now flowering in the temperate house at Kew shows how well the species would repay more general cultivation. The plant itself is of handsome proportions, the large oblong leaves being borne on stout petioles 2 feet to 3 feet high; they are of a glaucous green and of leathery texture. The flowers are produced on a scape a yard high, only one or two flowers being expanded on the scape at once, but a succession of them is maintained for many weeks. The sepals, which are three in number, are 4 inches long, pointed, and of a brilliant orange colour; the two upper ones stand erect at the back of the flower. The petals, on the other hand, are an intense purple, two of them being united and forming a curious halbert-shaped segment. This *Strelitzia* is best grown in a warm greenhouse, the three points in its cultivation that require special attention being abundance of water, little or no shade, and plenty of root room. Other species of *Strelitzia* that deserve to be grown are *S. parvifolia* and *S. ovata*, both similar in general character to *S. reginae*. Of an entirely different type are *S. angusta* and *S. Nicolai*, both species having erect stems which we have seen 20 feet high. They are usually grown for foliage effect, but the flowers of *S. Nicolai* are remarkably handsome; they have on several occasions been sent to the fortnightly meetings of the Royal Horticultural Society from Kew.

STOVE AND GREENHOUSE.

RHYNCHOSPERMUM JASMINOIDES.

This old-fashioned climbing plant is well illustrated in the accompanying cut, showing a popular way of training it. Although it is well suited for growing in this fashion, it does not follow that no other mode of culture is capable of being adopted. For instance, it makes an excellent evergreen climber for an unsightly wall in a cool house, whilst it may very advantageously be trained up a pillar or a column in a conservatory. Again, it is suited to the Rose house as well, bearing a fair amount of forcing and flowering at the same time as the Roses. At Gunnersbury

in the same pot with an occasional top-dressing of good soil. When planted out it should not be allowed too much root space, otherwise there may be a tendency to grow too luxuriantly. A moderate amount of water only is required, sufficient at all times being given to keep its foliage fresh, but not enough to sodden the soil. Any tying in or training should be seen to before it starts into growth in the spring, otherwise its foliage will not become settled in a natural manner for some few months. The insects to which it is most liable are the scale, particularly a mealy-looking kind, and the mealy bug, but no insects ever need give any trouble if the slightest amount of perseverance is exercised to keep them in abeyance. The *Rhynchospermum* is a climbing plant well adapted for amateur and small growers, being

stood outside, the standing ground should be freely damped twice a day round about the plants, and the plants lightly syringed about 4 p.m. Thorough drainage is a very necessary item for these plants at all times, more so at this stage when a greater bulk of fresh soil is added. Let the soil be of a wholesome character, and not over-charged with humus; roughly chopped turfy loam, half-decayed leaves, a sixth part manure very rotten and rubbed through a half-inch sieve, some charcoal nuts, together with a little soot and some well-known fertiliser of lasting properties, will constitute a good and suitable mixture. To four parts loam add one of leaves, 1 peck of charcoal, and a 6-inch potful of soot. Pot firmly, water thoroughly when needful, but with care till the plants have made a good start into the new soil, and see that the plants are placed on a good hard bed of coal ashes. Should heavy rains follow the operation and before the plants are well started into growth, it will be advisable to lay the plants on their sides for a few hours, for nothing is more fatal to the Carnation under pot culture than incessant heavy rains.—E. J.

Zonal Pelargoniums in winter.—A start should now be made by striking a supply of cuttings for this purpose. The rich scarlet of zonal Pelargoniums gives colour that is welcome in any class of plants during the sunless season to brighten up our floral displays. I have found, however, that it is rather a difficult matter to succeed with them near towns where smoke and fog prevail, for not even will extra heat counter-balance these evils. Given a clear country air and a greenhouse that may be kept from 50° to 60° during wet or frosty weather, and little trouble is experienced. I saw in Lincolnshire last November a house filled with a blaze of colour, and looked after by a gentleman during his spare moments. When rooted, the plants may be potted into 5-inch pots and in these may flower, for I think better results will be obtained from comparatively small rather than huge plants. Loam, with a little sand and rotten manure added, will do for them, using an inch or two of broken bones for drainage. Stand the plants during the summer where they may benefit by the full sun, give a plentiful supply of water, and pinch out all flower-buds until the end of September. They should then be put inside, have a position as near as possible to the glass during the flowering time, and although the roots must not be killed by want of water, they are more easily damaged by too much of it. The stages and everything about the leaves must be kept as free as possible from moisture. A selection of varieties is not the least important item, for whilst some sorts either refuse to open or come with a dull colour, others seem specially adapted for winter blooming and come even better and more brilliant than during the summer. Queen of the Whites, Constance, Lady Brooke, Countess of Derby, Lady Rosebery, Charles Mason, Radha, Lord Rosebery, Phœna, Henri Jacoby, Rev. Dr. Morris are good single-flowered kinds; while F. V. Raspail and Swanley Double White among doubles may be relied upon as excellent.—H. S., *Croydon*.

Rudgea macrophylla.—This stove shrub is at all seasons a very striking one, as both the leathery leaves and crowded heads of blossoms are very distinct from anything else in our collections. It forms a stout-growing, sparsely-branched specimen, whose large oblong-shaped leaves are of a very deep green tint. The flowers, which are in conformation something like those of the *Stephanotis* and of the same wax-like character, are borne at the points of the shoots in dense globose heads, and under favourable conditions will remain in beauty a considerable time. This *Rudgea* is a native of Brazil, and was introduced about twenty-five years ago, after which it soon became popular, but of late years it is much less seldom met with than was the case formerly. One objection I have often heard urged against it is that it is very apt to grow up thin and naked towards the base, but to obviate this the plants should be stopped freely when young, and if required, shortened back after flowering. Propagation is effected by means of cuttings, and for this purpose the very strong



Rhynchospermum jasminoides.

Park it is trained as an edging around the borders in which the Roses are planted, being easily kept within bounds. As a cut flower its chief merit lies in its Jasmine-like perfume. It is not one of the best of flowers for cutting, either for home use or for sending any distance when packed, by reason of the tendency of the blossoms to become discoloured. It lasts in bloom for some considerable time, but when in flower it should be shaded from the sun. As soon as the plant is out of bloom, if it be upon a trellis, in a pot or tub, it may be safely stood out of doors until the end of September, receiving an occasional cleansing with the syringe. When potting is needed, it had better be seen to after the flowering stage is over. Good fibrous loam and peat of a durable character will suit it very well, potting firmly. Large shifts are not needed—in fact it will remain in an excellent condition for years

one that does not give much trouble at any time, whilst it will put up with a good amount of rough treatment. Being also a plant of somewhat slow growth, it takes some years for it to become too large for even a small house.

H. A.

Tree Carnations.—The earliest and best plants of these will now be ready, weather permitting, for receiving their final shift into 7-inch or 8-inch pots and placing in the open. Prior to this being done, however, it is of considerable importance that the plants be well-hardened off by leaving the ventilators open day and night should the plants be in houses, but where they are standing in pits and frames, a more thorough hardening process will be at command. In any case it will be well to carefully consider the weather before placing them out, dry harsh winds or scorching sun, or both combined, being very detrimental to them at this stage. Where want of room compels their being

shoots should not be chosen, by far the best cuttings being furnished by the weaker of the young shoots produced by a plant that has been shortened back. If inserted singly into well-drained pots of sandy soil and placed in a close case where there is a gentle bottom-heat they will strike root without any great difficulty, but at the same time will often stand a good while before they root. In the propagation of the *Rudgea*, as indeed of most other subjects, the selection of the cuttings is at least half the battle.—T.

HYDRANGEA PANICULATA GRANDIFLORA.

THOUGH this is one of the limited number of hardy shrubs that bloom naturally in the open ground during the latter part of the summer or early in the autumn, it may by gentle forcing be had in flower from May onwards. This fact, combined with the showy character of the flowers, has rendered it very popular with the market grower, and splendid examples are often to be seen in large quantities at Covent Garden, while it was also well represented at the Temple show. Considerable numbers of it are grown in this country, and very large quantities are imported, principally from Holland and some of the low-lying districts of Belgium, during the winter months. They are usually sent just as lifted from the open ground, each plant consisting of several strong shoots about 3 feet to 4 feet long, every one of which is terminated by a head of bloom. If undisturbed these flower clusters often remain on the plant till winter is well advanced. These long cane-like shoots are so clean and well ripened that it almost seems a pity to cut them away, and if done in a half-hearted fashion the plants will, when flowered under glass, become very bare at the base. In potting up plants for blooming, these shoots should be cut back to within two or three buds at the base, for so treated they will not only produce larger heads of bloom, but will also flower in a dwarfer state. The soil employed for potting should be of a fairly holding nature, especially if the plants are to be limited to the pots 5 inches in diameter or thereabouts that are used by the market growers. As a good sized plant with two, three, or more heads of bloom requires a considerable amount of stimulant for its full development, liquid manure will need to be used pretty freely, but at the same time in not too strong a state, otherwise the leaves are apt to suffer. They are thin in texture, and turn yellow quickly if the roots are allowed to get too dry, and also from the effects of extra strong stimulants, but above all if red spider is allowed to effect a lodgment thereon. To prevent this last, the atmosphere must not be kept too close and dry, but a free circulation of air allowed, as in this way not only is the foliage much better, but the plants are dwarfer, and consequently more useful for general decorative purposes. While the market grower (in common with the practice usually followed by him in the case of most forced subjects) obtains fresh plants every year, this *Hydrangea* may, if needed, be kept in pots and flowered well for several seasons. Showy as it is and valuable to the decorator when flowered under glass, there can, I think, be no doubt that the *Hydrangea* in question is seen at its best in the open ground when in the form of a mass or clump. An illustration of it so treated from Sir H. Maxwell's garden at Monreith, Wigtonshire, appeared in Vol. XXXVII. of THE GARDEN (p. 455), and its great beauty when well grown was there strikingly displayed. While plants that bloom under glass have the flowers of a uniform creamy-white tint, those in the open ground after they have been some time expanded become suffused with a rosy hue, and in this stage are very pretty. The flowers of this are often borne till checked by the frost in autumn. In the case of the illustrated specimens that yielded such satisfactory results, they were cut back and layered every spring, and at the same time received a liberal dressing of farmyard manure. *Hydrangea paniculata grandiflora* is one of those plants that, beautiful and useful as it is, was introduced into cultivation in a

very quiet kind of manner, probably without any idea that it would turn out to be so valuable. The date of its introduction into this country from Japan is 1866, and I believe it reached here by way of the Botanic Garden, St. Petersburg. The pretty Pea-flowered *Desmodium penduliflorum* also came about the same time and in the same manner. It is easily increased by cuttings of the young growing shoots put in at any time during the season, and if kept in a close frame they quickly root. A valuable feature of this *Hydrangea* is its thorough hardiness, as it is never in the least injured by even our most severe winters. The typical *H. paniculata*, though really an ornamental shrub, is still far behind its better-known variety. *H. paniculata* itself is a more regular growing bush than the other; the foliage is of a deeper green, while the flower-heads are considerably smaller. T.

Mitraria coccinea.—This is an extremely pretty little Fuchsia-like shrub that under favourable conditions flowers most profusely towards midsummer. It forms a dense growing bush, usually of a dwarf habit, but occasionally will produce a few strong shoots that show somewhat of a rambling tendency. The leaves are small and of a bright green tint, while the flowers, which droop after the manner of those of a Fuchsia, are of a tubular shape, about 1½ inches long, and bright scarlet in colour. This plant is a native of the island of Chiloe, off the mainland of Chili, where a considerable amount of rain falls during the year, so that plenty of moisture is necessary to its well-doing. It is hardy in the more favoured districts of England, and at all events needs only the protection of a greenhouse. Cuttings of the young growing shoots strike root very readily if taken in the spring and treated as the general run of soft-wooded plants. In selecting a spot for this *Mitraria*, the fact that it is a lover of moisture should be borne in mind, as where too dry the foliage acquires a sickly hue, and is liable to be attacked by red spider. Where there is a planted-out fernery from which frost is just excluded during the winter, a place may often be found for this *Mitraria* which will be just at home under conditions such as these. There are a few other plants from the same region to which these latter remarks will apply with equal force, among which may be mentioned *Philisia buxifolia*, *Luzuriaga radicans*, and that little gem, *Sarmienta repens*.—H. P.

Campanula pyramidalis.—Mr. Turton grows this fine Bellflower remarkably well at Maiden Erlegh; indeed I have rarely seen finer clumps anywhere than he now has in 9-inch and 10-inch pots, each having from seven to ten stems and now about 2 feet in height. These will be indeed fine specimens presently. Seed is usually sown in the month of May, and the plants are left in the seed boxes all the season until the following spring, when being then very hardy and well rooted, they are planted out into a kitchen garden border for the summer, where they make fine crowns. They are then potted up in the autumn, housed in a frame and placed outdoors later to develop stout flower-spikes, then taken into a lofty greenhouse to bloom. Thus specimens of exceptional size and beauty are obtained. But for the long season and the planting out, the bulk of the plants would have but one or two flower-spikes only.—D.

Bouvardias in the open air in summer.—On page 472 the fact that *Bouvardias* will make grand specimens when planted in the open ground during the summer months is well pointed out, and besides this, where cut flowers are in demand, they are often very useful even in the summer. Where plants have flowered during the winter and have been probably employed for propagating from in the spring they may be hardened off, and when the season is sufficiently advanced planted out in any reserve spot. If the ground is well dug and some leaf mould incorporated with it the plants will soon become established, and even a small bed will yield a considerable number of cut blooms during the season. Of course the plants must not be allowed to suffer from want of water, while an

overhead sprinkling in the evening is, if the weather is hot and dry, of great service. One of the most free-flowering varieties under conditions such as these is *B. Humboldti corymbiflora*, whose pure white, sweet-scented blossoms are often borne in considerable numbers. Should the weather be wet and rough, they are, however, quickly injured, but the bright-coloured blooms retain their freshness pretty well even then. One of the typical species, *B. triphylla*, with its glowing blossoms, the bright-coloured President Cleveland, and that old variety, Hogarth, are as a rule very satisfactory when treated in this manner. Some of the pinks and whites also bloom well, but in an exposed spot the white blooms of the *Vreelandi* type are apt to be slightly suffused with pink. Still, for button-holes, sprays, bouquets, and similar purposes, flowers such as *Bouvardias* are, winter and summer alike, very useful.—H. P.

Gloxinias planted out.—I do not think I have anywhere else seen *Gloxinias* planted out in frames on an old manure bed, as they may now be seen at Maiden Erlegh. Mr. Turton adopted this plan last year with such success, that he has again planted out a quantity of stout roots in frames about 12 inches apart and they are probably now blooming. So treated, *Gloxinias* bloom all the summer and late into the autumn, giving a wondrous crop of flowers. These are now so much in request for table and vase decoration, that the present method of frame culture is found to be far more satisfactory than is pot culture, especially that as these plants are grown in greenhouses as a rule, the gathering of flowers freely so much robs them of their beauty, that they can ill be spared. *Gloxinias* are so easily raised from seed, that any gardener who has ordinary accommodation can always have an abundance of plants of diverse ages.—D.

TREES AND SHRUBS.

THE AMERICAN HAWTHORNS.

OUR American forests are rich in Hawthorns, nearly one-third of the forty species which are now known being found within the territory of the United States. They are scattered from Newfoundland to Vancouver Island and to Florida and Texas, and every state and territory, with the exception of Arizona, contains its representative of the genus. They are more common, however, in the east than in the west, and in the number of species and individuals the south is richer than the north. They abound in the country between the Red River and the Trinity, which must be considered the headquarters of the genus, as more species occur there than in any other region of similar extent, while individuals of several species grow in greater abundance and luxuriance there than in any other part of the country. The American Hawthorns have long puzzled students of trees, and botanists have regarded them as difficult subjects. But it is the botanists themselves rather than the peculiarities of these trees which have made them hard to understand, and the chief difficulties in elucidating the different species are literary and not morphological. For many of the species having been early introduced into the gardens of Europe, there developed under cultivation, numerous more or less distinct forms which were described as species, and often as genera, different names being sometimes given to the same cultivated form. This making of species went on for a century in nearly every country of Europe, while in America botanists were hardly less active in burying these unfortunate plants under a load of almost inextricable synonyms. It is, nevertheless, possible to obtain a correct idea of the species if the student will remember that two Hawthorn plants raised from seeds taken from the same tree may be and pro-

bably will look very unlike one another and their parent; that individuals of most of the species vary in the form of the leaves, in the amount and character of the hairs which cover them, in the presence and absence and in the size and character of the glands which are often found on their leaves and calyx lobes, in the size and shape of the stipules, which vary on different parts of the same individual, in the number of styles and of the nutlets in the fruit, which is sometimes round and sometimes Pear-shaped, and red or yellow in the same species. The student of trees must remember, too, that climate and environment modify individuals, and that when a species has a north and south range of 2000 miles, an individual at the north may look very different from one which has grown in the extreme south. If all these facts are remembered, a patient observer able to keep his mind clear of the pitfalls in synonymy dug by Moench and Willdenow, by Aiton and Du Mont de Courset, and by Roemer, Wenzig, and Kalcinzenko, and with abundant opportunities for studying in their native forests the different species in all parts of the territory which they inhabit may be able at the end of twenty years, perhaps, to recognise the different species and find characters for separating them, although botanists will probably never agree whether certain forms shall be called species or varieties. The American Hawthorns fall naturally into two groups; the first contains those species which produce large many-flowered compound corymbs, and the second those species with simple few-flowered corymbs. The species of the first of these principal divisions may be divided into three groups; the first with black or blue fruit, the second with large scarlet or yellow fruit, and the third with minute scarlet fruit, while the species of the second of the principal divisions fall naturally into two groups, the first with red or greenish yellow fruit, and the second with large globose red fruit. These divisions being established, there is nothing better than the shape of the leaves, in these plants a variable and therefore unsatisfactory character, by which to distinguish the species. It is not our purpose to describe here all the American Hawthorns in detail, but rather to call attention to the value of the genus as a good subject for study, promising our readers that they will find in it much interest and excellent opportunities for intellectual development, and to remind cultivators that some of the species are beautiful and desirable garden plants still too little known or appreciated in their native land.

From a gardener's standpoint the most desirable of our Hawthorns is

CRATEGUS CRUS-GALLI (the Cockspur Thorn), perhaps better known than any of the other species. Its hardiness, the beauty of its lustrous foliage, the lateness of its flowering time, all recommend it. The head of this tree, which is sometimes round, with pendulous branches, and sometimes flat-topped, with spreading horizontal branches, is always handsome and interesting. The autumn colour of the leaves is not surpassed by that of any of the species, and the abundant fruit hangs on the branches without changing colour throughout the winter. The Cockspur Thorn is little subject to fungoid diseases, which disfigure many Hawthorns, and it is usually long-lived in cultivation. The long thorns which arm its rigid branches make it a good hedge plant, and early in this century it was much used for this purpose in some of the Eastern States. In the form of its leaves the Cockspur Thorn is one of the most variable of our species, and in addition to the varieties which are found growing wild in different parts

of the country others have appeared in European gardens, where this species has been cultivated for nearly two centuries, and where it is now more often seen than any other American Hawthorn. Of the broad-corymbed large-fruited species the

WHITE THORN is, next to the Cockspur, the best garden plant. This tree has been considered a variety of the Scarlet Thorn and also as a species. Perhaps the latter view is the most sensible, as the two plants differ in size and habit, in the size of their flowers and the time of their appearance, in the size of the fruit and the length of time this remains on the branches, as well as in the pubescence which covers the under surface of the leaves and the young branchlets. *Cratægus mollis* is the name the White Thorn must bear if it is considered worthy of specific distinction. It is the largest of the Hawthorns of the Northern States, and one of the most widely distributed of the American species, growing from the shores of Massachusetts Bay to Missouri and through Arkansas to Texas and the mountains of Northern Mexico. It is one of the common species in the States west of the Mississippi River, growing to its greatest size in Texas. In cultivation the White Thorn is a beautiful plant, of rapid growth and good habit, conspicuous in winter for the whiteness of its branches and for the number of its large chestnut-brown shining spires. The flowers, with the exception of those of one species of the Southern States, are the largest produced by any member of the genus. The leaves are large and of a lively green, and the fruit, which is as large as that of a small Crab Apple, is brilliant scarlet with a conspicuous bloom; unfortunately, it falls as soon as it ripens.

THE WASHINGTON THORN of the small-fruited species is the best known in gardens; it is the *Cratægus cordata* of botanists, an inhabitant of the Southern Appalachian region, and rather a rare plant in its native wilds. It is, however, better known in gardens than any of the other species of the Southern States, and its vernacular name is due to the fact that early in the century it was introduced into Eastern Pennsylvania as a hedge plant from the neighbourhood of the city of Washington. It is a handsome small tree with an oblong round top, bright triangular leaves brilliant in autumn, and small flowers which open later than those of any of the other species, and bright scarlet fruit the size of peas, which hang on the branches until the leaves appear the following spring. The Washington Thorn is free from serious fungoid diseases and is always a satisfactory tree in cultivation. Fifty years ago it was more often planted than it is at present. An interesting garden plant also is

CRATEGUS DOUGLASI, the only representative of the genus in the coast region of the north-west and in California. In the warm climate of Washington and Oregon this tree often attains the height of 40 feet and forms a trunk a foot and a half in diameter. The leaves are large and lustrous, the flowers are small but very abundant, and the fruit, which is black, falls in early autumn as soon as it ripens. It is one of the few trees of Western America which are absolutely hardy and satisfactory on the eastern edge of the continent, where it thrives as far north as Nova Scotia.

Some of the most beautiful of our Hawthorns were once cultivated, but have long been lost from gardens, and a few have never been cultivated at all.

CRATEGUS FLAVA, a native of the maritime regions of the South Atlantic and Gulf States,

where it grows in the arid sandy soil of the Pine Barrens, was first described a century ago from plants cultivated in England at that time and the source of endless confusion in the literature of the genus, probably long ago disappeared from gardens, although the name still appears in most garden lists. It is a beautiful small tree, with a narrow round-topped head of graceful, pendulous branches, large flowers in two or three-flowered corymbs and Pear-shaped greenish yellow fruit.

THE PARSLEY HAW, another inhabitant of the Southern States, and beautiful from the shape of its finely-divided leaves, was once cultivated in English gardens, from which it has, however, long ago disappeared. But the most beautiful of the southern Hawthorns are still unknown in gardens; these are the *Pomette Bleue* of the Acadians of Louisiana, and the *Summer Haw* of South Carolina and the Gulf States. The first of these,

CRATEGUS BRACHYACANTHA, although it is one of the largest and most distinct of the whole genus, strangely escaped the knowledge of botanists until very recently, although it was collected long ago without flowers and fruit. It is the most local of all our species, growing only in the extreme western part of Louisiana, where it borders in broad groves, small low prairies, and in the adjacent portions of Texas. It is perhaps the largest of the genus, sometimes rising to the height of 50 feet, with a tall straight trunk and slender branches, which form a beautiful compact round head. The leaves are not large, but they are bright and shining, and the flowers, which are comparatively small, are produced in many-flowered clusters, which completely cover the branches. The fruit is large, abundant and bright blue—a colour otherwise unknown in the fruit of *Cratægus*. Unfortunately, it falls in early autumn. There is not a more beautiful small tree in the Southern States than this, and it is to be hoped that the attempts made a few years ago by the authorities of the Arnold Arboretum to introduce it into the temperate countries of Europe will prove successful. In the arboretum itself the seedling plants have not proved hardy. That no recorded attempt has been made to cultivate

CRATEGUS ÆSTIVALIS, the May Haw, and that no figure of this beautiful plant has ever been published, are remarkable facts, although botanists have known of its existence for more than a century. Unlike our other Hawthorns, it flowers before the leaves appear, in February or March; the flowers are larger than those of any other species, and the fruit is larger and of better flavour and quality than that produced by any other *Cratægus*. It is as large as a medium-sized Crab Apple, bright red with pale spots, and ripens in May. Pomologists might well devote some attention to this tree, for excellent jellies can be made from the fruit, which is gathered in large quantities for this purpose and is sometimes sold in the markets of the towns of Western Louisiana, where this tree is most abundant and best known.

We have only briefly mentioned a few of the species which seem best deserving the attention of gardeners, although among the others are several handsome plants which are hardly known to the cultivators of this generation.—*Garden and Forest*.

Holly blossoms.—I do not suppose there is any district in England where Hollies abound as they do here or grow with such freedom, as they are all about the hedgerows in fields and woods. Many may be seen ranging from 50 feet to 70 feet high, and when in berry they are grand objects and highly ornamental during the winter. Fine as

they generally are in other years, they will, judging from present appearances, be even more so this, as every branch and twig are literally crowded with blossoms, and as the weather is so warm and favourable they cannot fail to set, which work the bees are helping in, as they visit the flowers freely to extract some of the nectar they contain, and, therefore, in doing this they disperse the pollen.—J. SHEPARD, *Woodsstone Park*.

ORCHIDS.

LITTLE-KNOWN DENDROBES.

A VERY good coloured form of *Dendrobium Lowi* staged in the fine collection of Sir Trevor Lawrence at the Temple show of the Royal Horticultural Society put me in mind of a few others which ought to be seen more frequently in our collections. *Dendrobium Lowi* was found by Hugh Low in Borneo about thirty years ago. It belongs to the nigro-hirsute section, which has been considered difficult to manage. Many of these plants have quite recently been found to thrive well under cool treatment, and I have little doubt but that this plant would thrive also well if given cooler treatment than is usually accorded it. It is a slender-growing plant, its stems ranging from 9 inches to 1 foot and 15 inches in height, the upper part being leafy. From the joints opposite these leaves the flowers are produced in clusters of from three to six, each flower being about $1\frac{1}{2}$ inches across, the sepals and petals rich soft yellow. The lip is large and spreading, of the same colour as the petals. This plant was figured in the *Botanical Magazine*, t. 5303, and I am glad to see such a fine-coloured variety in cultivation at Burford Lodge. *D. amboinense*, a remarkable species sent to Messrs. Rollisson by their then collector Henshall, flowered at Tooting in 1856. It has slender stem-like pseudo-bulbs, which become somewhat angular above, growing from 1 foot to 18 inches in length. It produces its flowers in pairs from the upper joints; these have the sepals and petals nearly equal, creamy white on the back, pure white in front; lip small, the middle lobe very narrow, tapering to a point, yellow, with a dark brownish purple marginal line dotted near the disc with orange. *D. taurinum* is another noble and remarkable plant which was sent to the Messrs. Loddiges, of Hackney, and who first flowered it fifty years ago. I have not seen the species in flower for some twenty years. The plants, which attain to 6 feet and 9 feet or more in height, bear long many-flowered racemes. The sepals are white, stained with green, and the long twisted petals are brownish purple; lip large, soft rosy purple, with deeper lines. This plant comes from the Philippine Islands, where it is found on Mangrove trees within the reach of salt water. *D. Macfarlanei*, a very rare species, introduced some ten years ago by the Messrs. Veitch, of Chelsea, is of dwarf growth, and produces nine to twelve flowers on a raceme; flowers very large, 4 inches or more across; the sepals and petals are white, the latter much the broader; lip three lobed, the side lobes short, white, stained with purple, the middle lobe large and flat, white in front, becoming purple towards the base. This is another plant we have to look for from New Guinea, and which should not require any different treatment to *D. Phalenopsis*, *D. superbiens*, and many others. *D. stratiotes* was introduced by M. Linden from the Sunda Isles, and is akin to *D. taurinum*, but it is not so strong in growth. The finest variety I have yet seen is in the collection of Mr. Sherwood, at

Streatham Hill. It, like all these plants, requires a strong heat and moist atmosphere for its well-being; its flowers are large and beautiful, the sepals ivory-white, slightly reflexed, petals much narrower and longer, erect, spirally twisted, ivory-white, tinged with yellow; lip white, streaked with carmine. This fine plant seems to be very scarce. *D. Treacherianum* was introduced about ten years ago from Borneo by Messrs. Low, of Clapton. It was flowered by Mr. W. Brymer, of Dorchester, and was figured in the "Orchid Album," t. 288. This with something of the habit of a *Sarcopodium* bears some four or five flowers on a scape; the sepals and petals are white, stained with pale purple, the lip deep port-wine colour. *D. cruentum* is another very distinct species, being remarkable for the colour of its flowers, which are creamy white with streaks of bright green running throughout; the three-lobed lip is bright crimson in the lateral lobes, whilst the front lobe has a border of the same bright colour. This plant was introduced some eight or nine years ago by Mr. Sander, of St. Albans. The above are a few species which are not common in collections, but which deserve extended cultivation. WILLIAM HUGH GOWER.

Odontoglossum cristatum (F. M. B.).—The flowers you send are of a very good form of the species named above. Why it is not more grown I cannot say. It is very pretty. Thanks for sending me *Mastovallia* flowers a second time. It is a very good form of *Harryana*.—W. H. G.

Miltonia Endresi (G. White).—This is the plant of which a great deal was written under the name of *Odontoglossum Warscewiczii* when found by the traveller after whom it was named over forty years ago. I have no doubt it was a very fine plant, but since its discovery *Odontoglossum* (*Miltonia*) *vexillarium* was found and brought in quantity to the gardens of Europe. In the meantime Warscewicz had himself discovered a plant that has been named after him and which was sent by O'Reilly to Mr. Williams in 1867. This was known for a long time in our gardens as *Oncidium Weltoni*. The flower you send is very pretty and, I believe, scarce, but it cannot be compared with that of *Miltonia vexillaria* or that of *M. Roezli*. The plant was first introduced in a living state by the Messrs. Veitch and Sons, of Chelsea, and it first flowered in their establishment.—W. H. G.

Lælia majalis.—Judging by the greater frequency with which this beautiful Orchid is now seen in flower, it would appear that its cultivation is becoming better understood. So far as growing it is concerned, it is as easily dealt with as any *Lælia*, but in the matter of flowering most growers have a different tale to tell. It is, indeed, regarded as one of the shyest-blooming of the *Lælias*. That this is more a matter of light or its deficiency than anything else is, I think, proved by the large number of plants which flowered in the May of 1888 from growths that had been perfected under the brilliant sunshine of the preceding summer. The species is a native of Mexico, so that it is simply a marked instance of the light-loving propensities which most Orchids from that country show. Its pseudo-bulbs are ovoid, of a pale green, and bear one or two leaves. The flowers are usually about 6 inches across, although sometimes over 7 inches; two of them are on rare occasions borne on the scape, but I have never seen more than one. The sepals are of a lovely lilac-rose, the petals being the same in colour, but twice as large. The lip is of great size and forms a very showy feature; the ground is of a more or less deep rose, sometimes almost white, but the central lobe is brightened by a broad margin of rich purple and by spots of the same colour. Both in this country and in Mexico it flowers in May. It may be grown on a block of teak, packing Sphagnum and peat about the roots. After the flowers are past it should be suspended in the warmest part of the Cattleya house and kept exceedingly moist. It will then complete its growth by August,

and after a short time in a cooler house, it may be placed for a few weeks out of doors in full sunshine. This treatment I have found most conducive to its flowering regularly.—B.

Orchids at Elmstead.—On a recent visit to Elmstead, the residence of Mr. Thos. Gabriel, in the Leigham Court Road, Streatham, I noted a grand lot of Cattleyas, fine forms of *Mendeli*, *Mossiae*, and *Skinneri* mixed with excellent forms of *Lælia purpurata*, *L. grandis*, and its variety *L. grandis tenebrosa*. *Cypripediums* are grown here, too, *C. barbatum nigrum* carrying between forty and fifty flowers. A good form of *C. Lawrenceanum* had numerous blooms; *C. Curtisi* is another great beauty; a very fine strong plant which looks like *C. philippinense*, better known perhaps as *C. laevigatum*, Mr. Guyett complains has never flowered with him. This, which was first found by Mr. John Gould Veitch growing with *Vanda Batemanni*, requires a deal of heat and moisture. Another plant flowering well and in good variety was the old-fashioned *Cologne speciosa*. It is usually single-flowered, or by chance two flowers are developed. If they were produced upon a long raceme, like *C. cristata*, it would be the king of the genus. This plant was named by Blume *Chalananthera speciosa*, but the name now is never heard. It comes from Mount Sulak, in Java, at considerable elevations. A very good form of *Dendrobium aggregatum majus* was in bloom. The beautiful Burmese *Aerides crassifolium* and *Aerides Sanderianum* were coming into bloom. In the cool house are some nice forms of *Odontoglossum vexillarium*, *Anguloa Clowesi*, and a fine form of *Odontoglossum nebulosum*. These, together with some smaller plants of *O. crispum*, *O. Pescatorei*, and a few others, make up a good show for a London garden.—W. H. G.

FLOWER GARDEN.

HITHERBURY, GUILDFORD.

CLOSE by the ancient and delightfully situated town of Guildford stands the residence of Mr. H. Selve-Leonard, whose garden is entirely devoted to the culture of hardy herbaceous and alpine plants. Mr. Leonard's garden faces east, and runs down to a public road which separates it from the Milmead hardy plant nursery, so that what one sees in dozens in the one may be seen in hundreds in the other. As may be gathered from the above, the garden has the aspect which is best suited for alpine plants, and the bank on the summit of which the house stands is so steep, that it is necessary to have two or three terraces, and both on the declivities and on the level surfaces of these the plants are to be found luxuriating. There is one disadvantage in this position, that the garden cannot be seen from the house; you have to go to the bottom of the slope and look up to see its beauties. Let it not be supposed that Mr. Leonard's garden is a mass of rocks and stones placed artificially and without any regard to effect. On the contrary, it is essentially a picturesque garden, proving clearly that the rarest alpine plants may be grown without all the appliances of shelter which, however carefully arranged, do unquestionably mar the appearance of a garden whatever may be its floral treasures. In the construction of his garden Mr. Leonard did not alter, but only modified its character. He did not build up an elaborate rock garden; the stones used are mostly placed on or near the surface, and as the ground suited itself to this, it has been done at comparatively little expense. In the same way the natural soil of the garden has been used, an ordinary loam, and as Guildford is in the very heart of the chalk formation, there is a good deal of it about the place, but on many things that are said not to like lime this

seems to have no effect. On talking over these matters with Mr. Leonard I expressed the opinion that many plants, perhaps more than we imagine, have the power of adapting themselves to different circumstances and will thrive quite as well, although there are some cases to the contrary. Rhododendrons, Kalmias, and such like things (American plants as they are called) cannot be induced to accommodate themselves to lime; although one of the most picturesque and flourishing gardens I know of this kind—Saltwood Rectory, Hythe—is situated in a valley in the very midst of the chalk, but of which there is none in the garden itself. One of the most auspicious examples of accommodation seen here is that of the great Pyrenean Saxifrage, *Saxifraga longifolia* vera, the queen of Saxifrages, as it has well been called. In Mr. Leonard's garden and in the nursery adjoining it are some 500 or 600 of these beautiful plants so flourishing, that they have grown to 15 inches or 18 inches in diameter. In its native habitat, the higher Pyrenean Alps, it is found on the face and in the chinks of the rocks, and so we have also been advised to plant it in a slanting direction or some such position, but here I saw a whole bed of it on the level planted out as one might plant bedding Geraniums, and all seemed to flourish. These plants, all collected on the Pyrenees, were sent home about eighteen months ago and are now in grand condition. Mr. Leonard is himself a zealous and ardent collector, and each year finds him in some mountain district—Switzerland, Pyrenees, or Tyrol, his most favourite haunt being the Dolomite range in the Austrian Tyrol. This no doubt gives an additional interest to his collection, and I remember one of the reasons my friend Mr. Hammond, of St. Albans, gave for his having lost his keenness for alpine plants was that he was no longer able to collect them himself as he used to do. Mr. Leonard, however, is not satisfied with what he himself gathers, but from various sources—foreign and home—is continually adding to his already large collection. Thus the day that I was there, there arrived a boxful of the choicest alpine rarities from Otto Froebel, Zurich, and although he did not do as my friend Dean Hole once represented himself as doing, capering about on the top of a basket of Roses he received from Charles Turner, yet I could see that there was quiet satisfaction as plant after plant was unwrapped. I have already alluded to the character of his garden, but I may add that he is contemplating an alpine house in which the plants are to be placed free from the vicissitudes of an English winter. I do not think that my idea quite falls in with that of Mr. Leonard, for I should prefer a rockery being made and the dwarfest alpine plants being placed in it, and so built that the lights could be all taken off during the summer months; whereas I believe his intention is to place them in pans and to cover them over, so as to hide the pan itself with either earth, Moss, or some of the mossy Saxifrages.

Among those that I noted in bloom, *Arnebia echioides* (the Prophet's Flower) had evidently suffered from the prolonged cold of last summer, a result which I had seen in my own garden. The various species and varieties of Rock Roses (*Cistus*) have shared the same fate, and where not actually killed have been sorely crippled. The large and varied collection of Primulas was pretty well over. *Primula rosea* was still showing its bright colour. *Gentiana verna* was flourishing in various positions, and although in its native habitats it prefers a calcareous soil, it is one of those plants which will

in some cases at least adapt itself to other soils. In the same way *Trillium grandiflorum*, which loves the damp shady woods of N. America, here flourishes well in a sunny and exposed position. Of the Androsaces, *carnea* and the variety *eximia* from Mont d'Or were both doing well. The same may be said of *lanuginosa*, though from having been protected during the winter months its woolly foliage has been preserved. Of the Anemones there was an extensive collection, of which *memorosa flore-pleno*, *Robinsoniana*, *ranunculoides* (the yellow Wood Anemone), *vernalis*, and *trifoliata* were still finely in flower. *Doronicum austriacum* and the still better Harper Crewe variety were conspicuous all over the garden by their bright yellow blossoms. Many of the *Epimediums* were in good condition, while *Erica carnea* and *E. c. alba* were great masses of bloom. *Gentiana verna*, as I have already said, was brilliant in various places in the garden. Here, too, was a *Fritillaria* which I have never seen before—*recurva*. *Mertensia virginica*, a plant which is not so often seen as it ought to be, is remarkable for its fine foliage and brilliant blue flowers. *Myosotis Rechsteineri* is a very neat alpine species, but the great difficulty with this is that cultivation often deprives it of its

will be made to Guildford and the neighbourhood. DELTA.

ENGLISH IRISES.

COMING so closely after Dr. Foster's admirable lecture on bulbous Irises at the Drill Hall, this appears a by no means unseasonable time to introduce the annexed cut, and say a few words about these ever-welcome spring flowers. Few flowers in the early spring are so welcome, so beautiful, or so delightfully fragrant as the reticulated Iris and its varieties, and although it is with the greatest difficulty kept alive even, in some districts so strong has the love for this beauty grown, that people who cannot grow it out of doors manage to have a few pots for the conservatory, and for such a purpose it has few equals. The old idea of cultivating these bulbous Irises as we do Squills and Meadow Saffrons has long since exploded. They require frequent lifting, and the better they are stored and drier the greater will be the success. Our summers are too cold and wet to leave such bulbs in the ground, and covering over with glass frames is not nearly so effective as lifting. Another practice which tells against their successful culture is early planting; these bulbs

should never be planted before late autumn or even mid-winter. In the first place, they have a better chance of being thoroughly dried, and in the second place, little or no leaf growth is made to be destroyed by the severe frosts in winter.

They should be encouraged, however, to make root growth, and this will be greatly facilitated by a covering of leaves or loose Pine branches in hard, frosty weather. This applies more or less



Group of English Irises.

dwarf character. Of the Phloxes, many were in good flower, especially *amoena*; *setacea atro-purpurea* was a sheet of bloom. Of Primulas, especially the alpine varieties, there is a very choice collection. Many of these were over, but some few were still in bloom, including such varieties as *Balfouri* (hybrid), *Clusiana*, *marginata*, &c. Of the Saxifrages and their allies, the Sedums and Sempervivums, there is a very complete collection. I have already alluded to the grand plants of *longifolia vera*. Besides these, there are large clumps of *atro-purpurea*, very pretty and bright; *Boydii*, a very beautiful hybrid; *paradoxa*, very beautiful and somewhat scarce; *tombeanensis*, a bright and rare variety; *oppositifolia*, with its varieties *superba* and *alba*; *Burseriana*, also, although out of flower, was agreeable by its foliage. I need scarcely add that Mr. Leonard has a vast store of knowledge relating to his favourites, and many an anecdote to tell of his journeys in endeavouring to procure them. Although I have only alluded to the alpine for which this is the most favourable season, the garden is equally rich in perennial herbaceous plants, and will be a blaze of colour later on. I am not without hopes that I shall have an opportunity of seeing it at the end of July, as it is most probable that the summer excursion of the Horticultural Club

to all the bulbous species, and even in the case of the English and Spanish races of bulbous Irises I have seen many fine beds and groups destroyed by frosts, the result of too early planting. Too early planting causes the foliage of the Spanish Iris to brown and wither at flowering time, and this may be to a great extent avoided by planting in the latter end of September or October instead of in August. Both the Spanish and English Irises are more largely grown in gardens than any of the other species, and the perfection reached by raisers of these new varieties in the marvellous colours and markings, and the curious blends and blotchings entitles them to a first place amongst hardy bulbs. They are not only more easily grown, but they are less subject to disease than, for instance, the forms of *I. reticulata*, which simply refuse to grow at all in some localities, and although this disease may be somewhat retarded by lifting and careful storing, it is very difficult to eradicate, and in wet seasons carries the bulbs off by the thousand. The English Irises are more robust and withstand the rigours of an English winter and wet summer much better than the others. The name English Iris seems to have been applied to *I. xiphioides* in the very early days of bulb culture. It is a native of the Pyrenees, with a very limited distribution, and it appears that

the bulbs were introduced from there to Bristol and thence to Holland, where it was called English Iris. It is a most charming summer bulb; the intense blues, the pure whites and the various markings and blotchings of the flowers are extremely effective in groups and never fail to attract attention. There is a curious form called Thunderbolt of a dusky dull colour, which seems to have been well known to Parkinson in the old days. It is said to be a hybrid between the English Iris and *I. filifolia*, but of this nothing very definite is known. It rarely seeds in cultivation, and is grown chiefly out of curiosity. *I. Xiphion* (the Spanish Iris), from Spain, Portugal and Algiers, is one of the finest and most variable types of bulbous Irises. It includes all the colours of the rainbow, some of the varieties being very remarkable from the curious blendings of these peculiar shades. They may all be obtained readily of any bulb merchant for a few pence, and in a few years large groups may be had, so quickly are they increased from offsets. They may also be raised from seeds. K.

VIOLETS FOR WINTER FLOWERING.

THREE successful growers have given us their methods of cultivation on p. 435. The first, "T. J. T.," from South Wales, recommends a mild bottom-heat for double Violets. The second, who furnishes no address, goes in for a cool bottom and taking off the lights when the thermometer rises above 35°—very cool treatment for the double Violet Marie Louise, the only blue Violet grown by the writer "E. M." This writer also advocates the early removal of the plants into the frames, that is, in the middle of September. I consider that one great mistake of Violet growers for the winter arises from not lifting the plants and placing them under glass early enough in the autumn. Has "E. M." noted the effect of a low temperature in preventing the full odour of Violets, or in emptying the Violets of their fragrance? If not, I would respectfully invite his attention and that of other Violet growers to this very important practical question. What temperature is best for the filling of such Violets as Comte de Brazza, Neapolitan and Marie Louise to overflowing with their inimitable fragrance?

The last writer, "C. W.," grows chiefly three sorts also for frames, and is also a strong advocate for cool treatment, though possibly not carrying this to the same extent as "E. M.," as he is careful to choose the sunniest position, where the maximum of sun can reach the winter-flowering Violets in cold frames. This writer adds, "It is an advantage to raise the frames considerably above the surrounding level on account of the lighter and drier position," but it matters little what they are raised upon so long as they are properly drained and the plants have a good rooting medium and are not set on a manure-heap. This last proviso is very important. Violets are placed in frames or in forcing places not to enlarge the size of their leaves or the plants, or to feast their roots on rich food, but simply to unfold the germs of beauty and fragrance already formed and more or less developed in their crowns. A well-prepared Violet plant for winter blooming is therefore something like a Hyacinth, Tulip, Narcissus or other bulb; all it needs to develop to the full its beauty and fragrance is the most favourable amount of moisture, light and air. The theory and practice of blooming Violets in winter are less a creative than an unfolding process, and hence to some extent the great variety of methods employed to reach almost equally successful results. The foundation of success must be well and truly laid in summer culture if the winter blossoming is to prove all that can be desired or hoped for. Not that the winter treatment is not important. It is. The best prepared Violet plants may be marred, though not made, through their winter treatment. This making of the plants, however, must have been going on through the previous six

months. It begins, say, in the middle of April and ends with September. Both these periods are considered too early by not a few Violet growers. For myself for plants in long succession alike under glass and out of doors, I should prefer to add a month to each end of the six specified. Violet crowns, not studded thickly as a mead with Buttercups in May, with embryo Violets at the end of October are almost useless for winter or very early spring blooming.

As to the mode of propagating and growing Violets for winter blooming, there is little or nothing to what has been so well said by various writers in THE GARDEN. All shade or shadow, however, should be avoided by those who would have Violet crowns studded thickly with bloom. Borders, however, especially if narrow under walls of whatever aspect, are best avoided. An open space or part of an open break in the kitchen garden is best for Violets.

As to soil, it is quite true, as "E. M." says, that double Violets, and the same is also true of single ones, though perhaps hardly to the same extent, "will not grow freely in every soil." That which is heavy and retentive and largely impregnated with lime or chalk does not suit them so well as a damp sandy loam; in the former but little growth is made, and red spider is troublesome. Road grit and decayed leaves should be mixed with the heavy soil.

"C. W.," on the contrary, says: "The management of Violets on heavy and holding soils during the summer months is a simple matter, and consists in keeping down weeds by frequent hoeings, and as the plants become established and grow, the runners must be frequently pinched off, so that the whole strength of the plants may be concentrated into plumping up the crowns." Nevertheless, a rich loam enriched with an annual dressing of leaf-mould, spent Mushroom or hotbed manure may be pronounced as the best for the successful cultivation of all Violets, double and single. Occasionally, however, Violets are capricious about site as well as soil, and I have seen Violets grow to the highest perfection and also refuse to grow to any useful purpose within 500 yards of each other. A fine, moderately rich, firm tilth and rather hard planting are also essential to the high culture of Violets. CALEDONIAN.

Flowers on Grass.—There can, I think, be no question but that the growing of hardy flowers on Grass is a step in the right direction, as it forms a most suitable setting, and numbers of them look more at home there than anywhere else. We all know what a good and pleasing effect wild flowers produce when seen in meadows, woods, and on banks where there is no bare ground, and yet, instead of following such plain and simple teaching, we go on the opposite tack; but at Kew it appears that they are breaking away from the late order of things and are showing progress, and the same may be seen in some of the parks. Bulbous plants, such as Daffodils, Crocuses, Snowdrops, and others of that class are very telling under deciduous trees, and the stronger perennials look well almost anywhere, and will hold their own after they get a fair start.—S. D.

The double white Primrose.—I note with special pleasure "J. C. B.'s" hearty praise of this fine old Primrose (p. 463). It is impossible to exaggerate its value as an ornamental plant in bed or border, or in pots in the conservatory or window garden in the early spring. This is the best grower and freest flowerer of all the double Primroses, the sulphur or double yellow being the next best. But this lacks much of the freedom of growth and the constitutional stamina of the double white. I believe there are two or more varieties of the double white Primrose with a thinner taller bloom and also stronger-growing leaves. The best forms a three-quarter sphere of spotless white, produced in such profusion as almost to smother the rosettes of leaves that cushion most of them. Fortunately, it is almost as easily grown as the common single Prim-

rose. The single blooms are also among the most valuable for table decoration, bouquets, &c., and when skilfully blended with other flowers in the latter, the double white Primrose seldom forms the weakest portion of the most charming bouquets. Partially shaded quarters suit this Primrose best in the south, and immediately after blooming is the best time for taking up the plants, dividing them into single crowns or small patches, and replanting at once.—D. T. F.

HARDY FLOWERS OF MAY.

At this season of the year the various shades of green are most striking. The grassy hue which is so prevalent can seldom be used in art; it looks harsh and disagreeable to the eye. But in Nature it is often very pleasing. Just now, for instance, the young leaves of Montbretias are singularly pretty, being almost transparent and very pale coloured. We get something of the same colour in the young shoots of *Hemerocallis*, which, by the way, form a most effective green for mixing with large flowers at this time. Long spear-shaped leaves are often the best for nosegays and always adapt themselves to liliaceous flowers, or, to speak more properly, to the whole race of endogenous plants, such as Narcissus, Iris, &c.

The yellow-green fronds of the Royal Fern (*Osmunda regalis*) as they first push up from the ground are exceedingly beautiful. This is a plant which is ready to grow almost anywhere, but to have it fine it must be placed on the margin of some water, either stream or pond, so that its roots may reach down into the mud. Nevertheless it is very accommodating, and will grow, as I have said, in almost any corner which is at all damp and shady, and it is so different from all other Ferns or plants, that it is worth while trying to grow it as well as ordinary circumstances will permit. It is truly beautiful in its own native haunts in dark, spongy places, which so often occur in deep-wooded valleys; sometimes also out in the open in boggy parts of a wild heath. But probably it will soon become extinct, so ruthlessly will Fern hunters tear it up and carry it off. It will always be found in gardens no doubt, but in its own happy nooks and corners we shall soon look for it in vain. We cannot but be sorry for this, for our wild plants are a source of constant pleasure in the happy summer holiday; and yet, like everything else, it is not an unmixed evil, for there is some good in the fact that those who purchase it or dig it up have a beautiful plant to take care of for at least a while. But I would say, leave it alone or take it with sparing hand, so that it may still be one of our most beautiful wild plants. When this *Osmunda* is placed in a damp corner of a rockery, it is well to remember that an occasional watering with guano water is most helpful to it. Manure water seems to help it very much to struggle with the difficulties of its position when it has to grow without any water or moisture close at hand. If it does not attain a proper royal height under such circumstances, it will still be beautiful if it has some attention, and its peculiar green can scarcely be found elsewhere. It is a bronzy yellow-green, just the hue most used in artistic needlework, soft, delicate, and exceedingly pleasing in itself, as well as in the pretty contrast it produces with the Grass around it or with any other Ferns or herbaceous plants.

Dielytra spectabilis has had a hard fight with the late frosts this year. I covered it up constantly when a clear starry sky threatened a frost, which only too surely came even late into April and the beginning of May. But no cover-

ing will quite preserve the plants from mischief, and as the great beauty of this beautiful flower is its tall and graceful mode of growth, when the leaves are frost-bitten its chief attraction is gone. I was surprised to find a plant, which had accidentally got in among a group of Laurels, perfectly free from injury and looking tall and stately and graceful, as *Dielytras* should look. It is rather disappointing to find, after all the care bestowed on plants in the borders almost in vain, a wild specimen growing without any care in the shrubbery. It suggests the wisdom of planting *Dielytra* more freely among shrubs, for if it will grow and do well there without protection, it would be not only beautiful in itself, but also advantageously placed for gathering. The tall sprays would not be missed in the shrubbery as they would be in the borders. Notwithstanding the extraordinarily dry weather which we have experienced this May, I never saw Solomon's Seal grow better than it has done with me in the rockery and in deep shade under a nut tree in an old border. It is one of our most beautiful spring flowers, and, like the *Osmunda*, it may be found growing wild occasionally in shady woods and plantations. Its tall arching stems with their rows of delicate little hammer-like flowers are extremely graceful and elegant. I find it is what gardeners call a gross feeder and that it will respond readily to large and copious waterings of guano water. There are few things which positively like shade as this *Polygonatum* does. It is delightful to have something beautiful growing right under the dense shadow of a deciduous tree. I am afraid scarcely anything will grow under the spreading branches of the Yew or other Evergreens, partly because they get so little water in such situations. But under the shadow of a deciduous tree, however dense the shade may be, Solomon's Seal will grow if the soil is suitable and manure water is given from time to time. When the long stems are gathered and mixed with *Dielytra*, they look beautiful together in a high vase, and they are both so abundant when they grow well, that some can be spared for gathering for the decoration of the house. Some of the herbaceous *Geraniums*, which are truly beautiful when closely looked into, though easily passed by unnoticed, are flowering now in the same deep shade as Solomon's Seal. The flowers of one of these are so dark that they are almost black, while another has prettily veined flowers and is well worthy of a place in the shade. These herbaceous *Geraniums* are an interesting class of plants; they will grow anywhere and always flower profusely.

Iris germanica comes out towards the end of the month with me. I have seen it in flower since the beginning of May. Mine are chiefly the beautiful white Princess of Wales, but the dark blue varieties are also lovely, and the two contrast well when gathered and placed side by side with some spear-shaped leaves mixed with them. English and Spanish Irises promise well for a later day. The latter force well apparently, but I have never tried to force them. I noticed beautiful blooms of the Spanish Iris some time ago in Bath. They may have come from a warmer clime. *I. germanica* bears a good deal of forcing, and where there is room to put large pots of it in heat, the flowers are certainly valuable in February and March. The great yellow Marguerite flowers of *Doronicum Harpur Crewe* have been truly delightful this May. It is not that the plant likes dry weather, for it seems to love a quantity of water, but the dry weather was good for its great gorgeous flowers, which lasted well, and indeed are still lovely. It is a plant I always

force gently, so as to have some of its fine yellow flowers about a month before it blooms out of doors.

The season of Pheasant's-eye *Narcissus* is wonderfully prolonged by *N. ornatus*, which flowers abundantly, and goes on so as just to meet the old poeticus, which with me will not be over for another week or fortnight, going on that is to say into June. I had abundance of *ornatus* out of doors for the church vases at Easter, and nothing else is better for the purpose, unless it is *Eucharis amazonica*, which always supplies the vases here at the harvest festival. One of the most beautiful flowers of the month, *Gentianella acaulis*, has been more than usually shy with me this year. I believe it likes those April showers which proverbially bring on May flowers, and not getting this the flowers are unusually few and far between, and even those blooms which did appear were not fine, nor did they open their fine deep blue throats according to their wont.

I went on purpose to see a batch of *Gentianella* in another garden where it generally flowers well, and I found it in the same predicament as my own.

A GLOUCESTERSHIRE PARSON.

Planting Violets.—Owing to unfavourable weather our Violet planting has been delayed until this week, and I find the short runners from which the stock is taken are well rooted and in splendid planting order. Given a fairly light and rich rooting medium, liberal treatment, and an open situation, I trust, though so late, that the invaluable *Marie Louise* will be again blooming by August, and will by the end of September have formed fine clumps bristling with bloom and buds, which will supply a constant demand until planting time next year, as hitherto. If they fail, I shall report it.—J. R.

The Cowslip.—It hardly seems necessary to write in praise of the Cowslip, but a dozen or so of tufts in the garden justify this note. The plants sprang up here and there upon the sloping portion of our Bamboo border and now are three years old. They are much shaded. I never before saw Cowslips so vigorous and full of bloom. They have made great tufts; the strongest flower-stalks exceed 1 foot in length and the head of flowers is very large. The lesson they teach is that we might do worse than plant Cowslips in certain situations concerning which we may be in doubt as to how to adorn them.—A. H.

Tufted Pansies in bedding arrangements.—The bedding season is now upon us, and the fact should not be overlooked that tufted Pansies make a most agreeable mixture with other things when thinly planted, or the dwarf kinds used as edgings to large beds. In most cases the other occupants of the bed form an agreeable shelter to the Pansies from hot sun. Young late autumn-rooted cuttings are the best for this purpose, and these yield great supplies of flowers till far into September. A few plants in any one bed are sufficient to produce the desired effect, and among such things as *Iresine*, *Coleus*, silver, gold, and bronze *Pelargoniums* the result is pleasing where judicious selections have been made. Other beds, such as those filled with standard and dwarf Roses, may also be carpeted with this very useful race of hardy bedding plants, and with good results.—E. J.

Doronicums.—Few hardy perennials in the early days of spring are so handsome as these. Happily, too, they present no cultural difficulties. Their flowering period extends to fully six weeks and sometimes more. *Doronicums* are very accommodating, and may be taken up when flowering is completed and transplanted to the reserve ground for future use with little or no loss. The rich golden hue of their flowers too is very telling in the distance, while large clumps in proximity to the shrubbery are very effective. There are several good kinds, of which *D. austriacum*, *D. caucasicum*,

and *D. plantagineum excelsum* are the best; the last is also known as *Harpur Crewe*. This, which has handsome flowers 4 inches across, and one of the two first named are sufficient to supply both early and late flowers, and plenty of them. Those first named make capital pot plants grown cool, the only essential to success beyond which are unlimited supplies of water.—E. J.

ANTHERICUMS.

The several species of which this genus is composed are very beautiful and attractive, and therefore deserving a place in all good collections of herbaceous plants. In those instances where they are grown, too frequently these graceful plants are only represented by isolated and solitary examples, and such as these convey very inadequately any idea of the charm which they possess when planted in large groups. What these plants most thoroughly enjoy and what they should receive from all who would grow them to perfection is a good depth of rich loamy soil, rather sandy. Always plant them in a spot where they may remain to become established, for few plants are more impatient of frequent interference than these. But where allowed a few years to establish themselves fully they provide a most pleasing feature. By the above remark I do not infer that it will take years before they reach flowering size; on the contrary, you may get a flower-spike the year after planting, but it will assuredly be weak, and but feebly represent the same plant when fully established. One little item, though a very important one, concerning *Anthericums* is that they should always be planted or transplanted while dormant, and where this operation is deferred till growth has commenced, it can scarcely be completed without loss of the central crown or growth. It is also a good plan, having dug the ground to a depth of 2 feet or more and thoroughly enriched it with manure, to remove some 4 inches of the surface soil so as to admit of the roots being laid out in their natural manner of growth, instead of being huddled together in a small hole. Place the crowns about 9 inches apart each way, or nearer if the desire is for immediate effect, and then sprinkle half an inch of silver sand in and among their roots prior to returning the surface soil. Thus planted, they will be safe for a dozen years or more, and annually constitute one of the most beautiful objects in the garden. But instead of allowing them to remain so long undisturbed, it may be desired to establish other groups in different spots in the garden, and for this purpose it will be necessary to lift and divide the original group. When the plants are lifted after having remained a few years in one spot, it will be seen when all the soil is removed that some kinds, particularly *A. Liliastrum* and *A. L. majus*, have a peculiar way of multiplication and of heaping and clinging to each other, caused in reality by the roots taking a horizontal course and becoming entangled with each other. There will be many crowns, all of which will prove intact with roots if all the soil be washed away in water, thus leaving them bare. When free from all soil the plants are easily disentangled with the finger and thumb and an occasional shaking, a very simple and easy way, and when carefully done hardly a root will be lost. On the other hand, the knife should never be used in dividing these plants; indeed it can never be used in the case of established pieces without much sacrifice.

Another mode of increase is by seeds, which may be sown when ripe or kept till the winter ensuing in some cool, dry place. Well ripened

seeds germinate quite freely, but are very slow, and I do not find that sowing the seeds directly they are gathered forwards their germination in the slightest degree; therefore they may be kept and sown at leisure during autumn or winter. Owing to their slow germination, therefore, it is not safe to discard boxes or pans of seeds of such things under two years, though, as a rule, they show freely through the soil in about eighteen months. For these reasons it is always best when the seeds are sown to cover them with a board or slate, anything in fact that will tend to keep the soil uniformly moist over a long period, and at the same time prevent weeds springing up and likewise check interference by birds or other intruders. Such a covering, too, dispenses with frequent watering, by which means the seeds are often laid bare and such like, a decided drawback with choice or rare species, and where only thinly covered with soil. As with established plants so with the young seedlings, always transplant them when dormant, but in the case of these *Anthericum*s they will not need transplanting till a full year's growth has been completed. The kinds in general cultivation are not numerous, and the best and most decorative of these are *A. Liliastrum* (the St. Bruno's Lily), *A. Liliastrum majus*, a giant form of the preceding. This is by far the most beautiful of all, and a plant which should figure in quantity in every garden, the fine spikes of snowy bell-shaped blossoms being exquisite in the extreme. These two may easily be distinguished by the clear white fleshy roots, which are somewhat brittle. *A. Liliago* (the St. Bernard's Lily) is a very pretty graceful species, and assumes a more clustered habit of growth, from which issue many flower-spikes and abundance of starry blossoms of the purest white. The roots of this are much longer than in *A. Liliastrum*, of a dirty white, and not easily broken; its flowering continues from May till August. *A. ramosum* is an altogether bolder plant, and very distinct in leaf and stem, as also the root. It grows to nearly 3 feet high, having branching stems of pure white flowers, and is possessed of a vigorous constitution.

E. J.

LILIES OF THE VALLEY.

I HAVE been favoured with samples of the fine Lilies of the Valley Messrs. Hawkins and Bennett of Twickenham do so remarkably well, and show so forcibly that Lily of the Valley culture is easy enough here at home if conducted rightly. The varieties are the fine *Victoria* and the yet finer *Jubilee*. The latter has perhaps the longest and finest spikes of any variety yet produced, and may well be classed as a giant Lily, so fine and so beautiful is it. There is no royal road to successful Lily culture. It is one of a plain, practical form, only needing ordinary care and attention, fairly good soil and ample manure dressings. The ordinary life of a bed of Lily of the Valley at Twickenham is eight years. If still strong, it is allowed to exist yet a year or two longer. Still, ordinarily the bed is broken up after so many years' growth, the crowns sorted and replanted in two sizes usually, so that the larger crowns have perhaps a year's start of the smaller ones, but in any case there is little difference after the lapse of a couple of years. All the beds are planted so as to admit of frame protection, and are from 6 feet to 7 feet wide, and from 100 feet to 150 feet long. The woodwork of the frames is movable, easily fixed, and as easily covered with glass lights of which there is always a large stock at disposal. These are utilised for the earlier beds, for some are moderately forced by the aid of temporary pipes. The later beds are protected from frost at night and from strong sunshine in the day by means of thin canvas coverings. The flowering season without the aid of forcing in

pots runs over a range of some seven or eight weeks, and during that time the bloom-production is truly enormous. Whilst Lilies of the Valley can be produced so finely in this way, there seems to be no reason to doubt but that they could, if properly prepared, be also so produced in clumps for forcing in pots. It is said of *Spiraea japonica* that home-grown clumps do not produce such fine heads of bloom or can be so easily got into small pots as can the imported sorts. That may be a matter of fact or of opinion. If the former, it may be that the Dutch growers have secrets of culture not understood at home. If the latter, then nothing further is to be said. So far as I have seen, home-grown clumps if properly treated and the roots well reduced, as is the case with Dutch clumps, turn out well. I have found them to be generally good and satisfactory. I have no doubt whatever but that were Lilies of the Valley grown at home in good deep-holding and well-manured soils for pot clumps they could be produced equal to what have to be purchased abroad. But apart from such methods of culture, Messrs. Hawkins and Bennett constantly demonstrate what their methods of culture will produce in the way not only of fine spikes and foliage, but plenty of them. It is all a matter of systematic culture. Ordinarily in private gardens Lilies of the Valley receive no culture whatever. The best are planted perhaps, kept free from weeds, and otherwise left to take care of themselves. How rarely are the crowns lifted, selected, replanted in fresh rich soil, given frequent mulchings of short manure, and often soakings of water, especially of sewage or liquid manure. Even to keep the young crowns from the spring frosts little or no trouble is taken, but any market grower would hold that to be a very important duty, because through neglect irreparable harm may be done. Of course, Lilies of the Valley are very hardy, especially if left to shift for themselves. Good culture, however, tends to force the plants into earlier growth and bloom; hence it is the frost that may do harm by crippling or discolouring the spikes. So deliciously perfumed are the flowers and so pleasing, that there is no probability whatever that they will ever be otherwise than popular and in great request.

A. D.

THE DOUBLE POET'S NARCISSUS.

ONE of the latest of the varieties of the Poet's Narcissus to come into flower, and one of the most beautiful, though it has attracted less notice as a distinct variety, is that to which Haworth in his "Monograph of the Genus Narcissus" gives the name of *patellaris*, from its broad, well-described circle of flat crown, like a round saucer. It is said that wherever in Great Britain the Poet's Narcissus is found quite naturalised it belongs to this variety, and such is my experience as far as it goes. Hence, in Sowerby's "British Flora" we find a good portrait of it. Haworth also claims for the same plant identity with Parkinson's *purpureus maximus*. Mr. Barr first pointed out that all known double Poet's Narcissus belong to *patellaris*. I questioned the statement at the time it was made, because I believed that in my own garden I had noticed the double flowers change to single recurvus and back again; but after several years' careful observation I feel sure that Mr. Barr is right, and I have never been able to find a double belonging to any other variety, though there may be such a thing soon, if there is not already.

Some dealers fancy there is a difference between those bulbs which retain the crimson-edged leaves of the crown when double and those which suppress them, and that these forms, if picked out, continue constant. It may perhaps be so, but with me the gradation from one to the other is by imperceptible stages, and all are mixed together indifferently. Still, these doubles have peculiar habits, especially as regards the degree in which they double. In the large double Daffodil, the same bulbs in the same position and soil may produce one year very double flowers and the next

year nearly single, but the Poet's Narcissus has a habit of producing a few extra ligules within the crown and advancing no further in doubling. There are many places both in England and Scotland where single and semi-double flowers of this sort are found in old pastures mixed together in the same clumps, and if these are transferred to a garden they retain their semi-double habit, though subjected to high cultivation. We are often told of the Poet's Narcissus changing in gardens from single to double, and it has been said that the reason why the single *patellaris* is so scarce in cultivation is that it becomes double. I have no experience of such changes in my own observation. I have had for many years in various parts of my garden, and growing together in the same bed, the single *patellaris*, the semi-double mixed with a few varieties single, and the double as described above, and I have looked out in vain for any change. I enclose specimens of the flowers I have mentioned.

Edge Hall, Malpas.

C. WOLLEY DOD.

GARDEN FLORA.

PLATE 860.

BEGONIA HAAGEANA.

(WITH A COLOURED PLATE.*)

THIS is a beautiful perennial perpetual-flowering stove Begonia, which was introduced from Brazil by Messrs. Haage and Schmidt, of Erfurt, who presented a plant of it to Kew in 1887, where it flowered for the first time in September of the same year. Along with it came two other Begonias closely allied to *B. Haageana*, and as these three had been distributed to other gardens as well as Kew by the introducers, with the request that one of them should be named in honour of Dr. Scharff, who gathered the seeds of the Begonias in the island of Desterro, Brazil, the result was that two distinct plants were called *B. Scharffiana* by Sir Joseph Hooker and Dr. Regel respectively. The mistake was afterwards rectified, the plant figured in the *Botanical Magazine*, t. 7028, being now called *B. Haageana*, the species represented in the accompanying plate. It is certainly one of the most magnificent of the many Begonias known, and it is as easily cultivated as a *Coleus*. There are specimens of it now at Kew 4 feet high and nearly 1 yard through, clothed with leaves from top to bottom, and in some cases in flower. The largest heads of bloom, however, are produced in autumn, when they sometimes measure nearly 1 foot in diameter. The male and female flowers are usually borne on separate cymes, and the females are remarkable in that they do not fall off, but remain on the plant until they become green, even although not fertilised.

The leaves and inflorescence represented in the plate are necessarily small, leaves over 1 foot in length being usual on large plants. The whole plant is covered with reddish hairs; the stems and undersides of the leaves are blood-red. The male flowers are each $2\frac{1}{2}$ inches in diameter, the female ones slightly smaller, and the ovary is covered with conspicuous red hairs, as also are the sepals of the male flowers on the outside.

* Drawn for THE GARDEN by Gertrude Hamilton, in the Royal Gardens, Kew, January 6, 1892. Lithographed and printed by Guillaume Severeys.



BEGONIA FENDLERI

B. Scharffiana was described by Dr. Regel in "Gartenflora," 1888, p. 127. It is a coarser growing plant than *B. Haageana*, the large fleshy leaves being deep olive-green above, claret-crimson beneath, and covered with hairs. The stipules are very large, and the flowers, which are clustered on long drooping panicles, are less numerous, not so large, and they are subtended with very large cucullate bracts, sometimes also with small perfect leaves, a character not noticed in any other *Begonia*. There is a dwarf small-leaved variety of this known as *B. Scharffiana* var. *minor*. The relationship between the above and the older *B. metallica* and *B. echinosepala* is apparent to anyone acquainted with these plants. It is not, therefore, surprising that hybrids have been raised between them. I know of two, viz., *B. Duchartrei*, a hybrid between *B. echinosepala* and *B. Scharffiana*, and *B. Credneri*, also called *B. pictavensis*, which was raised from *B. Haageana* and *B. metallica*. These were raised by M. Bruant, of Poitiers, who has since distributed them. All these plants are well worth growing for the stove or intermediate house. They are easily propagated from cuttings, and specimens a yard through may be grown in about a year.

W. W.

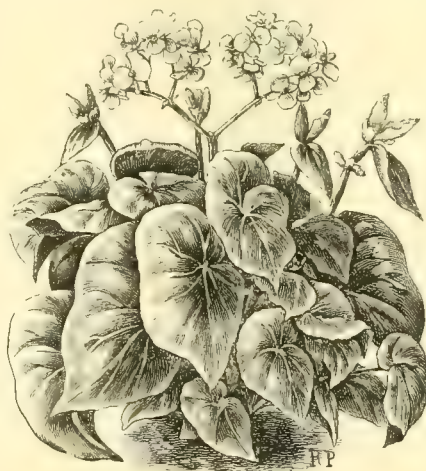
THE WEEK'S WORK.

FRUIT HOUSES.

WORK IN VINERIES.—A very busy time with Grape growers ought now to be nearly over, only the latest Grapes requiring to be finally thinned out. No other work ought to be allowed to interfere with this important process, as a delay of a day or two only may mean very much extra trouble when the thinning is undertaken. Not only is it advantageous to the reserved bunches and berries to early have the full benefit of the Vine's vigour, but when the berries become much crowded before they are thinned, the work cannot be done either quickly or cleanly. If there is any doubt about the berries being well set, then thin somewhat lightly at first; only leave as many of the centre berries as possible, as these usually attain the largest size. Be very particular in well clearing late bunches of all rubbish and inside berries, neglect of this precaution not unfrequently ending in the premature decay of the bunch. Remember also that small bunches as a rule keep much better than large ones, and the most freely thinned clusters invariably keep longer than those more closely packed. All the bunches in somewhat earlier houses should also be gone carefully over and berries be cut out wherever these are likely to interfere with the free swelling of the rest. Extra pains must be taken with this late thinning, or the scissors will disfigure the reserved berries. Those standing most in need of this attention are the Gros Maroc, Madresfield Court, and any other varieties that attain a large size and have somewhat stiff foot-stalks. Looseness is objectionable, but it is better to have the berries somewhat loose and with fully-developed berries than too compact and with comparatively small berries. Also attend closely to the stopping, all being done with the finger and thumb. Always discontinue overhead syringing directly the Vines are in flower, not recommencing before the crops are cleared off. A free use of the syringe and clear water certainly tends to keep down red spider, but it robs the berries of their much-prized coat of bloom, and if the water is neither soft nor perfectly clear, leaves a sediment on the berries. Maintain a moist atmosphere by frequently damping down. Admit air

early in small quantities, this obviating the necessity for opening the ventilators very wide suddenly in order to check an injurious rise in the temperature. Close early, though not sufficiently so to cause the moisture to collect on the more forward bunches, and at dusk give a chink of top air, leaving this on all night; those colouring should have a little front air during the night and plenty during the daytime. If there are any signs of mildew, maintain a drier atmosphere and on no account omit putting on night air, but be very chary of opening the front lights. Cut out any berries badly mildewed and puff flour of sulphur into the bunches, a film quite covering the berries. If this is done while the latter is in a dry state and collecting of moisture on the berries be guarded against by careful ventilation, the sulphur can be blown off cleanly at any time, and it will have been found a good preventive of the spread of mildew; red spider should be kept down by means of a sponge and clear water, this remedy being timely applied. Thrips are sometimes very troublesome, and these also can be best kept under by sponging, fumigating with tobacco paper being far too risky a proceeding in a house of Grapes; mealy bug should still be hunted for and the solitary insects destroyed before they have an opportunity of increasing in numbers and nastiness.

VINE BORDERS.—It is not often we experience such a dry spring, and in most cases outside bor-



Begonia Scharffiana.

ders will have needed, and ought to have had ere this, more than one good soaking of water or well-diluted liquid manure. Unless a thorough soaking rain falls before this is in print, those who have neglected to water their outside borders should examine them at once, giving a heavy watering if at all dry or crumbling when handled. Any borders not mulched or covered in any way ought to have the surface very lightly pointed over, disturbing as few roots as possible prior to watering, and subsequently should have a mulching of strawy manure from horse stables in preference to cow manure, or, better still, a mixture of decaying leaves and manure may be used. The latter proves most attractive to the roots, while manure from cow or mixed farmyards binds badly and excludes all warmth and air. Inside borders naturally require even more water in most seasons than those outside, and these also are all the better for having a mulching of strawy manure or leaves and manure. Never delay watering till the borders become hardy and dry, or they will require more than double the quantity of water to re-moisten them, to say nothing of the injury sustained by the crops, owing to an insufficiency of moisture at the roots. If liquid manure, and this is more quickly taken up by the roots than any surfacing of special manures, is applied, let this, in the case of all somewhat dry borders, follow a soaking of clear water. Well-diluted drainings from a farmyard are particularly to be recommended for Vines, and these

may well be varied with guano. Dissolve the latter in a tub of water, using it at a rate not exceeding 1 oz. to the gallon of water. Soft water, or any caught and stored in tanks inside the vineries, is far preferable to spring water, but if the latter must be used and cannot be warmed and softened by exposure in an inside open tank, the chill should be taken off by means of hot water, this, if possible, being heated in a copper or boiler rather than drawn from hot-water pipes.

YOUNG VINES.—Strong young Vines in 6-inch pots may yet be planted out with every prospect of a fairly strong cane being grown this season. They ought to be in a moist state at the roots when turned out and be kept so afterwards. The ball of soil and roots should not be unloosened, as the roots will strike out from these readily enough. Those already well established and growing strongly should be stopped when from 6 feet to 9 feet in length, and the side shoots being stopped at the first leaf, stout canes will form and which need not be shortened at the pruning time. Maintain a brisk heat and moist atmosphere or much as suits old Vines that are being forced. Pot Vines should be kept well apart and growing near to the glass, the pots being set on a staging or bed in preference to plunging. Stop these as advised in the case of others planted out. **PRACTICAL.**

THE KITCHEN GARDEN.

OPEN-AIR TOMATOES.—According to the present outlook, open-air Tomatoes are likely to have a good start, as the past week or two has been favourable for inuring the plants to cooler quarters preparatory to planting out. If the weather is favourable, by the time this note is published the planting may well take place, as there is nothing to gain by keeping the plants starving in pots. Even if the plants have to be protected for a few nights, the work attending this will not be very much, all that is necessary being to hang a piece of canvas or any other protecting material before the plants. The root-run which is to be provided for the plants must not be over-charged with rank or over-stimulating manure, this having a tendency to cause the plants to make a gross growth. Nor must the site be poor. Very often the soil up against walls is of the poorest description, on account of other subjects having exhausted the fertility. Wood ashes or burnt refuse is a capital element for Tomatoes, this and a little fresh loam with a portion of pulverised horse manure, prepared as if for Mushrooms, forming a suitable root-run. In planting see that the ball is well moistened, pressing the soil well around the ball. Over-watering must be guarded against, this not being needed, but see that the old ball does not become unduly dry until the roots commence to ramify. A light mulching after the plants are growing freely will assist in retaining the moisture, as too much water would have the effect of lowering the temperature of the soil. Whatever positions are chosen, see that they are well exposed to the sun, a south or west aspect with the intermediate angles being the most suitable.

FRENCH BEANS.—The weather has been favourable for the germination of the seeds of French Beans, the past few days of warm weather causing the young plants to grow rapidly. Sooner than prevent overcrowding, they should be thinned out where too thick, afterwards drawing the soil up on each side of the rows. It has also been very favourable for others that have been grown in pots and planted out. As these are the most likely to suffer on account of many of the roots being confined in a ball, watering must not be neglected, it being applied through a spout watering-pot direct to the roots. Earthing also being attended to, early crops will be secured. If there should still be lights or protectors over plants in the open, these can well be removed, the night dews having a beneficial influence.

SUCCESSIONAL CROPS.—To follow on the earliest sowings and plantings, what is termed the main crop must now be made. For this crop a somewhat cooler site is needed, and the soil must also

be in a well-manured and pulverised state. An east border may well be chosen, the shading from the mid-day and afternoon sun enabling the plants to keep on bearing and also remain fresher for a longer time than where more enclosed. Canadian Wonder is well adapted for summer work, and being a vigorous grower the rows should be arranged quite 30 inches apart, and if the space could be spared, 3 feet, this accelerating the picking and other attendant work. Sow the seeds thinly, or, what is better, draw flat-bottomed drills 3 inches in depth, and arrange the seeds singly in double rows, 6 inches apart, the soil being drawn well over them. For this variety, I find it pays well to insert some short sticks on each side as the plants grow.

TURNIPS.—If the weather should prove dry, this crop is likely to fail more quickly than any other, for what with the seeds often failing to germinate and attacks from the fly, they have as much as they can do to pull through. It is useless to expect Turnips in a dry season unless the soil is in the highest state of fertility, and also in a well-worked and pulverised condition. A sprinkling of salt at the rate of about 1 oz. to the square yard is beneficial to this crop, this and a dressing of burnt refuse being a capital stimulant for Turnips on very light soils. An east border should be chosen as being cooler, and the Turnips also remain in condition longer. The drills should be drawn over night if the weather should be dry and soaked with water, sowing the seeds early the following morning. A little stimulating artificial manure sown in the drills with the seed will enable it to grow away freely. This is necessary to enable the plants to get quickly out of the reach of the fly which attacks the plants almost as soon as germination begins. This should be anticipated by freely dusting over the surface in the early morning with soot.

HOEING.—The past dry weather has been very favourable for the destruction of weeds, but not only for the destruction of weeds is hoeing necessary, but for stimulating growth. By keeping a loose surface the soil does not dry up so quickly. If the hoe were more used instead of taking up time with watering by dribblets, the crops would be greatly benefited. All coarse weeds should be taken away and burned. A. YOUNG.

ORCHIDS.

WE are repotting a few of the summer flowering Cattleyas that have passed out of bloom, and that show by the state of the roots that they need repotting, for in some instances the roots are so twined outside and inside the flower-pots, that it is really necessary to chip the pots to pieces before they can be removed from the plants. Some persons when their plants get into this state repot them just as they are, and thus have one pot inside another. Of this method I can say nothing—at least, in its favour. A few plants in even the very best managed collections will make but few roots and get into bad condition; they also must be seen to, and the sour soil around the roots ought to be removed as well as all decaying or dead roots, putting the plant back into a much smaller flower-pot. The best material for the roots to run well into is good fibrous peat to which has been added about a third part of clean live Sphagnum; plenty of potsherds and nodules of charcoal ought to be mixed with the compost, and half the depth of the flower-pots ought to be clean potsherds for drainage. We have also been repotting some imported Orchids, and at this season of the year they very speedily form roots; they have been repotted at once in the usual peat and Sphagnum compost. Amongst them are a number of plants of *Cypripedium Chamberlainianum*. This is not only one of the best introductions of modern times to our gardens, but it has also with perhaps the exception of *C. grande* the most vigorous constitution of all the *Cypripediums*. When these plants come home the first process is to wash the leaves with soft soapy water. Plant the Orchids carefully in small pots; it is an error to use over large

ones, and the long leaves must be slung up to neat sticks. The plants should be placed in the warmest house and be duly supplied with water at the roots. During the next three months most of the Orchids in all the departments will be making their growth freely. As long as the nights continue to be cold we prefer watering the plants in the morning, but when the nights are warm the evening is the best. All the watering should be finished before the houses are shut up in the afternoon. Attention to watering takes up a good deal of time in these months, and many plants suffer if they are allowed to become over-dry. In the warmest house the *Cypripediums* and *Phalaenopsis* will suffer first. The Sphagnum Moss should be kept in a growing condition, for if this is unhealthy, it is a sure sign that the plants are not getting the treatment they like best; the unhealthy state of the growing Sphagnum is caused either by the plants being too much exposed to the sun, or they have not been regularly watered. Cattleyas and *Laelias* do not require to be watered so often as these and other Orchids that are devoid of pseudo-bulbs. Cattleyas need not be watered oftener than once in three or four days or even once in a week if the plants are large. Small plants that are sometimes so furnished with a mass of roots outside and inside the pots that scarcely any peat or Sphagnum is left, may require water daily. I have often described the repotting of Cattleyas, and owing to the porous state of the material in which they are growing the water passes so freely away that there is but little danger of growing plants being injured by too much water being applied to them. All plants suspended close to the roof glass require looking to almost daily. I found some basket plants such, as *Oncidium Papilio*, which were well watered on the Saturday quite too dry on Monday morning. This was a hint that it is much better to water such plants as late in the afternoon as possible on Saturday, so that they would have to pass through but one day of bright sunshine, for it is well not to leave any work for Sunday that can possibly be avoided.

In most cases it is best to give the water supply to blocks and baskets of Orchids by dipping. Admit air to all the Orchid houses as freely as is consistent with the state of the atmosphere outside. On calm warm days both top and side ventilators should be freely opened, and shut up the houses in the afternoon as soon as the sun has sufficiently gone down for the blinds to be pulled up; the temperature should rise a little, but not much, after shutting up. Of course, one must consider the plants in flower as well as those starting to grow, or that have made some growth. Cattleya *Dowiana*, *C. gigas*, *C. Hardyana* and all of this type of *C. labiata* should be placed near the glass roof on the most sunny side of the house, and they must be well supplied with water. They require careful treatment in order that the growths they are now making shall be strong enough to flower in July or August. The cool house requires some thought when the hot weather sets in. *Masdevallias*, *Ondoglossums* and the cool house *Oncidiums* suffer in hot weather if allowed to become too dry at the roots. They will have to be looked over daily, so that no plants may become too dry. The Sphagnum Moss should always be healthy and green. If the ventilation is right and the shading material thick enough, the house on hot dry days will feel quite cool in comparison with the atmosphere outside. If there is a group of *Disa grandiflora* near the door where they get a good supply of fresh air, it may be necessary to sprinkle them overhead twice daily. Another excellent cool Orchid house plant at this season is the *Bletia hyacinthina*. Ours have just passed out of bloom, and they are maturing their growth, but water must be supplied freely until the leaves show signs of decay. When the leaves fade but little water is needed, and the roots may become almost dusty dry until they are ready to start into growth again, when they may be repotted and started with a fair supply of water at the roots. The curious Orchid *Nanodes Medusæ* is supposed to be rather difficult to manage, but I have seen it doing well suspended from the glass roof in a teak basket very near to the

door of the cool house with the *Disas*, and in one place I found it succeeding admirably where it had even a more abundant supply of air, suspended in an Apple tree for a couple of months during the hot period. Of course one may expect these plants that grow naturally on the higher Andes of South America to be rather difficult to manage, needing rather a circulation of fresh air constantly under and over them than the stifling atmosphere of a close house of any kind. J. DOUGLAS.

PLANT HOUSES.

THE CONSERVATORY OR SHOW HOUSE.—There will now be an abundance of flowering material, so much so in some instances probably, that room will not be at disposal for displaying the several plants to advantage. This will permit of the removal of plants that are fading, but which could be retained if found desirable for another week or so. The removal is decidedly preferable where there is any tendency towards overcrowding, an evil too often to be complained of in conservatories where plants are massed together. If the plants are such as *Azaleas*, *Ericas*, or *New Holland* plants, this overcrowding is fraught with evil to the future well-being of these subjects. Where it occurs, there is a disposition to make a weakly growth that will not be productive of the best results for another season. Such plants should therefore be taken into more congenial quarters as soon as possible rather than retain them to their permanent injury. With a large quantity of flowering plants now in bloom, a more constant supervision is essential for the removal also of faded blossoms as well as yellow leaves upon such as *Pelargoniums* and other soft-wooded plants. Doing this work frequently is far better than allowing it to run on for some days, the ultimate result being that of injury to the fresh flowers through damping, more particularly so if there happens to be a spell of dull weather, when the accumulation of moisture is not so easily dispelled.

This damping off can, of course, be prevented to a certain extent by a judicious management of the ventilation. Air should now be left on by night as well as day. No house in which greenhouse flowering plants are displayed should ever be quite closed at this season of the year. The mention of this may seem to be superfluous to some growers, but to those who are expected to close their conservatories when adjoining the mansion for fear of unwelcome visitors in the night-time it applies with all its force. In all such instances as these latter, some arrangement should be made to suit each case whereby it would not be possible to obtain admission. This can be done with nothing beyond ordinary intelligence in its application in the majority of instances. Houses that are now expected to be kept quite close at night for the reasons given are not fit places for such plants whilst in flower as those which have been alluded to, nor can they be ever expected to succeed even under the best management in these respects until the existing state of things is judiciously altered. Conservatories being too often built merely to look at, the flowers and their provision for successful culture being purely a secondary consideration, trouble in such cases much ensue.

LATE AZALEAS.—These as soon as they are of no further service should have the remaining faded flowers and all the seed vessels picked off carefully; then the plants should be placed in either a house or pit where they can have a generous treatment for a few weeks so that they complete their growth as soon as possible. This in some instances is more needed than in others. Those that have already made a good break do not require so much warmth and moisture; others may need these essential conditions more; thus where there is room the arrangements may be made accordingly. Any plants which appear to be sickly should be carefully watered; these with frequent syringings will scarcely require any watering, especially if they have been at all over-potted—an evil in itself at all times in the case of such finely rooted plants. To whatever house or pit the *Azaleas* may for the time be

ing be consigned it is imperative to keep a sharp watch for any attack of thrips; if these now escape detection and the syringe does not reach them they will soon cause considerable injury. Potting for the present should be deferred, unless it be in the case of plants in absolute need of it, or those which were forced early and have now made their growth. It is not advisable to relegate the Azaleas to vineries to complete their growth if it can be avoided. I would rather place them in Peach houses, thinking of the thrips already alluded to should any escape detection. Early forced Azaleas should now be fit to stand out of doors, first keeping them for a few days partially shaded, gradually inuring them to the beneficial effects of light, warmth, and air. In these districts where it is found impracticable to place them outside, they should now be kept well ventilated, so as to harden the growth.

TENDER ANNUALS.—With the disposal of the bedding plants, every needful attention should be given to these successional subjects for the conservatory later on, but more particularly towards the autumn. These annuals are oftentimes sown too early; hence before any room can be given up to their proper culture, they are practically spoiled by being drawn up weakly or otherwise checked in their growth. If they be now nice young plants in small pots no time should be lost in giving them a shift; into this they will quickly take root if placed in a growing atmosphere, such as one would provide for Cucumbers at this season of the year. These remarks refer more particularly to *Celosias* (including *Cockscombs*), *Globe Amaranthus* (not nearly enough grown, and not yet too late to sow for September flowering), *Torenia* (as *T. Fournieri*), and to *Browallias*, all of which will be useful in their season, and save the culture of an otherwise larger number of plants of a permanent character.

JAS. HUDSON.

ROSE GARDEN.

A ROSE FACTORY FOR CUT FLOWERS.

BOTH banks of the river Var are fringed with a line of eminences of a considerable height, which extend along its course until it terminates at the seashore. The rising grounds on the left bank help to shelter the whole of the district of Nice from the north-west winds, and near the southern part of them, in the region of Carras, on rich alluvial soil, the principal market gardens of Nice are situated. Here also, a little higher up on the flank of the range, stands the Villa Josephine or Parc aux Roses, which forms the subject of the present article. In this establishment Roses are grown exclusively for the winter sale of cut flowers, about 10 acres of ground out of the 25 acres or more of which the property consists being devoted to Rose-forcing, for which the place is covered with great numbers of small glasshouses or large frames, some or other of which are always in use. The area under glass exceeds 6000 square metres. As might be expected, it is during the period of active sales, that is, from November to April, that the principal gatherings of flowers take place, but in the intervening portion of the year also the very fine Roses here produced under glass are in great request with the flower dealers. These Roses, being grown by themselves or almost entirely apart from other plants, possess a perfect purity of tint, and their outer petals are always free from the discolourations, blotchings, and wrinklins which are caused by frost-nippings, too much sun-heat, or an excess of moisture. During the summer the movable side-walls are taken off from the

houses, the glazed roof alone being left to protect the flowers from rain storms.

The proprietor and founder of this establishment (M. Antoine Mari) is a man of energy, full of enterprise and practical good sense. We may say that the most striking feature in his method of culture is the great simplicity of the means which he employs and their perfect adaptation to the end which he has in view, namely, to obtain an abundant and continuous yield of flowers with the minimum of expense and without exhausting his plants.

Roses, as is well known, do not require a high temperature to bring them into flower. Some varieties, such as *Safrano*, continue yielding buds and flowers all through the winter in Provence, and frequently well-developed flowers of these are gathered at Paris in the month of November.

M. Mari plants his Roses either in lines of three parallel rows for the bushy kinds, or in single rows, and trained somewhat like Vines in the case of the climbing kinds such as *Maréchal Niel*. They are sheltered by glazed lights, which are placed at just such a height from the ground as will permit a man to pass underneath them. The flower-bearing shoots are thus brought as closely as possible to the light, the effects of cold dews and especially of radiation of heat are avoided, and a warming apparatus of the greatest simplicity, formed by placing a doubled pipe on the surface of the soil of the frame allows of the temperature being raised a few degrees on cold days. This pipe, however, is used more for ventilating than for heating purposes, for the warm sun of the south generally affords enough and more than enough of heat to plants grown there under glass structures. Broad panels, which open on both sides of the frame, but placed on a much higher level on the north than on the south side of it, permit a constant circulation of air to be kept up, which can be regulated at pleasure. Mildew is kept in check by repeated fumigations of sulphur, and a liberal application of manure maintains the plants in a condition of remarkable vigour.

Of all the kinds of Roses grown by M. Mari the most important is *Maréchal Niel*, which holds the first place for the abundance of its produce, if not for the number of plants of it which are grown here. It is located here in frames set apart for it, as it requires more room and more heat than other kinds of Roses. Under this special treatment and pruned according to the vigour of the plants, the quantity of flowers produced is sometimes amazing. The pruning is conducted in such a way as to distribute the production of flowers over the whole year, while at the same time it ensures a specially large yield in the months of February and March.

After *Maréchal Niel*, the varieties which are most abundantly grown at the Parc aux Roses are *La France*, *Marie van Houtte*, *Paul Nabonnand* and *Souvenir de la Malmaison*. All these, except *Paul Nabonnand*, are well known at Paris. This last-named variety was raised by M. Nabonnand, of *Golfé Juan*, and on the Mediterranean coast it produces flowers remarkable for shape, size and colour. It is a fine Tea Rose, somewhat resembling *La France* in shape and colour, but at the same time quite distinct. It may be justly described as one of the handsomest pink Roses that come to us from the south of France. Next in point of numbers come *Sombreuil* (a Tea Rose), *Perle des Jardins*, *Captain Christy*, *Baronne Prévost*, *Souvenir d'un Ami*, *Jean Pernet*, *Solfaterre*, *Jean Ducher*, *Homère*, *Mme. Bérard*, *Comtesse de Leusse*, *David Pradel*, and, lastly, *Paul Neyron*, which, having gone somewhat out of fashion for

a time, now appears to be coming into favour again. Amongst curiously-coloured Roses we must mention *W. A. Richardson*—a small-flowered Rose of an almost orange colour—and *Général Schablikine* (raised by M. Nabonnand), a Rose of a coppery-carmine tint.

The varieties *Général Lamarque*, *Reine Marie Henriette*, *Rêve d'Or* and *Niphetos*, which are true climbing Roses, are grown against walls under glass and chiefly for the supply of forced flowers in spring. They yield flowers of surprising size and beauty. In the height of the season, that is, from Dec. 15 to April 15, the establishment at Parc aux Roses sends away a daily average of 500 dozens of cut Rose flowers. At the last floral exhibition at Nice the exhibits from this establishment were unrivalled. Among them were to be seen flowers of *Paul Neyron* nearly 5 inches in diameter, and half-opened buds of *Maréchal Niel* so large that a dozen of them weighed over 28 oz.; also flowers of *La France* of marvellous size and symmetry, and of *Paul Nabonnand* almost as large in diameter as those of *Paul Neyron* and of delicious freshness and colouring. All these Roses were without exception faultless in form, and in brilliancy of tint left nothing to be desired, so that it is no wonder that a great proportion of the finest Roses that are exposed for sale in Parisian flower-shops of the highest class is sent to them direct from M. Mari's establishment.

At the Parc aux Roses, perpetual Carnations and some winter-flowering bulbous plants also are grown. These are select kinds and are most skilfully cultivated; but what is most especially remarkable here and deserving of note is the system of Rose culture, which, by the employment of simple and economic methods of operation, has succeeded in rendering the area under Roses capable of bringing in a yearly return which may be fairly estimated at not less than from £160 to £192 per acre.—*Revue Horticole*.

AMONG THE ROSES IN JUNE.

THE warmer weather we have recently experienced, and which has been accompanied with genial rain, has caused Roses to come on very rapidly. There is, therefore, a considerable amount of work to be done among them, and much of this is accomplished with very little labour if seen to at once. I notice that the maggot is very prevalent among my neighbour's plants; also the aphid. My own are exceptionally free at present. These pests must be taken in hand at once, or the former of them will practically spoil the first crop. Although the syringing that is necessary to kill the aphid will also dislodge a good many of the maggots, it is seldom of sufficient strength to kill them; indeed, it would be unsafe to use the solution strong enough for both purposes. In the case of maggots, there is no remedy equal to hand-picking, and, provided it is done early, there is no great amount of labour in the operation. If left too long, the foliage will soon be eaten to a considerable extent and present a ragged and far from pleasing appearance. The simplest way is to give the curled or folded leaves a gentle pinch between the thumb and finger; this will kill the maggot, and in many cases not harm the foliage, while you save the time that would be occupied in unfolding the leaves. Look closely around the tips of young shoots, especially those with a small flower-bud attached. The maggot is very partial to these, and eats away one side of the bud, completely ruining the future flower. Where large quantities of standards are to be looked over, it is beneficial

to give the stems a smart tap or two with a stick; this causes the maggots to drop from the foliage and hang suspended by a silk-like thread, when they may be captured; or by giving a gentle shake to the whole plant, you can dislodge them entirely. Although this does not kill them, they seldom ascend the tree again, and where quantities have to be done and time is valuable, it is the best remedy.

The very cold spring has crippled a great number of the early flowers. As soon as one can discover this, it will be well to remove them, as the blooms would in the majority of cases come too badly deformed to be of any service. The removal of these will concentrate the strength of the plants into the growth bearing the second crop, and those of the first that are fit to leave to arrive at maturity. The very changeable weather of last month has done much mischief in this respect, and I have already noticed more hard-core and green-centred blooms than for several years past. Roses on pillars and walls will reap much benefit if a little artificial manure be sprinkled on the surface and lightly forked in. After doing this, draw some of the loose soil up to the base of all strong growers. This will induce growths to push from the bottom, and as this is a most important feature among such varieties it deserves attention. It will also be well to make sure that the roots of plants so situated are not dry; the soil against a wall is often much drier than we imagine. Again, unless the rain comes in one direction it does not thoroughly saturate the soil near to a wall or fence. Roses (the strong-growing climbers in particular) can seldom be over-supplied with water during summer; at the same time it will be found best to avoid too frequent use of the watering-can. Giving them a thorough saturation once or twice during the summer and affording them a fair mulching to retain the moisture as much as possible, is far better than frequent dribbles.

Stocks that were planted for budding upon this summer are not looking particularly well in this district, nor, according to my correspondents, do they present at all a rosy appearance in the majority of cases. My own after they were planted had no rain for ten weeks, and the drying winds and frosts that were exceptionally severe for the time of the year have punished them. It will be found a good plan to earth the dwarf stocks up in the same manner as I have recommended for Roses. The advantage of this will be found when the budding season comes round, as the soil is very easily removed and leaves the bark of the stock soft and more easily manipulated when inserting the bud. Brier stocks of the standard and half-standard form will also need attention. These must have the bulk of their horizontal shoots removed; all, in fact, except those two or three it is intended to insert the buds into. The height at which these should be left must be regulated according to your own requirements, but I would strongly advise keeping them as dwarf as possible consistent with the purpose you intend them for. Keep the hoe at work among all Roses, cultivation of the surface soil being of immense benefit to them.

R.

White sport from Rose Souvenir d'un Ami.—R., in a note on the above (p. 481), touches upon the subject of the phenomenon of sports in general, and observes that it is somewhat remarkable and mysterious that a certain variety of flower should commence sporting almost simultaneously in widely different localities. He instances Roses, Chrysanthemums, and Pelargoniums producing the

same sport at the same time in places far apart. I may point out that the mystery is a little explained if we bear in mind the fact that all the plants in the world of *Souvenir d'un Ami*, or of a named Chrysanthemum or Pelargonium are, in a very true sense, one and the same plant, just as much so as if they were all layered down from and still remained attached to the original plant. Presuming, therefore, that it is when it reaches a certain age or maturity that a Rose or Chrysanthemum develops certain peculiarities, *e.g.*, a tendency to sport to a new colour or form, we may reasonably expect all the existing plants of this same kind; or, in other words, this one plant, wherever it is, to either possess this tendency in a latent form or to exhibit it at the same moment. The phenomenon is akin to one which is well known to obtain among human beings. Where a disease or other singularity of mind or body is inherent in a family, it commonly appears in the several members of that family at precisely the same time of life, and the disease or eccentricity is anxiously watched for when the critical age is reached. The analogy is more illustrated than perfect, because the several members of a human family only share this common idiosyncrasy by inheritance, and are not one and the same being in the same literal sense that all the Roses *Souvenir d'un Ami* in the world may be called so.—G. H. ENGLEHEART.

THE MANETTI STOCK.

THAT this is really an excellent stock for Roses, in spite of the opinions of some of our leading amateurs, is amply evidenced by the enormous quantities that are propagated yearly, and by the fact that several of our leading exhibitors make no secret that their show flowers are quite as often obtained from plants upon this stock as from those upon the Brier. The truth of the matter lies in the fact that a stock behaves very differently upon dissimilar soils. I have purchased the Manetti from all parts of the kingdom, and the difference in its appearance was sometimes very remarkable. However, they all reverted to the same class of growth and wood when upon my soil. Plants from Bagshot, and from any soil of similar character, were always more pithy and of a lighter and more mottled colour than those from a stiffer soil. So much difference was noticeable, that our men were for a time under the impression there were two or three distinct types or varieties of this stock. Now as these all produced exactly similar growth and roots upon my soil, and I have never seen these distinctions among the Manetti when growing upon a uniform compost of any kind, I think we would be justified in always considering the question of stocks for Roses to be improperly handled unless due consideration be taken of the soil they are to be cultivated in.

Personally, I am not more partial to one stock than to another, being fully aware that each one is the best for the soil most appropriate for it; and that it is quite as erroneous to recommend one stock for all soils as to uphold one for all classes and varieties of Roses. I would be glad to see your Rose correspondents discuss this question in a more impartial manner than has been the case hitherto, as it is one of supreme importance to all rosarians. While agreeing that all should state how the stock has behaved with them, I would like to see them give a brief description of the soil and subsoil, also the class and varieties of Roses they found to thrive best upon any particular stock.

This question is more complicated than would at first sight appear to be the case, as if one would secure the best results, not only must the soil suit the stock, but the variety of Rose to be worked upon it must grow harmoniously with the sap produced by the stock. At the National Rose Conference of 1889, among the many valuable and interesting queries that were answered by little short of a hundred of our leading amateur and professional growers, was the following: "Is the Manetti a better stock than the Brier; (a) for any particular sorts of Roses, or (b) for any particular soil?" The diversity of opinion is very marked, and ranges from the negative to the affirmative.

Some of our most noted growers here say that the Manetti is a perfect stock in all well-drained soils. The majority of opinions give it a decided preference over the Brier for all Hybrid Perpetuals when growing upon light sandy soils, while almost all incline to the opinion of its greater earliness compared to the Brier. If those growers who appear to be so bitterly prejudiced against this stock would obtain the report of the Rose conference and carefully peruse the replies to this query, I venture to say that when they saw so many of our most successful growers among those who have a good word for the Manetti, they would at least agree that it was useful and very suitable for some soils and varieties.

Our veteran and champion Rose grower, Mr. B. R. Cant, gives the following reply: "No; but for strong-growing Hybrid Perpetuals it is as good as any other." This is precisely my experience with the Manetti, but I would add to this that I find it a little better upon light soils than any form of the Brier stock. As a general stock for the Tea-scented and Noisette classes this stock could not be used with satisfactory results, excepting in the case of pot plants, and here it is suitable for all classes of Roses.

As the Manetti is so easily and readily propagated (forming workable stocks the first season of striking), it will be a long time before it is generally superseded by the Brier or any other, especially for producing cheap Roses or for increasing a stock of any new variety. As I remarked earlier, I have no preference for the Manetti over the Brier when the soil and variety of Rose are suitable to both in an equal degree. And I only pen these few lines with the object of saying a word or two in favour of this stock as a set off against the abuse it has received at the hands of a few whom we may presume it does not prosper with. At the same time there is no reason why it should be discarded, because in the majority of cases it will be found a most excellent stock for the Hybrid Perpetuals, Bourbons, and many of the stronger growing Teas.

RIDGEWOOD.

STRONG GROWING ROSES.

"A good grower, but very shy-flowering." How often we read and hear the above description given to some of our best Roses. This will always be the case until these grand and strong-growing varieties are more rationally treated than is the case in many instances. Under correct treatment the majority of our rampant growing Roses are among the freest flowering of all. Climbing *Devoniensis* is really a grand Rose when allowed to grow at will and not cut about, excepting to remove the dead and more weakly growths, but it is very essential that this Rose be grown in a warm and sunny position. When grown on a south or south-west wall and in a somewhat dry border, this variety will mature its growth fairly well, and unless this point is secured it is far from a satisfactory Rose. Almost all rosarians can call to mind a plant of this kind where the above conditions exist, and I venture to say that they will agree with me in praising Climbing *Devoniensis* under such circumstances. I have in my mind a grand plant upon a Sussex rectory, and which makes an immense amount of growth each year, all of which flowers freely during the following season. I have more than once seen this specimen when 100 exhibition blooms could have been cut from it, and still a grand show of flowers be left. As it has a main stem as thick as a man's arm, and many growths that are 2 inches to 3 inches in diameter, and bearing equally as good flowers as the dwarf growing variety of this kind, I think I am justified in styling this one of our very best white Roses when growing in a suitable position. The white and yellow *Banksians* also delight in exactly

the same situation and treatment as Climbing Devonensis will thrive under. The same may be said of almost all of these vigorous growing kinds, and which generally continue in very active growth until frost checks them. By growing these in a too sheltered position and upon cool, moist soils, they are induced to make too sappy an autumn growth. This is one of the chief causes for few flowers being produced during the following season. Mme. Bérard and Rêve d'Or are two of our very strongest growing Roses, and these two varieties are often condemned as shy bloomers.

I have never met with any difficulty in this respect when following on the lines I have indicated in an early part of this paper, viz., to secure thoroughly ripened growth. This cannot be obtained during the majority of seasons if these varieties are grown in any but a warm and rather dry situation. When growing in a sheltered and rather damp place, Rêve d'Or is as nearly evergreen as many of the so-called evergreen varieties. Wood that is properly ripened will be deciduous, and unless this

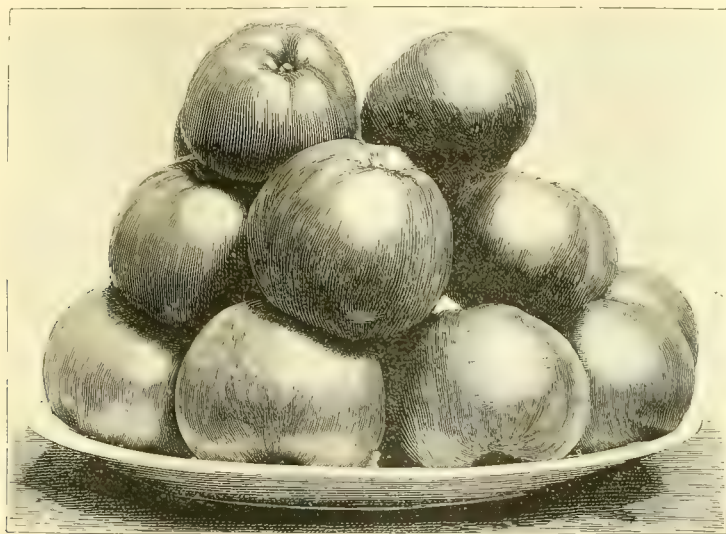
established in a cool soil, they will continue to supply a large amount of sap to the plant, and so encourage late and rampant growth. I do not mean that we should avoid vigorous shoots in any way, as it is these that are of such immense value upon such varieties, but that we should endeavour to secure an earlier maturation of wood than is generally the case.

P. U.

ORCHARD AND FRUIT GARDEN.

APPLE BEAUTY OF KENT.

ONE good and noteworthy feature to be observed in the widespread rage for planting Apple trees is the fact that some regard has been paid to the demands of the future, though there is still room for improvement in this respect. It is to the forethought of former generations of planters we owe a considerable number of grand and highly profitable old orchard trees of Blenheim Orange, Reinette du Canada, Warner's



Apple Beauty of Kent.

end is attained, very few of these grand climbers will flower so freely as our old favourite Gloire de Dijon invariably does, whether in a wet or dry position. Reine Marie Henriette, Lamarque, Belle Lyonnaise, and similar growers have often been styled shy when the real fault was not in the variety of Rose grown, but in the fact that their wood was not properly matured. It is very essential that all plant growth should be well ripened before the resting period, and doubly so with such naturally sappy subjects as many of the strong-growing Roses. Take any dwarf-habited variety and enforce rest before it has finished its growth and you will find the same shy-flowering results, as far as the immature wood is concerned. Most of the extra vigorous growers do not start their long shoots with much freedom until rather late in the summer and when the bulk of their flowers has been borne; consequently they are often in active growth when the first autumn frosts give them a severe check. This can be avoided to a great extent by growing them in warm and somewhat dry situations, thus inducing an earlier ripening of the wood, while at the same time they are protected from early frosts.

If the roots of any strong-growing Rose are

King, Flower of Kent, Wellington, Winter Queen, and last, but by no means least, Beauty of Kent. Seeing also how often the wish is expressed that our forefathers had planted even more trees of the first and last-named especially, than which two better varieties for more than holding their own against imported fruit could not well be mentioned, it ought to be a matter of duty to plant them very extensively now-a-days. Beauty of Kent is a strong-growing variety, in time developing into one of the largest of orchard trees which seldom fail to produce grand crops of fruit. Nor are the young trees particularly shy-bearing, and those who plant them may live to see quite heavy crops gathered. As I take every opportunity of pointing out, many of those very early-bearing varieties so extensively planted of late years cannot always be depended upon to develop into fine trees, their excessive productiveness and the next-to-insurmountable difficulty experienced in manuring large orchards effectively militating against anything like a vigorous growth.

Trees over-cropped in a young state cannot reasonably be expected to make a long-sustained healthy progress, and almost the only way of long keeping up the character of a profit-

able orchard is to alternate the trees or rows of early bearers with those less precocious, and which are nearly certain to grow into large specimens. In this arrangement Beauty of Kent ought certainly to play an important part; nor need its culture be confined exclusively to orchards. Where there is fairly good room for the trees to develop, the variety under notice may well be planted either as a bush or a pyramid, and from the first, that is to say, if on the Crab stock and rooting in fairly good soil, the trees will be distinguished by their strong, sturdy growth and boldness of the foliage. Avoiding a too free use of the knife, that is to say, leaving numerous shoots to their full length all over the tree, will, as a rule, soon bring them into free-bearing order, but if this fails, root-pruning would yet have the desired effect. I have had no experience with it as a cordon, but should say it would be a good variety for horizontal training against espaliers. Once the trees have arrived at a bearing state, they rarely fail to either flower or bear good crops annually, and in this respect Beauty of Kent may be said to be one of the most reliable varieties in cultivation. From very old orchard trees the fruit is not as a rule much above medium size, but trees not altogether neglected at the roots and garden trees generally produce very fine fruit, blemishes being seldom present. The fruit is somewhat irregular in outline, ridges near the crown being very prominent, while the eye is large and sunk rather deeply, the stalk being comparatively short and set in a deep cavity. The skin is of a greenish yellow, the exposed side being largely patched with deep red, this giving the fruit a very attractive appearance and adding considerably to its market value. It is, strictly speaking, a cooking Apple of the best quality, and in season during November and the next three months.

W. IGGULDEN.

RIPE MELONS IN SUCCESSION ON THE SAME PLANTS.

DOUBTLESS Mr. Iggulden's able article on the above (p. 463) was a surprise to most Melon growers, not but that most of the latter of wide experience may be willing to admit the possibility of cutting Melons in succession for some months. But such instances up till now have been looked upon as exceptional phenomena and hardly worth the candle. And were it possible to have crops of Melons in succession on the same plants, the question for the growers of Melons in a wholesale way for pleasure or profit is, Where is the benefit? Melon seeds are plentiful and cheap; no plants are more easily raised or sooner grown into fruit-bearing bulk and condition. Where and how, then, do the advantages of continuous fruiting come in? Taking an average of Melon plants, they ripen six fruits each of, say, 6 lbs. per fruit, or produce from 36 lbs. to 40 lbs. of luscious Melons per plant. That is a liberal return for the amount of space, capital and skill invested in the crop, and the practical question remains for Mr. Iggulden whether more or better fruit could be had in less time from the same area through successional cropping, assuming that such a method of cropping is possible, which I do not. Taking the most vital element in determining the value of Melons—quality—most growers that have tried successional cropping, or the more numerous cultivators that have tried and succeeded with second crops from the same plants, have endangered the quality of their first crop. The chief elements that go to form and accentuate the luscious quality of Melons consist of light, heat, and dryness of the air, the last amounting to absolute aridity, in which the plants generally suffer more or less severely and frequently perish, being perhaps the most potential of the three. What if the plants do perish under

the conditions that land from 40 lbs. to 50 lbs. of luscious Melons into the perfection of flavour and of beauty? With such products in hand, and new plants already showing flower to take their places, the old plants may very well be allowed to perish and give place to their successors. Especially while by growing Melons in succession like Cucumbers, the quality of all the Melons produced through the excess of moisture needed to ensure such succession must be lowered in quality. It seems to be this comparison between fruits so dissimilar in their quality and uses, assuming for the present the Cucumber to be a fruit, that has led Mr. Iggulden astray in this matter. Basing his argument in favour of the successional cropping of Melons on the successional cropping of Cucumbers, Mr. Iggulden is bound to carry his analogy to its logical conclusion thus: Either run both his fruits through to maturity or not; for there is neither sense nor force in saying that because Cucumber plants will bear successional crops throughout the year, therefore Melons will do likewise. They will not, because the conditions as well as the finished products are wholly different. To place Cucumbers in any logical relation to Melons, your correspondent must grow them through to golden maturity of flesh and ripeness of seed. Let Mr. Iggulden try the successional ripening of Cucumbers for seed on the same plants, and he will be surprised to find Cucumbers more like Melons when grown on similar lines and up to a similar mellowness and maturity of flesh and seed than he had imagined. Or the analogy may be squared on a logical basis by reversing the process. Cut Melons in a half-ripened state (they need not be wasted), cook them and serve them like Marrows, they are superior to the best, and the plants will go on bearing in succession like Cucumbers. The tug of war with Melons comes with the swelling and finishing of the flesh and seeds, and while this remains, it will not pay either in quality or quantity to practise the successional cropping of Melons on the same plants. I do not deny Mr. Iggulden's success. Others have done it occasionally with more or less, mostly less, success. Expert Melon growers are very well able to take care of themselves. But a more attractive bait to set before amateurs, or one more certain to end in failure than that Melons may be fed into strength sufficient to go on bearing in succession like Cucumbers, was never heard of. The majority of Melon plants are by no means the poor, starved things so vividly described by your correspondent. More frequently than not they feast in good loam above, and all too often escape into a veritable manure heap below. And the difficulty of setting a full crop of six or more fruit on each plant simultaneously, and the far greater difficulty experienced by at least ninety-nine out of a hundred expert Melon growers of setting a series of crops on the same plants in succession arises from an excess rather than a paucity of vital force and food. No; the testimony of past experience is virtually unanimous on these two points—that as a rule successional crops of Melons on the same plants are an impossibility, and if they were possible they are not worth the candle; also that any analogies drawn from Cucumbers bearing in succession are wide of the mark and wholly misleading. CALEDONIAN.

Setting Grapes.—Mr. Iggulden and I seem to have somewhat misunderstood one another. He appears to think that I meant to suggest in my comment upon his original note that it would be better to leave alone the bead of moisture which commonly exudes from the stigmas of Grape blossoms. I did not quite enter upon that question, but simply meant to remark that the exudation is natural, healthy, and a valuable part of the plant's apparatus for ensuring fertilisation. Mr. Iggulden had worded his note so as to lead me to suppose that he regarded the exudation as something altogether foreign to the blossom and noxious. I ask his pardon for thus misinterpreting his words. The truth probably is that this drop or bead is often

rendered too watery and copious by the artificial conditions under which Grape Vines must necessarily live indoors. However well ventilated a vinery may be, the presence of a glass roof must cause a certain condensation and precipitation of moisture, and the sweet secretion of the stigmas attracts this moisture and is too much diluted and thinned by it, just as a lump of sugar will melt in a damp air. In climates where the Vine grows wild there would commonly be much dry sun-heat when it blooms, and instead of liquefying, the sugary secretion would evaporate and thicken to the proper consistency for retaining the pollen and feeding the pollen tubes. Probably, too, in its native places the Vine blossom has many insect visitors, which greedily sip the excess of moisture and at the same time convey the pollen from one flower to the other, an office which now must be performed by Mr. Iggulden's hand. I think he and I are now left in the comfortable position of being both right and neither of us wrong.—G. H. ENGLEHEART.

ALICANTE GRAPE.

I HAVE enclosed for your inspection a bunch of Alicante Grape which seemed to collapse all at once. There are only two bunches of the natural colour. All the others are yellow, like the one I have sent you. I thought first something must have been poured on the border, as all the other Vines are the picture of health. Would it be wise to lift it or wait until later on, so as not to disturb the rest, as it is the centre Vine of the border?—JOHN SELWAY.

. This is a very unusual experience, but I have met with a nearly similar case. In the latter instance also it was the Alicante that failed, the Vine being situated between two others that kept in excellent health. If all in a house were of a similar sickly yellow hue, I should attribute it to a faulty root-action, a badly saturated border having a very bad effect upon Vines generally. In all probability something of the sort is responsible for the failure under notice, as it proved to be in the other collapse mentioned. In the latter case, a joint in an underground hot-water pipe had leaked very badly for a long time before it was traced, and this had turned the soil of the border into a veritable quagmire. If it is not a wholly or partially buried leaking pipe that has done the mischief in Mr. Selway's case, it may yet be the result of a burst up or blocking of a drain immediately under that portion of the Vine affected, and at a good distance from rather than close up to the stem. Vines like plenty of moisture, but they may easily have too much of it at any time, especially if it sours the soil. Mr. Selway will therefore do well to examine into the state of the border where the Alicante roots are principally located, and to remedy the evil if the cause is found, or otherwise the adjoining Vines may suffer. At the same time, no violent upheavals of the border ought to be attempted now, as it is very certain nothing that is done will greatly alter the character of the Vine this season—at any rate so far as the crop is concerned, while those Vines near at hand that are doing well may be easily injured. Lifting the bulk of the roots in the autumn, or say when the crops are partially or wholly cleared off the other Vines, relaying in good loamy compost would doubtless do much towards restoring the affected Vine to better health, but the chances are the crops next season will in any case be of a very poor description. Why not lay in a young cane from an adjoining rod and let this take the place of the sickly one? That would be the simplest and probably the best way out of the difficulty, though in any case the border should be examined at once, and the cause of failure traced out and remedied if possible.—W. I.

Golden Champion Grape.—Many growers believe this Grape has no merit. Occasionally, however, a cultivator is found who grows it well. An instance of this came before me recently when

calling at Inwood House, Dorset. On looking through the vineries with Mr. Wilkins I observed a strong Vine of this kind. It had twelve bunches on it from 2 lbs. to 2½ lbs. each. On asking Mr. Wilkins respecting it, he spoke most favourably of it, and assured me the bunches were equally good last year. It is generally seen growing too strong, but in this instance this was not the case. It was planted in a house in which Muscat, Madresfield Court, Mill Hill Hamburg, and Black Hamburg were growing. All the kinds were doing wonderfully well.—J. C. F.

MELONS CANKERING.

WHEN there is a sudden change from bright summer weather to a dull showery time, the Melon grower's troubles very frequently commence (at least such appears to be the case with me), this being when canker is most likely to set in. All the while the weather is bright and clear—the nights not unfrequently resembling the days, with this material difference, that they are far too cold to please us—everything goes on satisfactorily. A great expanse of strong foliage evaporates a considerable quantity of water in the course of twenty-four hours, this necessitating almost daily copious watering at the roots and also rendering it perfectly safe and, I think, advisable to resort to overhead syringings freely. The cold nights, again, have to be taken into consideration, and fire-heat freely turned on is another necessity. With ordinarily fair treatment while these conditions last, no canker or gangrene need be feared; but if the change from bright to dull weather is not taken into consideration and the treatment varied accordingly, what on one day is a healthy productive plant may in the next be nearly or quite withered up. On dull or wet days little or no air is given, and this, coupled with the absence of sunshine, arrests evaporation of moisture from the plants to such an extent as to make the excess positively dangerous, and wherever there is either a wound or imperfectly healed scar, that is where the mischief of canker or gangrene commences. Such is my theory, and, acting on it, I rarely have any serious cases of canker to contend with. As my recent writings have shown, I am an advocate of treating Melons most liberally at the roots, and have every reason to be satisfied with the crops annually grown under my directions. Directly, however, dull weather sets in, a much drier atmosphere is maintained, overhead syringing ceases, and much less water is given to the roots. A good warmth is also kept up in the hot-water pipes, and this admits of a little top air being given during the day and a chink during warm still nights. With a change to brighter weather comes a return to the former treatment, and canker is usually conspicuous by its absence.

It is only right to add, however, that other preventive measures are taken, or otherwise it is more than probable failures would occur. At the outset each plant is put out on separate and rather sharp mounds of soil, and when more compost is subsequently added, this never quite comes up to the level of the old soil immediately about the collar of the plants. Once the plants are growing strongly and the roots are widespread, no water is ever intentionally applied against the stems, though some of it reaches that spot during the course of syringing. Later on, though, it keeps perfectly dry and proves an excellent preventive of canker. The collar, as it happens, is not the only vital spot, but canker or gangrene is nearly as liable to take place at any of the joints from the ground up to the trellis. In order that there should be

no unhealed wounds on the stems of plants in full bearing, all side shoots that form below the trellis ought to be rubbed cleanly out as fast as they show, leaving these till such times as to necessitate the use of a knife to remove them being a sure invitation to premature decay of stem, starting from the wounded joint. Ties also should be frequently examined and removed where too tight. The primary leaves, again, ought to be taken the greatest care of. They must not be heavily shaded, or their decay will be only too rapid and also very difficult to arrest. It follows that none ought to be carelessly snapped off, but should this accidentally take place, then sever the stalk cleanly at the stem and apply quicklime repeatedly to the wound or till it is dry.

On page 334 is to be found the remarkable assertion that there are no remedies for canker, the writer, one of our most experienced gardeners and Melon growers, further adding that dusting with charcoal powder, burnt chalk and flour of sulphur are as useful palliatives as any other. If he can suggest nothing better than those three substances, then, as far as he is concerned, there are no remedies, for it is very certain such half-hearted measures are of little avail against such a deadly disease as canker. I maintain that there is an excellent remedy for canker, always provided the disease is not allowed to gain too strong a hold on the stems or haulm. A close look-out ought always to be kept for any signs of canker, and directly a moist wound is seen, this should be scraped quite clean with a knife, and then be well coated with either a powder obtained by scraping unslaked lime of the most caustic description, or a similar dressing of newly-slaked lime (from the limestone rock and not chalk) may be substituted. Failing the caustic lime, use fresh Portland cement, and in either case persevere with its application till the wound is dry and nearly healed. If disease sets in at the joints of the haulm, then cut back to a sound portion and repeatedly dress the wounds with the lime or cement. This treatment, in combination with the other preventive or remedial measures already given, will usually prove efficacious. Merely heaping up sulphur, charcoal, dead lime and powdered charcoal, or dusting with the same, is no remedy and never was.

W. IGGULDEN.

A SERVICEABLE GOOSEBERRY.

GOOSEBERRIES have been most extensively planted during the past decade, more especially by market growers, but I may safely assert that of the varieties selected none have attained to such widespread popularity as Whinham's Industry, referred to and figured in last week's issue. Stocks of this variety have been cleared out from different nurseries as fast as they could be propagated, hundreds of thousands of bushes representing the sales of some of the leading nurserymen. The reason for this exceptional demand is not far to seek. Industry is one of, if not the very first to attain a serviceable size, and all who grow for the markets know only too well what the difference between even two or three days gain in earliness means. One day green Gooseberries may fetch 10s. the half sieve or thereabouts, and on the next the prices may fall to one half that sum—at any rate, such was the case when I was in the midst of a market-growing district, and I have heard of no great change. Not only is Industry very early fit to gather green, but it would appear to be a surer bearer in all seasons than most other varieties. With us it was in flower at about the same time as the other sorts grown, but the branches being long, drooping, and well clothed with strong leaves, nearly the whole of the tiny fruit escaped injury during the long period of

frosty weather following. It was quite an agreeable surprise on lifting some of the branches recently to find them so well furnished with fruit, especially seeing that other varieties of a more erect habit of growth are very lightly cropped.

I gathered a good box of green fruit from the bushes of Industry on May 18, plenty being left to form a succession, and I have formed so good an opinion of the variety, that I strongly recommend private gardeners who have not already done so to give it a trial. It should be planted principally with a view to securing abundance of early green fruit, as when ripe the quality is only second-rate. At the same time I would caution private growers against a too free use of the knife, this variety succeeding much the best when only very lightly pruned. Instead, therefore, of spurring back the majority of the young growths at the winter pruning, they ought to be only slightly thinned out. All that is necessary, or advisable in fact, is to cut away any very close to the ground and to forestall those of straggling growth. Left comparatively thickly the branches protect each other, the fruit being saved from frosts by a good canopy of foliage; whereas only a moderately severe frost generally finds out nearly all the flowers or tiny fruit on the much-pruned bushes.

W. I.

The Apple crop.—There is, I think, every promise and almost a certainty of a good crop of Apples, as the opening of the blossoms has been well timed, for throughout the country heavy showers of very warm rain have fallen, and the weather has been really hot both night and day, which must greatly have favoured and assisted the setting, and the rain will have washed off insects in some measure and helped to render the trees nice and clean. The change in them during the last few days has been little short of marvellous, as they have come on in foliage in the most rapid manner, and a quick swelling of the fruit must follow if the set has been good. Under such circumstances and with such a prospect before us, it seems a pity that the great international fruit show that was originally fixed for October is put off for another year, as we may get a bad season next. —J. SHEPPARD, *Woolverstone Park*.

Strawberry Empress of India is a welcome addition to our British Queen type of Strawberry, and as it possesses so much of the flavour of our old favourite, it is to be hoped it will surpass it in freedom of growth and bear abundantly. The raiser, Mr. Allan, Gunton Park, has of late years given much attention to Strawberries, and, as he stated last year when he gave us Lord Suffield and Gunton Park, he had others, and which he thought better, in store. He certainly was right, as Empress is a first-rate variety, if its bearing qualities are equally good. As one of its parents is Countess that does well in many places, it should prove a welcome addition to our list of Strawberries for good flavour. The raiser says it forces well, but I trust it is equally good in the open. I presume Mr. Allan has not yet tested its behaviour in the open to any extent, but no doubt he will be able to this season and give us his experience, as he did with his other new kinds, first exhibiting forced fruits and afterwards those grown in the open. The verdict was that the fruit was better grown naturally than when first shown.—G. WYTHES.

Strawberry Auguste Nicaise.—I sent a note as to the value of this variety for forcing two years ago, and I am induced to send you a further one after a longer trial. As a first early I do not recommend it, as being a large fruiter it takes longer to ripen after colouring commences than some of the earlier kinds. It is a midseason variety for forcing, if the term can be applied, that I find it useful—that is, to give a supply late in April or in May, and so far as my experience goes, it gives the largest weight of fruit per plant of any other kind. I have had very fine crops of fruit from this variety, the individual fruits being very heavy. It is not a British Queen in flavour, but in these days when size is the first consideration it makes a handsome dish. It sets freely, and being a

firm fruit travels well. The shape is often irregular, some being wedge-shaped, others cockscomb; the colour a dull red, and the flavour fairly good. When grown in a cool temperature and not forced too hard, the flavour is very good. The foliage being of a hairy nature is rather subject to red spider when grown in hot, dry houses; therefore a moist atmosphere must be maintained. It requires more time to colour its fruits than others; hence the advantage of cool treatment to get flavour and freedom from insect pests. It is a robust grower in small pots, not splitting up so much as some kinds, but it is subject to loss of foliage in the winter. I strongly advise a trial if a few extra large fruits are required.—S. H.

NEW STRAWBERRIES.

MR. W. ALLAN, of Gunton Park, has certainly been fortunate in so far securing in two years successively no less than three certificates for new Strawberries. Last year he produced his handsome varieties Lord Suffield and Gunton Park; this year he produces his Empress of India, and obtained for that the highest award the fruit committee of the Royal Horticultural Society can bestow. The great merit of Mr. Allan's seedlings is found in their excellent flavour. The fruits are of good size, tapering, handsome, very glossy or bright, and of a reddish-carmine colour. It is very much to the credit of any Strawberry that it should show such capital flavour as this one does when forced, as we invariably look for the highest quality from outdoor fruits. We have such a lot of really worthless varieties commended for forcing, among which may be classed John Ruskin, Noble, James Veitch, simply because they are large-fruited varieties, that it is an undoubted gain to have one or two new ones which have real merit in flavour. Handsome samples of John Ruskin, of which a good deal has been heard of late, were shown at the same meeting, but the fruits proved to be very acid.

It is just possible that Mr. Allan has found the secret of his success to lie in his tentative or progressive methods. Many a hybridist, using the term as applying to all who cross-fertilise, has failed in attempting too much at once. It is not possible in all cases, perhaps really in none, to secure desired qualities by intercrossing forms that are so diverse. The best method is to select forms only triflingly removed from each other, then to further cross the best of the progeny with other advanced forms, and so proceeding gradually, in perhaps three or four generations to secure the desired end. That has been Mr. Allan's practice, and doubtless if he detailed it fully, would prove to be interesting history. Mr. Allan ascribes much of his success to having employed The Countess as one of the parents. We may well hope that he will persevere in his excellent work. How much would we like to see a Sir Joseph Paxton with rather firmer flesh and richer flavour! As it is, Sir Joseph is perhaps the most grown of any Strawberry in the kingdom, and the improved variety would become far more popular. We have now many varieties of Strawberries in commerce, of which hardly half-a-dozen can be said to rank high for flavour. Improvement in that direction seems now to be the chief thing to strive for.

A.

Melons.—Perhaps some critics would hold that the beautiful as well as delicious Melon for which Mr. Allan, of Gunton Park, obtained a first-class certificate from the fruit committee at the Drill Hall on the 17th, was too small. I do not know that such complaint has been made of such a capital Melon as Scarlet Gem, but still we have seen so many large Melons put into commerce of late, that there may have grown up a bias against small sorts. Now it was a very remarkable fact that out of six handsome very round, very smooth golden-skinned fruits shown, two were cut and entirely eaten by the committee, and one other was cut and eaten later, and all three were exceedingly delicious. That is a most unusual feature in any large Melon—is indeed unusual with any variety. The fact shows, there-

fore, that for once we seem to have obtained a Melon that has even quality and exhibits it alike in all its fruits. Mr. Allan's new Melon has a fairly stout rind, a very important matter in relation to packing and travelling. The flesh also, whilst very luscious, is still firm, yet melting. Then the fruits are of such useful size, that not even half-a-dozen would cause undue strain upon the plants, whilst one is ample for any ordinary meal, and there need be none left practically to spoil, as is the case with so many large Melons. Generally, as these are of inferior table quality, the portion left at table is not again asked for. It is probably the case that great size and good flavour are not joint properties in Melons any more than in other fruits. It is also probable that Melons have suffered in the matter of flavour very much, because size has been so ardently sought for. Did mere size or appearance on the exhibition table weigh only with judges, we should rarely have a Melon of high flavour, as in nine cases out of ten when Melons are cut and tasted, the smaller fruits are of the best quality.—A. D.

KITCHEN GARDEN.

HOT-WEATHER VEGETABLES.

FRESH vegetables that we rightly set so much store by are not always so plentiful as desirable, there being but a limited number of species or varieties that withstand either excessive heat and drought, or the other extreme. During the average season we are apt to forget all about the exceptional summers, though the Jubilee year ought still to be fresh in our memories. It is to be hoped, however, that another such an experience will not fall to our lot this summer, but we are making a very bad start, a good soaking rain and warm nights being badly wanted at the present time (May 11) by all classes of agriculturists and gardeners. In any case it behoves us to prepare for the worst, and then whatever comes there will be the comforting reflection that we at least have done our duty. As it happens, the little extra trouble taken in preparing ground for crops known to be most servicable during a hot season will not in any case be altogether thrown away, good culture being with few exceptions invariably attended with excellent results.

VEGETABLE MARROWS are undoubtedly the most servicable hot-weather crops that can be named, and there are times when little else in the way of fresh green food is to be seen in Covent Garden and other markets. They are sent in huge waggon loads and sell readily at remunerative prices. Added to this, they are quite the sort of vegetable that one likes during hot weather, and at all times are appreciated by most people. The wealthier classes perhaps are not particularly fond of Marrows, but they would like them better and order them oftener if they were cut in a small state or before the seeds develop and cooked whole. It is when thus treated that they are rightly termed Vegetable Marrow. If my advice, therefore, is taken, they will be more extensively grown than usual this season. There is no necessity for nor wisdom in making elaborate preparations for this crop, those huge heaps of decaying matter with a little soil on the top, which are too often provided for Marrows, invariably promoting a rank, unfruitful growth. They may perhaps be needed in very cold districts, but even of this I have my doubts, as wherever I have practised gardening by far the best crops have been had from plants growing under apparently less favourable conditions. If a sheltered corner in a yard of some kind is all the space that can well be spared for Marrows, then,

instead of using so much rich manure and decaying vegetable matter, be very sparing of the former and substitute more common garden soil, or say to the extent of at least one half of the bulk. Where they really succeed the best is the open garden with a row of Runner Beans or rows of Peas on the north side. Open a trench 4 feet in width and 6 inches in depth, throwing the soil evenly on each side. Then wheel in a layer about 1 foot in depth of only partially decayed stable manure or a mixture of this and leaves, returning the greater portion of the soil thrown on to the top of this and no further preparation is needed. Sow the seed at once where the plants are to grow in patches 3 feet apart, and by the time the seedlings come up no protection will be needed. Not more than one plant should be left at each station. This is the market grower's plan, but most private gardeners can afford time and space to raise the requisite number of plants under glass. Sow during the first week in May singly in 3-inch pots, and harden and plant out before the seedlings become stunted. Too often they are raised three weeks too early, and rather than put out starvelings I would prefer to raise a fresh batch. Plant in a single row through the middle of the raised bed, disposing the plants 3 feet apart and roughly protect from frosts and winds. In dry weather it may be necessary to water occasionally during the first month, after which they may safely be left to take care of themselves, the plants bearing profusely in hot dry weather. Never pinch or prune, but let the plants grow, spread, and fruit naturally.

SPINACH usually fails in hot dry weather, but if seed is sown on a cool north border previously well prepared by manuring and digging the crops hold out surprisingly well. I prefer the Victoria or Monstrous Viroflay for summer and early autumn crops, this standing much longer than the common round-seeded or summer Spinach. About three sowings at fortnightly intervals should be made commencing towards the end of May. The drills ought to be drawn 1 foot apart and be moistened if at all dry prior to sowing the seed. Thin sowing should be practised and thinning out where needed early resorted to, crowded Spinach being the first to run to seed. A fairly good substitute for the true Spinach is found in the New Zealand Spinach, though it is my belief the greater portion of what is annually grown in this country is never used. This species being of a succulent nature and somewhat resembling the common Ice plant, actually revels in a hot and dry position, though it ought to have a good thickness of decaying manure under it. A dozen plants will yield abundance or a sufficiency of young tops or shoots, these being what are boiled for most establishments, and they should be planted or sown on a south border or other sunny position fully 3 feet apart each way. The requisite number of plants may yet be raised under glass singly in 2½-inch pots, or the seed be sown in the spots prepared in the open. The plants require no watering after they are once well established, but should be protected from frosts when first put out, and again in the autumn.

TOMATOES are essentially hot-weather vegetables or salading as preferred, and for these the weather cannot well be too hot and dry. Should we experience a hot season the demand for Tomatoes will exceed anything that has previously taken place in that way, and both private and market growers will do well to plant extensively. Unfortunately, open air crops are most precarious, but then they can be cultivated where nothing else will or is often grown, and not unfrequently heavy crops have been taken

from plants growing in the open borders, these being supported by strong stakes. The sites I can most strongly recommend are sunny garden and house walls, those that screen the plants from rainfall being much the best. If the foliage can be kept fairly dry, it is not often that the disease spoils the crops. Give each plant the benefit of a good spit of fresh loam and half that quantity of manure, and they will then grow healthily and strongly, producing heavy crops without much further trouble beyond removing all superfluous side shoots and securing the stems to the walls, fences or stakes as the case may be. Open Air and Earliest of All are among the first to give ripe fruit, while Conference crops the most surely, such sorts as Dedham Favourite, A 1, and Perfection also doing well.

RUNNER BEANS, though moisture-loving subjects, will yet do remarkably well in a hot season, provided they always receive abundance of water at the roots. The rows of these, then, ought to be located conveniently near a good water supply, and a thorough soaking should be given at least once a week during a dry season. Dribblers are simply thrown away on them, and if the plants fail to set great clusters of pods, this is proof positive they are too dry at the roots. They like plenty of manure, too, and in addition to digging in a good dressing of solid manure, liquid manure ought also to be given freely. Allowing them to mature a quantity of seed has a very weakening effect, and the pods should be kept closely gathered whether wanted for home use or not. Kidney Beans are never continuous-bearing for any great length of time, but they can be had throughout a hot season by sowing at short intervals, the ridges between Celery trenches answering well for them.

PEAS are not happy during very hot and dry weather, but even these succeed surprisingly well on spaces 6 feet or rather less in width between Celery trenches. They also do well if treated as liberally at the roots as runner Beans. Ne Plus Ultra is one of the best hot-weather varieties that can be tried. Cabbages are usually too much over-run by caterpillars to be of any real service, and the same remark applies to the earlier varieties of Cauliflowers; but the Autumn Giant can be had clean and good in August, provided the plants are kept well supplied with moisture and manure at the roots. W. I.

NOTES ON LATE BROCCOLI.

If a supply of vegetables is to be maintained throughout the spring months, and especially the month of May, Broccoli must still be relied upon. Hardily-grown Broccoli weathered the storm and stood up bravely against it, when Cabbages could barely make any progress and Spinach was withered up. For supplying a gentleman's table, something more than ordinary greens is needed, and although we make full allowance for such crops as forced French Beans and Asparagus, these are not forthcoming in every garden for the want, perhaps, of means to provide them. Broccoli can be grown by everyone. It is quite evident that some of the kinds that are planted are not quite hardy, or they would not succumb so quickly as they do. There can be no questioning the hardiness of Veitch's Model—at least, as compared with other sorts—for again this has come through the ordeal the best of any. Last season I was able to speak favourably on this sterling kind, and I can again reiterate what I then said. I will venture to say that this variety will eventually become as popular as a late spring Broccoli

as Veitch's Self-protecting Autumn. By having the plants well exposed they form remarkably dwarf stems, the leaves falling over so as to rest on the ground, and thus protecting the stems. Ledsham's Latest of All and the old Cattell's Eclipse are also good sorts. I am growing Cattell's Eclipse again this season, but Model, I think, will eventually supersede the lot for the general late supply. The heads do not grow so large as those of the others, but yet are large enough for table use.

Planting Broccoli on loose ground, especially between rows of Potatoes, is one of the sure sources of failure and a practice which I could never see the wisdom of. If room is scarce, better by far not grow so many Potatoes and have the rows of these closer together, so as to reserve a piece of ground specially for the Broccoli. The ground for Broccoli cannot very well be too firm. If it should come a "dripping" time, the haulm of the Potatoes is kept with difficulty off the Broccoli. There cannot be too much care in preparing green vegetables for winter and spring use, so double cropping cannot be too strongly condemned. It is where this course is adopted that the plants are so greatly injured by frost as to be cleared off wholesale. What is termed the winter or early spring Broccoli is the most disappointing, probably on account of being in a more forward state, and thus unable to withstand the cold blasts. The good old Penzance and Leamington are amongst the very best to precede the others I have named, but are not nearly so hardy, probably on account of being larger growers and not so self-protecting. As an experiment I once, before, however, becoming so well acquainted with Model, planted a breadth of Eclipse on a north border, thinking by so doing to have a very late lot, but it did not turn in. It commenced remarking fresh growth, kept on growing throughout the season, and did not turn in until the usual time the following spring. The lesson then gained proved that even for the very latest crops the plants could not be grown too fully exposed, so that the tissues may become well hardened. This is what we want if success is to attend our efforts. I am well aware that after all our preparations the natural elements will cheat us, but still, when we can ensure a fair percentage of Broccoli being saved, it behoves us to use the most judicious means to ensure their turning out well. Not by any means would I make Broccoli my sheet anchor as a spring supply, but it is sure to be appreciated, and if after weathering the winter storms and spring blasts it comes out well, the grower will be well rewarded for his pains.

It is quite evident that thousands of plants are ruined before they are planted out, either through too early sowing and also overcrowding in the seed-beds. I generally sow late enough, so that the plants may be planted into their permanent quarters direct. In this way the plants do not remain in the beds to be spoilt by overcrowding. This garden is much exposed. Oftentimes people have to wait until a crop is off before Broccoli can be planted out, but this is no reason why the plants should be spoilt, as they can be easily pricked off when about 4 inches high. By this means the plants receive a wholesome check, the tissues become hardened and are in good condition when the time comes for planting.

Another mistake, I think, is the baneful practice of planting on the poorest of ground. Some people appear to think that any poor soil is suitable for the Broccoli crop, and select sites which are practically exhausted. It must not be inferred that I would go to the extent of overcharging the soil with stimulating manures, but

I would not hesitate to manure for the crop if I was under the impression that the soil was wanting in fertility. Firmness of soil is what is needed, and with fertility combined, then the plants will not become too gross. Ground which has been occupied with Peas, and the ground for which was manured, will be found very suitable for Broccoli. It is by treating the plants rationally that we are likely to succeed. In old gardens which are rich in humus through long years of manuring, and which have become almost black, the practice of dusting the surface over with lime previous to planting should not be neglected. A little salt would also be highly beneficial. A. Y. A.

SOCIETIES AND EXHIBITIONS.

THE INTERNATIONAL HORTICULTURAL EXHIBITION.

MAY 27 & 28.

THIS exhibition must be considered as a thoroughly representative one, whilst as to the quality and numbers of the exhibits in the various sections there is no occasion to find fault, but rather to congratulate ourselves that such a splendid display can be brought together in these days, when so much encouragement is not held out by other societies to exhibitors to remunerate them for their trouble and expense. The two exhibitions, that at the Temple and the other at Earl's Court afford a considerable contrast. At the former, the Orchids were the finest features in the show both for their numbers and the attraction they caused. At Earl's Court there were several splendid examples of flowering stove and greenhouse plants, with such grand Palms and Crotons as have never before been staged at any such show in London. Orchids from the trade growers still being a prominent feature.

Orchids were in the competing classes best shown by Mr. Cypher, who had large and freely flowered examples of *Dendrobium thyrsiflorum* and *D. Bensone*, with a splendid plant of *Cypripedium caudatum*, with other good things in *Lælia purpurata* and *Cattleyas* (*Mendeli* and *Mossiae*), and a fine plant of *Odontoglossum vexillarium*. Mr. James, who came second, had an excellent *Vanda suavis* and *Cymbidium Lowianum* with *Dendrobium nobile*. For new Orchids Messrs. Sander and Co. won easily, showing in the class for three, *Cattleya Arnoldiana* (*L. purpurata* × *Cattleya labiata*), a richly coloured hybrid; *Dendrobium Phaleopsis dellense*, and *Grammatophyllum Measuresianum*, all promising additions. In Mr. Cypher's second prize exhibit was *Cypripedium Chamberlainianum* in good condition. For one new Orchid Messrs. Sander and Co. were the only exhibitors, taking the first prize with their beautiful plant of *Odontoglossum Bleui superbissimum*, shown also at the Temple. In this class they also showed *Oncidium Gravesianum vivicans*, a distinct form of this scarce Orchid. Miscellaneous groups of Orchids were staged in profusion. Messrs. Sander and Co., Messrs. Hugh Low and Co. and Messrs. Charlesworth, Shuttleworth and Co. all had similar groups to those shown at the Temple, Messrs. Sander's still containing their new and choice kinds. Messrs. Charlesworth's being staged upon the ground had a very pretty effect. Messrs. B. S. Williams and Son also had a good collection; these were placed in the newly-erected glass structure at the opposite end of the long building, and consisted of plants as previously described in the Temple show report. Mr. Prinsep again staged his fine plants of *Dendrobium nobile*, which still looked remarkably fresh. Groups of Orchids and fine-foliaged plants in competition were best shown by Mr. Cypher and Mr. James in the trade class, and by Mr. Currey in the amateurs'. The first-named arranged his group in an admirable manner with suitable foliage plants; the last two made the mistake in employing foliage plants that were too

heavy or of too dark a shade of green to give a good effect, although a few well-coloured small plants of *Crotons* were a redeeming feature in that of Mr. Currey.

For hardy herbaceous, bulbous and alpine plants, Messrs. Paul and Son were first with a collection staged in their usual good style in the trade class, whilst in that for amateurs, Mr. Sage, Dysart House, Twickenham, took the first prize, he also showing remarkably well. Mr. Ware was first with an extensive group of hardy deciduous shrubs in flower, showing chiefly *Pæonies*, *Azalea mollis* (both in great variety), with *Genista Andreana* and *Hydrangeas* that had evidently not been grown out of doors. Mr. Ware also exhibited a large collection of cut blooms of late *Tulips* and other things in season, forming a miscellaneous group. Other flowering plants, as *Begonias* and *Gloxinias*, were shown in splendid condition by Messrs. Laing and Sons, who took first for both single and double tuberous *Begonias*, with well-grown plants of dwarf and sturdy growth, bearing grand blooms in the case of the doubles, which were as good examples as anyone could possibly desire, whilst the singles were excellent also, neither lot being over-large, but quite enough so for any practical purpose. The same firm took first for *Gloxinias*, with well-grown plants, profuse in bloom and of an excellent strain. Mr. Long, Streatham Hill, was first in the amateurs' class. Messrs. B. S. Williams and Son were a capital first for *Clivias*, with plants of medium size, bearing fine trusses of bloom. They were also first for twelve *Amaryllids*, with plants and flowers of good quality, although somewhat late in the season.

FINE-FOLIAGED PLANTS.—There were several grand examples of these shown. This was notably the case with the collection of nine distinct *Palms*, to which the first prize was awarded in the nurserymen's class. This finely-grown lot of plants came from Messrs. Wills and Segar; the largest were truly noble specimens of *Kentia australis*, *Areca sapida*, *Seaforthia elegans*, *Latania borbonica*, *Pritchardia pacifica* and *Rhapis humilis*, with good specimens also of *Kentia Wendlandi* and *Phoenix reclinata*. Mr. Cypher also exhibited well in this class, his finest plant being *Latania borbonica*, with good ones also of *Kentias* and the seldom-seen *Caryota sobolifera*. The largest plants in this and a few other instances give an idea of their noble proportions when well grown. In the amateurs' class, Mr. Offer, Handcross Park, was first. He had fine plants of *Phoenix tenuis*, with two splendid *Kentias* and *Latania Commersoni*, a variety not often seen so good, its reddish-coloured tints on the younger foliage and leaf-stalks being very effective. Mr. Finch, Coventry, came second in this class with large plants, *Kentia Belmoreana* being one of his best.

For fine-foliaged plants Mr. Cypher was first in the nurserymen's class. Here was shown the only good plant in the show of the true *Cordylina indivisa*, with some fine specimens of *Kentias* and *Cycads*. Mr. Offer was an easy winner in the amateurs' class, staging *Cycas revoluta* in splendid health and of large proportions, with graceful arching foliage only seen in the best forms. Two fitting companion plants were *Croton angustifolius*, still unsurpassed in its elegant growth, the foliage in this instance of a rich golden colour, and another of *Croton princeps*. With these were also fine plants of *Kentia australis*, *Cycas circinalis*, and *Alocasia macrorrhiza variegata*. Mr. Ford, West Park, Slough, was a good second, showing amongst other plants a fine one of *Alocasia gigantea*, misnamed *A. Lowi*, with two good *Crotons*. The first prize for ten *Crotons* went to Messrs. Charlesworth and Co., Peckham Rye, for plants of medium size only, the best being *C. Morti*, *Queen Victoria*, *Reidi*, and *Baron F. Selliere*. The second prize went to much larger plants from Mr. James, but *Crotons* are non-effective when not well coloured. The six *Crotons* from Mr. Offer were one of the features of the show; finer plants or in more perfect form as regards colour are rarely seen. These were *C. undulatus*, *Queen Victoria*, *Evansianus*, *Prince of Wales*, *Warreni*, and *Disraeli*. With twelve *Dracænas*, Messrs. Laing & Sons

were first, having dwarf plants of the best kinds, the best being *D. australis variegata*, *D. Lindenii*, *D. mortfontainensis*, *D. Alsace Lorraine*, *D. Massaganea* (paler than *D. Lindenii*), and *D. Mme. Bergman*. Messrs. Peed and Sons were a close second, having *D. amabilis*, *D. norwoodensis*, *D. Baptisti*, and *D. Wilsoni*, all in good order. The position of these two competitors was reversed in the class for *Caladiums*, both showing several of the newer kinds particularly good, but the growth of the first prize lot was more compact. The best in these two exhibits were *C. Sanchoniathum*, *C. Excellent* (an improved *C. Chantini*), *C. J. A. Box*, *C. Paul Verniere* (metallic-looking hue). There was scarcely any perceptible difference in these two exhibits. The class for six *Dracenas* brought some good competition. The best set came from Mr. Offer, who had *D. Lindenii*, *D. Robinsoniana*, *D. Mme. Bergman*, and *D. porphyrophylla*, all finely grown. Mr. Howe, Park Hill, Streatham, came a near second; his best were *D. Baptisti*, *D. Mooreana*, and *D. Youngi*. Another good set came from Mr. Lambert, Herne Hill. Pitcher plants were only represented by two collections. The first prize collection from Messrs. Peed and Son were moderate-sized plants, some of which were in capital form, particularly *Sarracenia Chelsoni*, *S. Tolliana*, *S. Stevensi*, and *S. Atkinsoniana*, Mr. James being second. The best six Ferns were those from Mr. Offer, who showed large and healthy specimens of *Davallia polyantha* and *D. Mooreana*, with *Lastrea laserpitifolia*, a handsome Fern of compact growth, and one not often seen, *Cibotium Schiedeii*, *Alsophila australis*, and *Dicksonia antarctica* completing the number. Mr. Ford came in a good second with all dwarf kinds, the best being *Adiantum decorum* (a fine plant) and *Phlebodium phymatodes* (a bright green species). Another good lot was staged by Mr. Tate, who had *Adiantum Williamsi* and *Nephrolepis davallioides furcans*, both in good form. The finest pair of Tree Ferns were those from Messrs. B. S. Williams and Son, a grand pair of *Dicksonia antarctica*, the next best being those of Mr. Offer, one each of *Cyathea dealbata* and *Dicksonia antarctica*, making a capital pair.

New plants consisted chiefly of those shown by Messrs. Sander and Co., who had some good things in their various collections in the several classes provided, and some choice things from M. Linden. With three new plants shown for the first time Messrs. Sander were first, having *Vriesia tessellata* Sanderiana, a very beautiful novelty; *Maranta Sanderæ*, after *M. roseo-picta*, but more robust, a striking plant, and *Anthurium Lawrenceæ*. For one new plant in flower, Messrs. Sander were also first, showing a small growing variety of *Dipladenia* (or *Echites*) under the name of *D. Marie Henriette* with small flowers of a deep chocolate colour. By some this plant is considered identical with *Echites atroviolacea*; certainly it is closely allied to it. For twelve new plants Messrs. Sander and Co. were also first; some of the best of these were *Pteris phenicophorum Harrisii Victorizæ* (too long a name), an extremely narrow silvery variegated form of compact growth; *Cocos Pynaerti*, a minor variety of *Cocos Weddelliana*, *Leopoldina Lauchiana*, best described as a major form of the same well-known Palm, which is by botanists classified as *Leopoldina pulchra*; *Alocasia nobilis*, having arrow-shaped leaves; a variety of *Nidularium Makoyanum* and *Anthurium albense*, having spathes of a deep blood colour. With six new plants, Messrs. Sander and Co. were likewise first, showing in this instance *Phoenix Roebelinii*, a dwarf and compact variety; *Nidularium striatum*, with pale coloured foliage; and *Oreopanax Sanderiana*, with other plants. For one new fine-foliaged plant, Messrs. Sander and Co. were also placed first with *Vriesia tessellata* Sanderæ, a beautifully variegated form, and one of the best things in the entire group. M. Linden had his well-grown and attractive collection of new plants which were shown the previous two days at the Temple; hence in the opinion they did not presumably comply strictly with the schedule in letter, as they did in spirit. The best of these were alluded to last week in the report of the Temple

show, but two should be particularly noted as promising additions in every respect, viz., *Dichorisantha musaica gigantea* and *Smilax argentea*, two plants that should find permanent recognition. The beautiful new *Calla Elliotiana* was again shown by Captain Elliot, Farnborough Park; it has been previously described in these columns. It will become an undoubted favourite when once put into commerce, with its rich deep golden spathes of great substance.

Miscellaneous groups were largely shown by trade growers and from a few private gardens. Amongst the latter, particular note should be taken of the splendid examples of *Malmaison Carnations*, the deep pink and the blush variety both with flowers of unusual freshness; also of *Almeira*, a valuable yellow kind in profuse bloom, which were staged by Mr. Jennings, gardener to Mr. Leopold de Rothschild, at Ascott, Leighton Buzzard, and reflected the greatest credit upon this able cultivator. Another fine lot of *Carnations* (*Malmaison*) in large numbers were staged by Mr. Crasp, gardener to Lord Wimborne, Canford Manor, Dorset, making also an excellent display. To both of these groups silver medals were awarded. From the trade came several groups as exhibited at the Temple show. Messrs. W. Paul and Son staged a grand bank of *Roses* in pots, being awarded a gold medal. Messrs. Laing and Sons staged a choice mixed group; so also did Messrs. Cutbush and Son and Messrs. B. S. Williams and Son; Messrs. Waterer and Son another of hardy *Azaleas*, Mr. Mould one of well-grown half-specimen *Ericas*, Messrs. Peed and Son one of well-flowered *Anthurium Scherzerianum*, Messrs. James and Son *Calceolarias*, Mr. Iceton a grand group of *Palms* of noble proportions, Mons. Adolphe d'Haene one of fine-foliaged plants and another of *Orchids* and *Nidulariums*, Messrs. Low and Co. one of *Ericas* as shown at the Temple, and Messrs. Laing and Sons another group, this time of hardy plants. Messrs. Kelway and Son staged a large quantity of cut *Pæonies*, *Iris*es, &c., as did Messrs. Barr and Son. Mr. Chard, Stoke Newington, showed several floral arrangements; MM. V. Lemoine and fils, Nancy, showed their grand forms of double *Lilacs* with spikes of unusual size and vigour; to each of these exhibits silver medals were well and deservedly awarded, and the same award was made to a large group of Ferns which Messrs. Birkenhead staged in good condition. Bronze medals were awarded to Mr. Phippen for a group of decorative plants, and to Mr. Hooper, of Bath, for *Pansies*. Amongst the Covent Garden produce, the best things were shown by Messrs. Hayes, of Edmonton, who took first for a large assortment of things in season; Mr. Brown of Hendon, being second. These were both well-grown collections of various plants now sent to Covent Garden.

There was not so much competition in the fruit classes as could have been wished. For a collection of fruit, eight dishes distinct varieties, Mr. McIndoe, gardener to Sir J. Pease, Hutton Hall, Guisborough, Yorks, was first with a very fine dish of Foster's Seedling Grapes, fair Black Hamburg, Best of All Melon, good Lord Napier Nectarines, Figs, Strawberry Noble, Bellegarde Peaches, very fine Frogmore Bigarreau Cherries, and a nice-sized Hunter's Queen Pine—a very even lot. Mr. J. Crawford, gardener to Colonel Thorpe, Coddington Hall, Newark-on-Trent, was second, his best dishes being Black Hamburg Grapes and a Melon, Apples and Pears being shown with Figs, Strawberries, and a very small Pine. The prizes for three bunches of Black Hamburg Grapes were well contested, seven lots being shown, Mr. T. Osman, gardener to Mr. L. T. Baker, Ottershaw Park, Chertsey, being first with nice even bunches of medium-size with good colour and large berries; second, Mr. McIndoe, with smaller berries but of good colour; third, Mr. T. Edmunds, gardener to the Duke of St. Albans, Bestwood, Notts. For three bunches of white Grapes, Mr. McIndoe was easily first with very fine bunches of Foster's Seedling of a beautiful colour; second, Mr. E. Peters, gardener to Mr. J. L. Mansell, Guernsey, with good bunches of Muscat of Alexandria with fine berries, but not ripe. There were only three competitors for

twelve pots of Strawberries, but those shown were good, the first prize going to Mr. Norman for splendid examples of *Marguerite*; second, Mr. G. Thomson, gardener to Messrs. Wells, Hattonhurst, Hounslow, with Sir C. Napier bearing a great number of nice fruit, but unfortunately disfigured by cotton-wool being used to pack the fruit; third, Mr. W. Chuck, Brodsworth Hall, Doncaster, with British Queen of medium size. For the best dish of twenty-five fruits of Strawberries, the Marquis of Salisbury (gardener, Mr. Norman) sent really wonderful fruit of *Auguste Nicaise* equal, if not superior to those shown earlier in the week at the Temple; these were shown in a large box, and were worthily awarded the large silver medal in addition to first prize as the best fruit in the show; second, Mr. W. Chuck, with British Queen; third, Mr. G. Thomson, with good Sir C. Napier. The class for Cherries was poorly represented, Mr. McIndoe staging fine Black Tartarian, and Mr. P. Blair Early Lyons of nice size and finish, the awards being given in the order named. For Peaches, Mr. Robins, gardener to Colonel Lee, Hartwell House, Aylesbury was first with highly coloured Hale's Early, Mr. McIndoe being second with larger fruit of *Grosse Mignonne*, but paler and not so ripe. For Nectarines, Mr. McIndoe was first with well coloured Lord Napier; second, Mr. J. Hudson, gardener to Messrs. Rothschild, Gunnersbury House, Acton, with fine fruits perhaps not quite so ripe as the first lot, but in the opinion of many superior as to size and deserving of the higher award; third, Mr. A. Smith, Rolleston Hall, with smaller fruits of the same variety. Melons brought out a strong competition. For the best scarlet flesh, Mr. J. Crawford was first, with Scarlet Premier; second, Mr. Lockie, Oakley Court, Windsor, with Blenheim Orange. For green-fleshed Melons, Mr. T. Bowerman, gardener to Mr. C. Hoare, Hackwood, was first with The Countess; second, Mr. C. Ritchings, gardener to Dr. Frankland, The Yews, Reigate; third, Mr. McIndoe. For Figs, Mr. J. C. Tallack, Livermere Park, Bury St. Edmunds, was first with good samples. For Tomatoes, Mr. G. Mount was first with a fine lot of Perfection; second, Mr. F. le Poidevin, Guernsey; third, Mr. T. Lockie. For Cucumbers, Mr. Lockie showed splendid fruits of Lockie's Perfection, taking the first prize; second, Mr. S. Mortimer, Swiss Nursery, Farnham, with Sutton's A 1. There was only one basket of salad of eight varieties shown, Mr. A. Hewell, gardener to Sir E. Saunders, Fairlaw, Wimbledon, taking the first prize, with a nice basket. The same remarks apply to the class for Asparagus, Mr. A. Smith taking the award. The collection of forced vegetables, eight varieties, brought out some nice things, Mr. T. Lockie being first with fine Cucumbers, American Wonder Peas, Perfection Tomatoes, Negro Beans, and a very fine dish of Snowdrop Potatoes; second, Mr. J. Crawford, with good Early Milan Turnips, Puritan Potatoes, good Cucumbers, Perfection Tomatoes, Chelsea Gem Peas (very good), and Early Nantes Carrot. For eight dishes of vegetables not forced there was but one competitor, Mr. J. Crawford, the best dishes being Veitch's Model Broccoli, Asparagus, and Cabbages. There was a fine collection of Cucumbers and Tomatoes staged by Mr. S. Mortimer, the varieties being the same as shown at the Royal Horticultural show earlier in the week. For this collection a silver medal was awarded. Mr. Miller, gardener to Lord Foley, Ruxley Lodge, Esher, staged the lot shown earlier in the week, a silver medal being also awarded. Mr. T. Bowie, Sutherland, Reading, had a dozen nice Hero of Lockinge Melons. A large collection of Melons in variety was staged by Mr. C. Blick, The Warren, Beckenham (bronze medal). The Countess Melon was sent in fine condition, not for competition, by Mr. Smith, Rolleston Hall. Jellies, jams, marmalades, and other preserved fruits were staged by Mr. C. Chambers, Maidstone (silver medal). Mr. Churchman, Wokingham, staged a quantity of Melons of excellent quality (silver medal). Messrs. Slater, South Kensington, had a very fine stand of foreign and home-grown fruit and vegetables (silver medal). Mr. A. Johnson, Covent Garden, also had a great variety of Apples and colonial fruit (silver

medal). Mr. McIndoe had a fine collection of Oranges, Citrons, Lemons, &c.—a very interesting exhibit (silver medal). In the market competition, Mr. F. le Poidevin, Guernsey, staged fine Melons in quantity, and received an extra award for dwarf Beans and Tomatoes. Messrs. White and Co., Covent Garden, had a fine collection of vegetables, the Asparagus being of immense size. There were also some very choice foreign fruits and vegetables of great size, Cherries, Grapes, Apricots, and St. Michael Pines being extra fine. The above firm received a gold medal for the excellence of their exhibits.

FRENCH NOTES.

VITIS ARGYROPHYLLA.—Although a very ornamental species, this is seldom to be met with in commerce. It is occasionally seen in gardens under the name of *Vitis persica*, from which species, however, it differs in some respects. *Vitis argyrophylla* is a native of Turkestan, and is synonymous with the *Cissus argyrophylla* of Bunge, *Ampelopsis argyrophylla* of Planchon, and *Ampelopsis vitifolia* of some authors. From its trailing or semi-scandent habit of growth, the plant is admirably adapted for furnishing rockwork, grottoes, &c., for hiding from view ruins or bare and unsightly places, or for covering declivities with a rich garb of foliage. It may also be grown in borders, as it bears pruning well at all seasons, and can readily be cut and shaped to the form of a clump or tufty bush. It is multiplied by means of cuttings or by layering. For cuttings, half-ripened wood is most usually employed, one or two buds being left on each cutting. They are then inserted into pots filled with heath soil and placed under cloches in the propagating house. When layering is the method adopted, old heath soil is used. The plant may also be propagated from offsets taken in spring. Whatever method of propagation may be employed, the plants are afterwards planted out in the open ground, where they are quite hardy. Plants of *Vitis argyrophylla* can be obtained from M. Godefroy-Lebeuf, nurseryman, Argenteuil.

DEUTZIA PARVIFLORA.—*Deutzia parviflora* appears to be as yet but little known in Europe, although it has for several years been known and grown in N. America, where it was first introduced at the Arnold Arboretum, the original plants having been sent there by Dr. Regel from St. Petersburg. The species is indigenous to the north of China and the banks of the Amoor River, and would consequently be hardy in our latitudes. It forms a bush of short and vigorous growth from about 5 feet to over 6 feet high, with erect branches and dark green leaves. It comes into flower (in N. America, at least) somewhat earlier than *D. gracilis*, that is, in the end of May or early in June, and has gone out of bloom before the last-named species comes into full flower. The flowers are milk-white, occasionally creamy-white, and agreeably perfumed. In shape they differ from the flowers of the other species of *Deutzia*, being salver-shaped or slightly cup-shaped instead of bell-shaped. They are also produced in corymb-like clusters, very much resembling the clusters of the flowers of Hawthorn or of some kinds of *Spirea*. These flower-clusters grow erect on the ends of the branches, and being very numerous and of a pure white colour, are very effective during the time of bloom. The treatment under culture does not differ from that which is employed in the case of the other species of *Deutzia*. Any light, well-drained, substantial soil will suit it. It is multiplied by means of cuttings taken either from the ripe wood in

autumn or winter and struck in the open air, or from the young wood in spring and struck under cloches in the propagating house. We have no doubt that such a handsome hardy shrub as *Deutzia parviflora* only requires to be better known to become widely popular.

GLASS BRICKS FOR PLANT HOUSES.—A recent invention of M. Falconnier, a Swiss architect, is the employment of glass for making bricks to be used in the construction of plant houses. These bricks are blown hollow in the interior like bottles, and are of somewhat different dimensions from those of the ordinary brick, being 8 inches long, nearly 6 inches broad, and about $4\frac{1}{2}$ inches thick. The advantages claimed for their use are that in plant houses constructed with them, the walls being translucent, there is a much greater amount of diffused light than is obtainable in ordinary plant houses, and also that the air contained in the bricks being a bad conductor, the radiation and loss of heat are more effectually prevented and firing is thus economised. The present price of these bricks is £1 per 100, but they will probably become much cheaper should the demand for them be sufficiently large to permit of their being manufactured on an extensive scale.—*Revue Horticole*.

PUBLIC GARDENS.

Another open space.—A valuable addition to the green spots of the City was made on Monday, when the burial-ground of St. Botolph, Aldgate, was thrown open as a public garden. The Hon. Sir C. Fremantle, chairman of the Aldgate Freedom Foundation, a governing body which has control of the local charities, presided at the inaugural ceremony. The Public Gardens Association have contributed largely towards the expenses of laying out the grounds.

Lincoln's Inn Fields.—The Hybrid Committee of the House of Commons, presided over by Sir Joseph Bailey, after hearing witnesses, stopped the opponents' evidence and decided that so much of the preamble of the Bill as related to the opening of the Lincoln's Inn Fields had not been proved. The committee expressed the pleasure with which they would see these fields opened to the public, but stated that they did not see their way to override the Open Spaces Act, 1881.

Expenditure on parks.—The Parks Committee of the London County Council have been authorised to expend £420 on capital account for the purchase of two additional plots of land to be added to Brockwell Park; to incur an expenditure of £366 for erecting a bathing shelter, and planting a shrubbery to screen it, on the eastern bank of the present bathing pond on Hampstead Heath; and to incur an expenditure of £1415 for laying gravel on the paths on Parliament Hill.

North Park, Eltham.—The Parks and Open Spaces Committee reported that they had given consideration to the question of purchasing as a public park the remaining portion, 118 acres in extent, of North Park, Eltham. The valuer estimated the cost of this property at £35,400, and, having regard to its distance from the populous parts of the county, they were not prepared, as no contributions had been offered by the local authorities or other bodies, to advise the expenditure.

New playgrounds for East London.—An influential deputation from the Hackney District Board of Works, headed by Sir Charles Russell, Q.C., M.P., waited upon the Open Spaces and Parks Committee of the London County Council to urge the desirability of purchasing the large area known as the Hackney Marshes as a public recreation ground for East London. The price asked is £82,000, of which sum the Council have offered £50,000 and the District Board £16,000. As a re-

sult of the deputation the committee agreed to recommend the Council to increase their offer by £10,000, and Mr. Tyssen Amherst, the lord of the manor, has promised £5000, which leaves a very small sum required to bring this admirable scheme to a successful issue. The addition of another "lung" to crowded East London is always welcome.

Alexandra Palace.—Considerable opposition will be raised to the Bill that has been promoted by the London Financial Association for powers to transfer the Alexandra Palace and grounds to some public body or trustees for use as a place of public resort and recreation. Petitions praying to be heard in opposition have been presented by the Corporation, the County Councils of London and Middlesex, the Tottenham Local Board of Health, the Vestry of the parish of St. Mary, Islington, and the Great Northern Railway Company.

Metropolitan Public Gardens Association.—On Saturday afternoon the circular enclosure known as De Beauvoir Square, Kingsland Road, N., which has been laid out by the Metropolitan Public Gardens Association, was formally opened to the public by Mrs. Tyssen Amherst. Sir William Vincent, vice-chairman, representing the association in the absence abroad of its chairman, the Earl of Meath, stated that the association had spent over £200 in the laying-out of the ground, which had been placed at its disposal for a nominal rental by Mr. Richard Benyon. The Hackney District Board had undertaken to maintain the garden. He appealed for support on behalf of the association, which had now laid out more than seventy places in various parts of London, and whose income entirely depended on voluntary contributions. He mentioned that the association was greatly interested in the scheme for the purchase of Hackney Marshes, which at present was in abeyance owing to the refusal of the owners, who asked £82,000, to accept the £66,000 offered jointly by the County Council and the Hackney Board, and he earnestly hoped that by mutual concessions this magnificent playing-field of 340 acres might be secured for East London, as the congestion in Victoria Park rendered cricket positively dangerous.

Names of plants.—*A. Wills*.—1, *Odontoglossum citrosium*; 2, *Lælia Russelliana*.—*A. H.*—*Lælia purpurata*.—*C. B. C.*—1, *Oncidium concolor*; 2, *Odontoglossum Pescatorei*; 3, *Oncidium cucullatum*.—*G. Duncan*.—A very fine variety of *Cattleya Mendeli*.—*G. Gledsten*.—1, *Cattleya Schroderae*; 2, *Oncidium sarcodes*; 3, *Oncidium Marshallianum*.—*F. B.*—*Cattleya Mossie*; nothing extra in the variety.—*Lady King*.—*Alyssum saxatile*.—*G. T. P.*—*Anomatheca cruenta*.—*John Puget (Colonel)*.—*Saxifraga granulata* fl.-pl. —*W. G.*—*Saxifraga granulata* fl.-pl. —*John Bennett*.—*Dendrobium nobile*, white form; *Gloxinias* not equal to many others now in cultivation. —*Rev. J. L. Stackhouse*.—The poorest form of *Odontoglossum Harryanum* we have seen. —*A. McLennan*.—1, *Polystichum angulare lineare*; 2, *Adiantum cuneatum* var.; 3 and 4, not recognised; 5, *Vittadenia triloba*; 6, *Listera ovata*.—*Jas. Broome*.—*Cattleya Mossie aurantiaca*; *Cattleya Mendeli*, ordinary form. —*H. K. C.*—The only way is to pull off the leaves and burn them. —*G. Britten*.—1, *Dendrobium Streptoceras*; 2, *D. æmulum*; 3, *D. Parishii*; 4, *D. albo-sanguineum*.—*W. Rickham*.—1, *Toxicophyllea spectabilis*; 2, *Dendrobium aggregatum*.—*G. Morant*.—1, a very good form of *Oncidium sphecelatum*; 2, *Dendrobium infundibulum*; 3, *Brassia maculata*.—*C. J. Maunder*.—1, *Oncidium cucullatum*; 2, *Dendrobium palpebrae* (it was named *D. bicolor* in error); 3, *D. Dalhousianum* (very fine form); 4, *Cypripedium Curtisii*.—*D. Rooney*.—1, next week; 2, *Ranunculus acutifolius* fl.-pl.; 3, *Anthurium crystallinum*.—*J. C. Hawkshaw*.—*Loasa vulcanica*.—*J. Gordon*.—*Dendrobium aggregatum majus*.—*Amicus*.—*Pæonia tenuifolia*.—*J. M. Wilson*.—Specimen shrivelled up. —*T. Stirling*.—1, Bird Cherry; 2, *Viburnum Lantana*; your Narcissi no doubt want to be lifted; very likely the bulbs are too crowded. —*E. L. S.*—1, send fertile frond; 2, *Geum coccineum* fl.-pl.; 3, *Doronicum* species; 4, *Epimedium pinnatum*.—*W. B.*—2, *Saxifraga granulata*; 3, *Doronicum caucasicum*; 4, send better specimen; 5, *Pulmonaria officinalis*; 6, *P. officinalis* (white var.); 7, *Saxifraga umbrosa* (London Pride).—*J. R.*—Unable to say; please send treatment of your Vines and fresh leaves.

WOODS AND FORESTS.

THE WHITE BIRCH AND ITS VARIETIES.

THE genus *Betula* contains about five-and-twenty species, and is most numerously represented in the Northern Hemisphere, where it ranges from temperate to arctic regions; it is also found in Mexico and Peru. None of the species, if we except the second British one, the dwarf Mountain Birch (*Betula nana*), has a geographical range so extended as *B. alba*, the subject of these notes; moreover, not one is such a handsome and graceful tree. Either when in leaf or leafless it possesses an airy grace all its own. It is no less remarkable for its lightness and elegance than for its hardiness. It stands in no need of protection from other trees in any stage of its growth, and lives on the bleak mountain-side and other exposed situations from which the sturdy Oak shrinks in dismay. Putting aside the only other representative of the genus *Betula* in Britain (*B. nana*), some of the alpine Willows, and the dwarf Juniper, none of which can be called trees, no other native tree ascends to such elevations in Britain. In the Highlands of Scotland it is found at heights of 2500 feet above the sea level, whilst the common Juniper only reaches to 2400 feet, the Scotch Fir to 2200 feet, the Alder to 1600 feet, and the Oak to 1350 feet. The higher, however, the tree ascends and the more northern the latitude the more shrub-like does it become. It is a fast-growing and rather short-lived tree, in favourable localities sometimes attaining a height of 80 feet, though generally not exceeding 30 feet or 40 feet. In very bleak, exposed situations or at considerable elevations it often grows no higher than 2 feet or 3 feet. To the inhabitants of northern latitudes it is of no little importance. It is a valuable tanning agent, and an oil expressed from it is largely used in the preparation of Russian leather; indeed, it is to this oil that the peculiar fragrance of that article is due. Formerly the Highlanders used the outer layers for lighting purposes, and, before the invention of paper, the inner ones for writing upon. The sap is convertible into wine, vinegar, and spirit; when fresh it forms an agreeable beverage and an intoxicating liquor when fermented. The wood is esteemed for light turnery work, and is at the present time largely employed in the manufacture of spools or cotton reels.

By many authorities what is here looked upon as a single species is divided into three, viz., *B. verrucosa*, *B. pubescens*, and *B. virgulosa* (*B. urticæfolia*). The last only occurs as a cultivated plant in Britain, but it seems to be simply a form of *B. alba*. The distinctions relied on by authors to distinguish the two first named forms reside principally in the leaves and the fruiting bracts. In *B. verrucosa* the leaves are said to be more or less truncate at the base, and the lateral lobes of the bracts or the female catkins are falcate-reflexed in spreading; the fruit, too, is said to be obovate. In *B. pubescens*, on the other hand, the leaves are described as being more or less rhomboid, and the lateral lobes of the bracts of the female catkins are ascending, the fruit being broadly obovate. After a careful examination of a large series of wild specimens, as well as the cultivated collection at Kew, I am convinced that these characters are not to be depended upon, as I have repeatedly found trees with well-marked foliage of the one so-called species and bracts and fruits agreeing perfectly in form with those of the other one. The pu-

bescence, too, varies considerably, as also does the form of the fruit. Leaves, glabrous or pubescent, occur in conjunction with the two forms of bract and fruit. Altogether, so many intermediate forms occur in some of the wild Birch forests which cannot properly be referred to either *B. verrucosa* or *B. pubescens*, that the only course is to group the whole under the Linnean *B. alba*. As it would occupy too much space to mention all the names which have been given to so-called species split off *B. alba*, and as the books in which they are described are inaccessible to the great majority of my readers, it will be enough to say here that I include under *B. alba* all the arboreal Birches of Europe and the Poplar-leaved Birch (*B. populifolia*) of North America. Most of the varieties which follow are probably of garden origin; where such is not the case, and it is known to me, I mention it. The Birch grows freely in almost any soil; in a wild state it is frequently found in a poor, shallow, sandy loam, where scarcely any other tree would flourish. The garden varieties, as well as those which have originated in a state of Nature, must be increased by working on the common White Birch.

VAR. DALECARLICA.—This was first found wild in the Swedish province which suggested its name, and was described as a species by the younger Linnæus. As far as foliage is concerned, it is by far the most distinct of all the numerous varieties of *B. alba*. The leaves are very deeply cut—indeed, almost palmate, and the segments toothed—Bosc says, “cut like those of Hemp.” The twigs are slender and pendulous. It is a charming decorative tree, well worth a place in every collection of deciduous trees. In some nurseries it is met with under the names of *incisa*, *laciniata* and *laciniata pendula*.

VAR. FASTIGIATA is one of the most striking varieties in cultivation. It was sent out by an Alsatian nurseryman many years ago, and is now getting fairly well known. It exactly resembles the Lombardy Poplar in habit, and has dark green leaves, which are retained longer on the tree than those of any other variety of the White Birch. For some years at Kew the foliage of this variety has remained unchanged some time after that of its neighbours has been shed. Frequently, both in books and gardens, it is met with under the name of *B. pyramidalis*.

VAR. FOLIIS ARGENTEO-Variegatis, VAR. FOLIIS AUREO-Variegatis.—The names of these are sufficiently indicative of their character. Except in general collections and in large places or by those specially interested in variegated trees are they at all likely to be grown.

VAR. FOLIIS PURPUREIS is a variety of erect habit, and where it does well is a very ornamental tree. In spring and early summer the leaves are a deep reddish purple, and even in late autumn they exhibit a decided bronzy tint. It is known in some gardens as *B. atro-purpurea* and *B. purpureonigra*.

VAR. PENDULA (the Weeping Birch).—This is too well known to need description. The ordinary form reproduces itself fairly true from seeds, but often does not put on its distinctive character until the trees have attained some little age.

VAR. POPULIFOLIA (the American White Birch) has triangular, very taper-pointed, long-stalked leaves, larger in size than those of any European form of *B. alba*. It is a small and slender, graceful tree, rarely exceeding 20 feet to 30 feet in height. It is common on poor, dry, gravelly soils from Pennsylvania to Maine (near the coast), and is also found on the borders of swamps. Two sub-varieties of this occur in gardens—one, *laciniata*, with leaves more deeply cut than in the type, and the other, *pendula*, with drooping branches like those of the weeping variety of our native Birch.

VAR. PUBESCENS has hairy leaves, smaller in size than those of *B. alba*, with which in a wild state it may nearly always be found growing.

VAR. VIRGULOSA (URTICÆFOLIA) is said to be found wild in Southern Sweden. It has small, dark green, hairy leaves, irregularly and deeply toothed. It is a somewhat slow grower and is a very distinct variety. N.

The Spruce gall aphid (*Chermes abietis*).—“Naturalist” will find the above the name of the insect that has damaged his Spruce trees, specimens of which he sent. The peculiar formations, which resemble small Fir cones, are made by insects very closely related to the common aphides, and are usually termed galls. They are the result of the enlargement of the base of the leaves, brought about by the punctures of the female, which she does in April or May, at the same time depositing her eggs. This puncture and drawing off of the sap cause the unusual growth of the bud, and render trees so affected very unsightly and unhealthy. Spruce Firs growing thickly together are most likely to suffer, but isolated specimens are by no means free. Picking off the growths as soon as they are noticed will reduce the numbers, but it is a laborious job in a plantation. Cutting down badly infested trees and burning them are most to be recommended. It is a by no means uncommon insect.—A. D. W.

New varieties.—All who raise trees or shrubs from seeds should look over their beds of seedlings before they are transplanted, with a view to discovering pendulous varieties and fastigate varieties, which probably every tree in existence is liable to sport into. We have, within the present century, found both of them in the common Oak, the Scotch Elm, and the common Hawthorn; and one sport in several species, such as the pendulous common Ash, Sophora, &c. They should also in the leafing season look after varieties that come early into leaf; in summer, those that sport in their foliage; and, in autumn and winter, those that retain their leaves longer than usual. The time will probably one day come when every species will have its fastigate, its pendulous, its early, its late, its variegated-leaved, and its abnormal-leaved variety.

Fungi and other parasites are most abundant on the leaves and branches of trees and shrubs after a protracted period of dry warm weather, followed by sudden rain and a close warm atmosphere, such conditions being favourable to their growth and development. In order to keep down and lessen the destructive inroads of these fungi, all dead wood, branches, and leaves which are affected should be collected and burned with the view of destroying the spores. Trees felled in the month of June, when loaded with sap and allowed to lie in the bark for any length of time, are apt to heat in the bark, especially in close, wet, warm weather, and contract subcortical fungi between the bark and wood, and it is rather surprising how the spores of the fungi could have gained admission, and it is equally as surprising how they could reach the core of an Apple or the interior of a nutshell; yet that such is the case there cannot be a doubt. The appearance sometimes has a strong resemblance to mould found on the rind of an Orange, and all are alike penetrating and destructive in the extreme.

“The Garden” Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols., price, cloth, £29 8s.

“Gardeners’ Illustrated” Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

“Farm and Home” Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

“Hardy Flowers.”—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

“The Garden Annual” for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 8d.

No. 1073. SATURDAY, June 11, 1892. Vol. XLI.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

THE MANETTI STOCK.

CONSIDERING that the Manetti has held its own for nearly half a century, there can be little or no occasion to question its merit or value as a stock. If it had been found wanting, in spite of all that has been written for and against it, it would have died a natural death years ago. It was the Manetti that brought new life to the Rose, and with it began a new era in Rose growing. We are indebted to this stock for the enormous increase in the cultivation of the Rose and the commercial industry it has brought about. Amateurs who formerly grew only a few dozen Roses soon began to grow thousands. In my early days of Rose growing, which dates back before the days of the Manetti, it was a difficult matter and took some considerable time to produce a stock of a few hundred plants of any special variety, but after the introduction of the Manetti stock Roses were enabled to be readily propagated by the thousand. Although I hold the Manetti in the highest estimation, I by no means wish to disparage the merits or value of the Brier, Grefferaie, or other stocks; they are all serviceable, and to the successful cultivation of the Rose are indispensable. As your correspondent "Ridgewood" rightly remarks, each stock has its peculiarities, some suiting one soil best, some another; some Roses adapting themselves to one species of stock, some to another. The Rose grower must become acquainted with the habits and character of Roses, and ascertain the constitution of all the varieties and the stock which suits them best.

To sum up, my own experience of the Manetti is that it will grow in almost any soil, whether loam, clay, peat, or sand, provided there is a substantial depth, and well drained, resting upon a subsoil of marl, gravel, or rock. Chalk perhaps is the most objectionable of all soils. The soil which suits it best, and where the best exhibition blooms can be grown, is a deep, stiff loam and marl with limestone formation, or deep clay loam on the old red sandstone. With soil of this description properly prepared, no one need hesitate to grow Roses on the Manetti, and until a better stock has been found, there is no fear of its being discarded. Why I consider that the Manetti takes precedence is, first, that it is readily and easily propagated; second, that in transplanting it rarely or ever fails; third, the Roses on it start into growth earlier and are more vigorous and bloom earlier, come to maturity quicker, ripening their wood early in the autumn, and consequently better able to resist cold and frost during winter.

I give preference to the Manetti for all the strong and moderate-growing Hybrid Perpetuals, Bourbons, Moss, Provence, Austrian and all summer-blooming Roses for outdoor or pot culture, also for some Noisettes and Hybrid climbing Teas for pillar or wall Roses. The seedling Brier is undoubtedly the best stock for Teas, and is also a good and suitable stock for most of the Hybrid Perpetuals, Bourbons and Noisettes, but it has this objection—that Roses on it are much later and slower in growth and later in coming into bloom than plants upon the Manetti. They are also later in ripening their

wood and require more care in transplanting. It is more suitable than the Manetti for heavy, cold wet soils in cold damp districts.

The Brier cutting in most respects answers the purpose of the seedling Brier. It is equally good for all the Teas, Hybrids and Noisettes, and in some instances better. It has this advantage—the roots are nearer the surface, the plants come to maturity sooner and ripen off earlier in the autumn. De la Grefferaie is a good and useful stock for most of the strong-growing Teas and Noisettes, Maréchal Niel especially, but it needs a warm dry soil. The Celine, a Hybrid Bourbon, was much used before the Manetti was introduced, and is still found to be a valuable stock for many delicate-growing Roses. The Boursault, Banksian and other climbing Roses are often used as stocks for Teas and Noisettes, but are better suited for pot Roses than for outdoor culture.

JOHN CRANSTON.

King's Acre, Hereford.

Rose Spenser.—Although much has been written in favour of this Rose, it deserves further mention as one of the finest pot Roses shown at both the Temple and International Horticultural exhibitions. Spenser is of splendid habit and foliage, closely resembling Baroness Rothschild in this respect, but as far as I could form an opinion, a little stronger than that superb variety. In colour it is deeper towards the centre than Baroness Rothschild, and is also a great deal more double, having fully twice the substance in it.

Moss Rose Zenobia.—This is a grand new Moss Rose, exhibited by Messrs. Paul and Son at the Temple show. It is one of the largest Moss Roses grown, and is not coarse, like Souper et Notting. From its vigorous and pleasing habit, combined with its free-flowering qualities, it will soon rank among our best garden Roses. Its colour is deep satiny pink, with the outside petals of the flower firmly cupped, and retaining the bloom in good shape even when fully expanded.

Rose sport from Catherine Mermet.—In reference to the query of "R." as to other sports being met with from Catherine Mermet, I have such an one, and had pointed it out several times as being distinct from Catherine Mermet before ever I heard of Waban. After reading the account of this latter it dawned upon me that mine was similar. The plant is growing under glass, but I have not a flower just now, or I would have sent one. There are, however, several buds still showing, and I shall note them more particularly when they expand.—A. Y.

Hybrid Tea Rose Princess May.—This is a really grand new Rose, which was exhibited by Messrs. Paul and Son, of Waltham Cross, both at the Temple and at the international show of last week, where it gained an award of merit. This, by the way, is the highest honour a new Rose can obtain at these exhibitions. The habit is superb, while the colour is all one could wish in a Rose of that shade. It may be briefly described as partaking both of Viscountess Folkestone and Baroness Rothschild in colour, form, and habit of growth. The outside of the flower resembles the former Rose, and has the exquisite colour of a freshly opened Baroness Rothschild towards the centre of the bloom, with a deeper tinge of peachy-salmon in the middle of the flower.—R.

Indoor trellis Roses.—Is not "A. H." on p. 481 a little too hasty? He says, "I stand alone in my experience of Cheshunt Hybrid that it is very unsatisfactory in colour outside," but adds "perhaps it is better under glass." Just so; my notes were grounded solely from my experience with it inside as a trellis-trained Rose. I maintain in such a position it is good alike in colour, size, form, and substance, and have substantiated the statement since 1884 annually with plenty of good blooms. I take it a practical man is hardly likely to prefix an ad-

jective to a variety of fruit or flower unless prepared to back his assertion. When the house was planted in 1883 there was a request for other shades of colour besides white and yellow, and I planted Homère, Marie Henriette, Cheshunt Hybrid, and Catherine Bell, ranging from light pink to maroon. Perhaps as "A. H." and "D. T. F." have taken exception to such a selection, they will point out what varieties they would have used ten years ago instead of these. I may add that it was imperative all varieties should be of vigorous habit to cover the wires as quickly as possible.—E. BURRELL.

ROSE NOTES.

BEFORE any decision is arrived at in the matter of Brier seedlings v. cuttings for Rose stocks it would be well for the advocates of the latter to try the effect of bending the tap roots of seedlings at right angles with the stem when transplanting, as Crabs for Apple stocks are treated on certain soils. These would give all the advantages of cuttings on shallow soils, or where there is an unsuitable subsoil, and I do not think suckers would give much trouble if the young plants are properly dealt with when planting. Cuttings have sometimes an exasperating habit of turning black and unhealthy at or near the base, and though they may throw out another set of roots higher up, they are seldom really healthy again. Seedlings never do this, and the bent tap root forms a number of strong holding lateral roots fit to do the scion good service.

OWN-ROOT ROSES.—I have given Hybrid Teas a fairly extensive trial, and Teas in a smaller way on their own roots. With the former I am perfectly satisfied, though some few kinds do not take kindly to the mode of growing; this may, however, be more the fault of soil than anything else, as ours is not what could be called a good Rose soil. The way in which many old favourite kinds succeed, notably La France, General Jacqueminot, Jules Margottin, Boule de Neige, and Abel Carrière, not to mention several others, compensates for a few failures. La France is magnificent, and the autumn crop of flowers is grander than I ever saw it on worked plants, leading one almost to think it the finest Rose in cultivation. With Teas on own roots outdoors my success has been very limited, for only in one well sheltered and secluded spot in the garden have I been able to keep them alive in the winter, and even here they are far from what I should like to see them. Two exceptions, however, stand out prominently; these are Homère and Souvenir de Paul Neron, the latter being in my opinion the hardiest of all the true Teas and an exquisite Rose, though not large. Homère makes good bushes, and is very satisfactory in every way. Among others that have been tried and found wanting on their own roots are Mme. de Watteville, Mme. Lambert, Mme. Hippolyte Jamin, Mme. Charles, Mme. Falcot, Catherine Mermet, Aline Sisley, Dr. Grill, and Sunset. This might not be the case where the winters are less severe. Gloire de Dijon does well on own roots either in the open or against a wall, but Belle Lyonnaise is more tender. Noisettes as far as I have tried them on own roots are more tender than any, though Celine Forestier and Wm. Allen Richardson do fairly well; Lamarque and Jaune Desprez will not survive the first winter unless grown against a wall.

PILLAR ROSES.—Out of about a dozen kinds grown in this form, the best are Vivid, Splendens, and Gloire des Rosomanes. Vivid is a Rose everyone should grow. Though not rampant, we have it over 10 feet high; it breaks well from bottom to top, and never fails to flower at every point. The bright crimson flowers are shapely, sweet, and are longer in dropping than those of any Rose I know, this being a great recommendation where wanted for cutting.

WALL ROSES.—The earliest flowers will soon be open, Reine Marie Henriette being well in advance of all others. A good plant of Emilie Dupuy is showing grandly. Banksians, Lamarque, and Devoniensis suffered badly during the past winter. The Banksians on an east wall were killed to the ground.

GENERAL PROSPECTS.—The outlook was never better here; nearly all Roses have broken strongly and show well for a good flowering season. Caerpillars have been numerous, but hand-picking got rid of most of them, and a thunderstorm accompanied by a remarkably heavy rain on the morning of the 26th, lasting about half an hour, got rid of the remainder and also of what little fly the plants had on them. Mildew has shown on W. A. Richardson, Mme. Bérard, and Catherine Mermet, which stand side by side on a south wall.

J. C. TALLACK.

EARLY FLOWERING WALL ROSES.

FORTUNE'S YELLOW was the first Rose to flower in the open air this season on the south front of Colonel Searle's house, near Taunton. The first flowers began to open on May 6. The roots of this plant have rather a dry soil and a naturally well-drained and wonderfully well-sheltered position. For the want of a suitable position I am not successful with this Rose in the open air, as on a west wall a strong plant was killed the winter before last.

In Devonshire, Fortune's Yellow does fairly well as a standard when it is pruned at the proper time, which is directly it goes out of flower. Four days later Gloire de Dijon had several half-expanded flowers on a warm wall of a cottage. The most striking of all the early Roses I have seen this year was the Austrian Yellow. I have known this plant for several years, and every season it improves, as it covers more space on the south front of a farmhouse. It is not a particularly warm position because of the draught; nevertheless, it was well in bloom in the second week in May, and its clear bright single flowers were particularly pleasing. Cheshunt Hybrid followed next, and although somewhat flat in form the flowers were very full and fragrant. Both the yellow and white forms of the Banksian were in flower on south aspects at the same time, but the blooms were hardly so numerous as we are accustomed to see them. In some warm positions Maréchal Niel will sometimes open a few flowers. John Hopper is a good May Rose in warm corners, but the best and earliest dark Rose is General Jacqueminot. Except the old pink China, we cannot even in the west of England boast of having many Roses away from walls until near the end of the month. The copper-coloured Austrian Brier was well in bloom by the middle of the month. A week later, Harrisoni gave us some beautiful blooms of a deep yellow colour, and the flowers being double they last longer than the single ones. Blahí No. 2 is a good early wall Rose in a warm position; everyone is charmed with the delicate colouring and fragrance of its handsomely formed buds. Mme. Plantier is hardly so early perhaps as some of those I have mentioned, but so far as I know it is the earliest of all white Roses, and its fragrance is exquisite. From these remarks it will be seen there is a wide range of colours in these early flowering Roses, and although they may not be in bloom so early in the season in all parts of the country alike, they will in every case be in advance of the ordinary types which are generally cultivated.

J. C. C.

Early flowering Roses.—The first and the last Roses of summer are always appreciated, and it would be interesting to know which are the twelve earliest varieties under ordinary conditions of soil and position. With me, and speaking of Roses other than those grown on a wall, Abbé Brameral is invariably the first dark red one to open. This is a flat flower of imbricated form, very double and sweet scented, and in colour one of the most intense scarlets flushed with maroon that we have. Souvenir de Charles Montault, another dark red variety and exceptionally free flowering, follows closely. Elie Morel (pink) is also particularly early; so are Mme. A. de Rougemont (white), General Jacqueminot (red), and A. K. Williams (scarlet). All of the Chinas, especially the old Blush varie'ty, must rank among our

earliest Roses; so, too, would the majority of the Dijon Teas and their type Gloire de Dijon. I should place them in the following order: Chinas on a wall first; Gloire de Dijon, Cheshunt Hybrid, and a few more second; Abbé Brameral third, followed by established plants of the early-flowering Teas in the open air.—R.

ROSE PROSPECTS.

THESE are much more glowing than they were a few weeks back; at that time I do not think I ever saw our plants looking worse at a corresponding time of year. All of the young growth on forward varieties was more or less crippled, and the effects of such severe weather as we experienced during April and the early part of May are very conspicuous at the time of writing, cramped and puny foliage, very short growth, and an extra number of deformed flowers being the result of the unseasonable weather during the time indicated. I do not think it will be a very good season for the early flowering kinds, nor for the majority of Roses upon walls. These were much crippled by the extreme changes of temperature between bright days and very cold and frosty nights. During the last fortnight, Roses that were not forward enough to be almost hopelessly crippled before this more genial weather set in have come on apace and are now looking very well, especially the maiden plants that were upon ground in an open position, and consequently very backward in growth. Towards the middle of this month it will be necessary to disbud shoots that you wish to carry superior blooms. For ordinary decoration and cut flowers I do not advise this process; my taste goes more for flowers in as naturally grown a state as possible. There is another great advantage in not disbudding—the longer time that the plants furnish a show of blooms. In many cases, especially upon the Tea-scented and Noisette varieties, the lower and smaller buds will open into well-shaped flowers of smaller size, and so prolong the time of blooming.

A short time back, at the same time that "A. H." was writing of his Roses as carrying stout and clean growth, all that I saw here, mid-Sussex, were far from being in such a satisfactory state, and at that time our Roses were looking very bad indeed. On inquiring of numerous growers met with at the recent London shows, I learnt that their prospects were much the same as my own. Referring to the dwarf stocks, one grower calculated he should lose 10 to 15 per cent., while another's were so bad, that he expected no higher percentage than that would survive. The former estimate is about what I should put my own at, both among the Manetti seedling and cutting Briers and the hedge Briers. It is only during the last few days that my plants have produced any healthy foliage, and unless this be good and of stout texture, there is little prospect of good quality flowers.

R.

Roses in pots.—Although this subject has been treated upon repeatedly, there would appear to be another seasonable opportunity at the present time. In my own estimation there is quite as much art in growing pot Roses after they have flowered as at any other time, and certainly far more depends upon their after treatment than is generally supposed. All practical growers recognise the force of this and the impossibility of satisfactory success in forcing Roses the second time unless they have received better attention during the summer and autumn than is usually afforded them by the majority of amateurs. To partially neglect pot Roses at the present time, simply because they have given their main crop of flowers and the few remaining buds are of less value on account of the supply afforded by plants on sheltered situations and warm walls, is particularly fatal to success in the future forcing of such plants. This is very evident to all, as unless the growth be healthy and well matured, the plants are unable to produce first-class flowers, more especially when under the high pressure of early forcing. I would therefore

strongly advise that the plants remain in the houses for some time longer yet, in preference to standing them out of doors in order to undergo the very important process of ripening. If you stand them out at once and while they are still in full growth, the sudden exposure is very apt to destroy many of their more fibrous roots and also to injure the texture of the foliage. Whatever time and trouble be spent upon them at this period will be amply repaid in the future, and it will be well to grow the plants on in as vigorous and healthy a manner as possible, giving them the necessary full exposure later on when they have made and partially ripened their growth.—RIDGEWOOD.

Rose William Allen Richardson.—A few weeks ago I drew attention in THE GARDEN to the sportive character of this Rose, remarking how unsatisfactory it was in some cases, as it possesses the habit of producing a good number of creamy white flowers, instead of the deep orange-yellow ones that are so characteristic of it. I refer to the subject again because I saw in the garden at Sand Hill Park the other day a plant of this Rose covering a large space on a south wall that was more disappointing than any I have seen before as regards this sportive character. There were not less than 300 open and partially expanded blooms upon it, but not one of them in colour bore any resemblance to the type flowers. Some of the later buds had a darker shade in the centre, but the prevailing colour was a washy white, and the expanding flowers were flatter than they should be.—J. C. CLARKE.

MARECHAL NIEL ROSE.

THE uncertain and variable character of this most glorious Rose is remarkable. In a large orchard house at Didlington Hall, Norfolk, it has been a glorious sight during the last six or eight weeks. The blooms are very large, many of them measuring 12 inches in circumference when just about to expand. I was told by Mr. Stocking (who presides over this garden) about the middle of May that he had cut bushels of blooms, and there were hundreds then either open or in bud. The plant referred to is trained across the path to wires strained for that purpose. The house is a large one, 75 feet by 36 feet, with a lantern top. Fruit trees are planted out in the beds on each side with a walk round the sides and a centre path, which is a wide one made of concrete. The Roses are planted out close by the iron pillars that support the house and tied to these till they reach the wire trellis. So freely do they grow, that many of the shoots are from 12 feet upwards in length and thick and solid, with large beautiful leafage. I note in THE GARDEN at p. 458 some remarks as to using night soil for this and other free-growing Roses. This is just the secret of the success of the Roses under notice. Some three years since they were planted in sandy loam with a goodly portion of night soil well pulverised at the time of using. They were planted in March, having been budded on seedling Briers the summer previously in the home nursery. Although they did not make much progress the first season, the next they grew away considerably. This is the second lot of plants that has occupied this position during the last twenty years. About twenty years ago the first lot was planted in similar material, with equally good results. These did good service till about six or seven years ago, when they began to decline and had to make way for the present plants. Only one of the original plants was retained; the cankered place being close to the ground was earthed up with soil and new roots were formed. The plant considerably improved and is still blooming. This question of night soil for Roses is not a new one. Upwards of twenty years ago a Mr. East, then in charge of the gardens at Wolverton House, near Dorchester, grew a large quantity of Tea Roses under glass, planted out and otherwise. He used night soil freely as an annual dressing.

JOHN CROOK.

* * In proof of the above treatment, Mr. Crook sent us some remarkably fine blooms of large size and rich colour.—ED.

STOVE AND GREENHOUSE.

THE DOUBLE WHITE CAMELLIA.

LARGE, well-developed specimens of this, still one of the finest of all Camellias, are none too frequently to be met with now in gardens. There are, it is true, many fine specimens, that shown in the engraving which accompanies this

years. For my own part, I think it will be found that (a true friend as this is to the gardener) it will be sought after again and be given its due share of attention. Palms and other fine-foliaged plants have during the last quarter of a century risen up as formidable rivals to large Camellias; the latter I know for a fact have had to give way to these ornamental plants, although the Camellia itself is at all times an

is both at the root and in the atmosphere where it occurs, the Camellia being a moisture-loving plant. Camellias should never be allowed to suffer in the least from want of water, nor on the other hand should they be waterlogged. As regards atmospheric moisture, it is hardly possible to give too much in a reasonable way. Syringing may be practised every day the year through, and that in many instances with

decided advantage. I always make it a practice to syringe through the winter season once a day when any fire heat is applied, not so much for the Camellias themselves as for other plants grown in the same house. In this manner I find that not nearly so many flower-buds drop—a most annoying circumstance at any time, but more so when it occurs, as it will often do, in an advanced stage. In foggy or frosty weather it is always done even when in flower without any visible sign of injury by spotting of the petals. When planted-out specimens show symptoms of exhaustion it is a good plan to remove the old soil around the plants down to the drainage, just as if the plant were to be moved. Fresh soil can then be added around and between the plants in a thorough manner. This fresh soil should be pressed down firmly as it is filled in, being selected on the dry side rather than the reverse for that purpose. For my own part, I prefer a mixture of loam and peat, adding lime rubble in small quantity or charcoal with coarse sand or road grit. I attach as much importance to the making of the border quite firm as to the selection of the soil. Peat, it is well known, will of itself suit the Camellia; let the plant, however, but get dry at the root, and then there is a great difficulty in again thoroughly moistening the soil. This is not so much the case with a mixture as advised, whilst on the other hand, loam of itself, which is also successfully employed, will, if not of the best quality, become too close in time. When large plants exceed their bounds, it is an easy matter to prune them, which may be done after flowering, but is, I think, better chosen as to time when cutting the blooms, by removing more wood in the process, which in many instances is not done.

PLANTSMAN.



The old double white Camellia in Mr. R. Pullar's conservatory at Tayside, Perth, N.B.

article being a good illustration of a well-managed plant. The fact, however, remains that there is a deficiency of young specimens coming on to supply the place of the older ones as they decline in health and vigour. Other plants have in many instances no doubt supplanted them, being of more rapid growth, or in other ways deemed to be of greater service. It is, however, a moot question if the double white Camellia does not regain its popularity in a few

years. For my own part, I think it will be found that (a true friend as this is to the gardener) it will be sought after again and be given its due share of attention. Palms and other fine-foliaged plants have during the last quarter of a century risen up as formidable rivals to large Camellias; the latter I know for a fact have had to give way to these ornamental plants, although the Camellia itself is at all times an

was figured a dozen years ago in THE GARDEN, but has never been grown to any great extent, owing to the constitution of the plant being much less vigorous than that of the sorts which are largely cultivated. It has not, so far as I am aware, been taken in hand except in very limited numbers by our Continental neighbours, and as they persist in grafting all Azaleas on to a naked stem, it bears even at best when grown in this way more or less of a bare appearance. It was a few years since,

Azalea rosæflora.—This Azalea is so distinct from all others in cultivation, that where a number of varieties are grown it is sure to be singled out as one of the most noticeable, as in the habit of the plant, colour of the flowers, and their regular double character there is no other Azalea with which it may be confounded. It is, comparatively speaking, quite an old kind, and

if not now, grown finely by Messrs. Backhouse, of York, as small plants in pots not more than 4 inches in diameter were laden with blossoms. Like all other members of the genus, it strikes root readily enough from cuttings formed of the shoots that are produced in a temperature slightly higher than that in which it is usually grown. This *Azalea* is an introduction from Japan, and was awarded a certificate many years ago by the Royal Horticultural Society under the name of *A. Rollissoni*, since which time it has also been distributed as *A. balsaminæflora*, but the specific name of *rosaeflora* is the generally recognised one, and as such it was well shown by Messrs. Veitch among their interesting exhibits at the recent Temple show. This with *A. obtusa* and its white variety *A. calyciflora*, and the different varieties of *A. amœna*, makes up a beautiful group of small-growing *Azaleas*.—T.

***Erica candidissima*.**—As white flowers of various kinds are always in demand, a note may be made of this summer-flowering Heath, which is of good constitution and blooms most profusely. The upright habit of the plant is very different from that of *Erica ventricosa*, represented by several varieties, while besides these, of Heaths now in bloom may be especially mentioned the yellow-flowered *Erica Cavendishi*, the bright red *E. hybrida*, *E. perspicua* with its profusion of blossoms, as well as many others. The distinctly shaped flowers of *Erica colorans* are also very pretty. The greenhouse Heath, however, that is most in evidence at this season is *E. ventricosa*, of which we have now several varieties in cultivation, all of which are characterised by a dwarf compact habit and great profusion of bloom.—H. P.

***Hydrangea rosea*.**—This *Hydrangea* is in foliage and flower quite distinct from any of the others, and it is, I think, entitled to a place among the very best members of the genus. It is somewhat in the way of the universally grown *Hydrangea hortensis*, but differs from that well-known kind in being of more slender growth, while the leaves are smaller and with more clearly defined serratures around the edges. The flowers are in colour a clear rose-pink, and being borne in large closely-packed heads, are very showy when at their best. Propagation and culture are of the easiest, but for some reason the plant does not become very popular, as it is now nine years since it was awarded certificates both by the Royal Horticultural and Botanic Societies. This *Hydrangea* was introduced from Japan by Messrs. Veitch, who have several times exhibited it in good condition, notably at the recent Temple show. The deep colour of its blossoms affords a direct contrast to the white flowers of the variety *Thomas Hogg*, which is now thoroughly established as a market plant.—T.

ON OPEN SPACES.*

IF we could transport ourselves into the England of 200 years ago, or if we were even able to see what our great grandfathers looked upon, how hard it would be to recognise the sites of those places which are now so familiar to us. A great part of the land was common land, or lammas land, heaths, downs, forests, woods, moors, and village greens. But the increase of population, the concentration of the people into towns, the rapid growth of London and the manufacturing centres, these forces conjointly waged war against the open spaces, and gradually swallowed them up. Commons disappeared, fields and lanes became streets and houses, village greens were encroached upon or thrown into the roadways, graveyards were used as sites for railway stations and public and private buildings of all sorts, and where the dead had peacefully slumbered were heard the noisy engine and the rattling train. But the history of the desecration and

loss of the open spaces round towns are too well known for me to dwell upon here, and many will also be acquainted with the story of their revival, for it is but a recent one. Acts of Parliament have been passed to protect and regulate commons and greens, to preserve graveyards, to promote the acquisition of open spaces in and around towns, from the largest park to the smallest playground, and to provide for their maintenance. Philanthropic societies have started into existence whose object it has been to carry out these Acts and stir up the public bodies to do so; and now, on all sides, the public mind is awakening to its need, and the public voice is beginning to ask for its satisfaction. But although something has been done to restore the lost breathing places, much, very much, still remains to be done; and what has been accomplished in the past in a scattered and unsystematic matter, will have to be done in the future, both thoroughly and systematically. It appears to be a generally recognised and undisputed fact that, to restore enfeebled health or weakened animation, fresh air must be resorted to, *i.e.*, air that is not contaminated by the breath of human beings. We take the fainting person out of a building, we send the consumptive patient to the top of a Swiss pass or to the seashore, and we carry the sick child from his crowded home in the city and place him in a country village. It is only necessary to glance through those statistics which show the death-rate in the manufacturing and closely inhabited towns as compared to the death-rate in the country or the suburbs, to learn the generally well-known lesson that the health of the nation suffers in proportion to the degree that the individuals are crowded. Of course, I am aware that, notwithstanding the increase of population, there is a steady decrease in the death-rate over the United Kingdom, but this is due to improved drainage, warmer clothing, the great advance in medical knowledge, and a hundred other influences which are at work among the people; and, as this is now the case, who can say how robust the nation might have been by this time if the open character of the surroundings of the towns had been preserved?

It is strange to read of the time when the youth of London needed only to go to Moorfields (where Liverpool Street Station now stands) in order to stretch their limbs and sport in the free and open country; when Oxford Street was a country road; and the way to Islington, St. Giles, or Camberwell was through pleasant flowery fields, by rural lanes and footpaths. Now, if we live in Islington and wish to see a meadow or a hedge, we must take the train and travel in it for some miles. Certainly, there are Hyde Park, Regent's Park, and some 200 smaller recreation grounds in London, besides a few open spaces on its borders; but, invaluable as they are, they cannot supply the place of the open country, nor are they really adequate to meet the wants of the vast mass of people who live round them. Granted that fresh air and open spaces are needed for the health of the inhabitants of our larger towns, we will briefly consider the two ways of satisfying this need, namely: 1. A systematic acquisition and preservation of land for public recreation, in connection with the towns and in relation to their growth. 2. Increased facilities for taking people from the towns into the country.

In the towns themselves the governing bodies—the councils—should lay down and should carry out some such rule as the following: That public recreation grounds should be provided in each parish, in proportion to the number of its inhabitants. This would mean that there

should be a fixed minimum of open space for a certain number of the population. Here and there the minimum would be exceeded, and so much the better for the people, but it should always be reached, either by securing existing spaces for the public for ever, or by acquiring new ones, and this, if need be, by pulling down houses for the purpose. And for the information of those who are not well acquainted with the question of acquiring open spaces, I would mention that much may be done in the towns by securing and throwing open enclosed and deserted squares, disused graveyards, the remnants of village greens (where such have become merged into the towns), vacant plots of railway land, abandoned wharves, market-places, &c. The Open Spaces Act of 1877, amended in 1881, 1887 and 1890; the Disused Burial Grounds Act of 1884, with its amendments, and other measures, give all the power that is needed to local bodies to carry out these improvements.

The Metropolitan Public Gardens Association, which has been at work in London since the close of the year 1882, has laid out, or assisted to lay out, 65 gardens and playgrounds for the use of the public; has given grants of seats for 31 other sites, either streets or open spaces; has granted money towards the formation and upkeep of 23 public gymnasia; has secured the opening of 166 playgrounds belonging to the London School Board (on Saturdays); and the laying out and throwing open of 19 recreation grounds; has planted trees, and given grants for tree-planting in 37 thoroughfares and other sites; has opposed encroachments on 18 disused burial grounds, commons, and open spaces; and has in other ways assisted in the preservation and formation of very many useful recreation grounds. What has been done in London (and it is very little compared to what needs doing) can be done in other large towns; there is the same opportunity for improving them by bringing green Grass, bright flowers, and shady trees into the dingy and monotonous streets. It may be said that if you increase suburban life you do as much harm as by enlarging a town. But certainly if you take the wives and children belonging to a community away from the city and into the suburbs, you are doing them good from a hygienic point of view. The husbands and fathers will have the advantage of spending their nights and their Sundays in purer air, and the disadvantage of, perhaps, journeys in a train twice or more on every week day. But London and the large towns will increase, and the only question to be settled is—Are they to increase from outside, inwards, or from inside outwards?

In one case the largest mass of new houses is next to the old centre, whereas the smallest group of new houses adjoins the largest plot of open space. In the other case, a larger area of open space is brought close to the old mass of buildings, and the greatest number of new buildings are nearest to the open country. There are, perhaps, advantages in either system; but the advantages in the second, from a healthful point of view, if not from an artistic one, outbalance, in my opinion, those of the former. It may be said, however, that the plans are too fanciful to be of any use; that suburbs always grow in accordance with local need and local possibilities, and that a town built in a pattern, and only allowed to grow in a pattern, would be impossible and undesirable. But I am speaking theoretically, and I wish my theory to be illustrated in a purely systematic way. If the second plan above noted were carried out, it would involve a cessation of building immediately adjoining the original centre, and this is

* A paper read by the Earl of Meath at the International Congress of Hygiene, and prepared by Mrs. Basil Holmes, Hon. Sec. to the Metropolitan Public Gardens Association.

what is most needed. In other words, a town that has reached a certain size should grow no more except from centres at a given distance outside. I am not speaking of a plan suitable for time and eternity, or to be carried out by generations far ahead of our own. They will need other and much more far-reaching reforms in building if the population continues steadily to increase. I am speaking of something that is needed at the present time, and of a plan that might now be adopted in several of the larger towns in England. To take the metropolis as an example, it is not so likely to hurt London that Wimbledon or Tottenham should grow to great proportions; what does hurt London is that all the fields of Fulham and Deptford are being covered with houses. It is the increase at the centre that is so detrimental—the gradual annihilation of the remaining open space which is close to, or forms part of, the town. The increase should be in the suburbs of a town, or rather in a certain number of them whose centres are beyond a given distance from the city. This need not produce a monotonous sameness. There would soon be characteristic differences in the various suburban districts. There would be the aristocratic suburb, joined to the town by a handsome drive and a Rotten Row; the commercial suburb, with its service of city trains running every hour, half hour, or minute, if need be; the artistic suburb, selectly free from the incursions of the railway director, where the linnet and the Lily would flourish undisturbed; the domestic suburb, arranged for schools and kindergartens, nurses and perambulators; the cheap suburb, very noisy, and connected with the city by tram lines and subways; and there might be, what we should hope that there would not be, the cheap and nasty suburb, complete in itself in its dirt and in its degradation. But each, if not allowed to grow at the city end, but only at the end farthest removed from the town, would share alike in possessing vast strips of open land for the recreation of the people and their children.

In the towns themselves there should be every effort made to have beautiful streets, with trees and seats in them, and beds of flowers, instead of neglected and dirty corners, and creepers planted on bare walls. Every disused graveyard and deserted enclosure should become a bright garden, and every plot of unused land be made into a children's playground or an outdoor café.

If the preservation of open spaces were properly taken in hand and systematically carried out, there would not be so much need as there is now for increasing the facilities for taking people from the towns into the country. But still it will always be of great advantage, both to young and old, to see new places and breathe different air; to visit the seaside and the rural country. The railway companies have done much of late years to render this possible to a greater number by issuing cheap "fortnightly" tickets for the seaside, &c., and there is more than one useful society at work giving country holidays to city children, and sending the tired seamstress and overworked clerk to breathe the sea air; besides numberless private people who are doing their best to supply this need by throwing open their own country houses, or paying for the holidays of those who are less blessed than they are with this world's goods. This is a question which is not so easily dealt with officially; it is one which, although very important, must be left more or less to be settled by the railway companies and by the people themselves. Something may be done to teach the inhabitants of the towns how best to make use of their holidays, especially the bank

holidays. But, after all, they will please themselves, and some will go to Epping Forest, while others will sit in the nearest tavern and drink, and drink, and drink; and, among those who are in Epping Forest, there will be some who feast their eyes on the beautiful trees and tender Grass, while others will care for little beyond the ginger-beer and the sticky sweets. It must always be remembered, in speaking of the open space question, that it is not one which, having been fully dealt with, may now be put aside as settled. On the contrary, the need of providing open spaces increases daily, while the difficulty of finding them does not diminish. It would be a great boon if a new building act were passed forcing builders to provide recreation grounds, or to reserve breathing spaces for a fixed number of new houses. So long as the population grows, so long will new public and domestic buildings be erected, and so long will there have to be voluntary action, if there is not state-directed action to preserve or to provide open spaces for those who increase and multiply in the land.

One word more. The work must be done well. It is better to have small recreation grounds, preserving their rural foliage and beauty, than to have large parks stiff, flat, bare, and uninteresting. We want large and small open spaces, but natural ones; country left in the town so that the townsfolk may not forget the country.

ORCHIDS.

ORCHID FLOWERS FROM PICKERING LODGE, TIMPERLEY.

I HAVE a grand lot of blooms from Mr. Hardy's fine collection. First comes a magnificent raceme of *Cattleya Skinneri*. This plant has always been a great favourite of mine; so also is the form which Mr. Holmes calls *C. Skinneri alba*. The flowers are pure white, saving a faint tinge of lemon in the throat, and at the base is a large blotch of lilac-mauve. The scape bears six flowers, and the plant, I am told, is carrying forty-five blooms. There are also fine forms of *C. Mossii* from plants with thirty-five flowers, good varieties of *C. Mendeli* in lovely shades, a richly coloured form of *C. Lawrenceana*, and a fine variety of *C. Warneri*. Also sent are flowers of a very fine form of *C. Regnelli*, each being upwards of 4 inches across. There is also a variety of *C. Schilleriana*, a more richly coloured one than that figured in "Select Orchidaceous Plants," ii., t. 22. It is one of the most difficult plants to manage in the whole genus. It first appeared about thirty-five years ago, having been brought from the neighbourhood of Bahia, and belongs to the *C. Aclandii* group. It frequently flowers twice in the year, at first in May or June and then it makes another growth, flowering again early in the month of September. It has always been a rare plant. With these come fine forms of *Lælia purpurata* and the variety known as *Russelliana*. A strong spike, bearing four flowers, of *Lælia Boothiana* from a specimen bearing fifty-three of its fine blooms is also included. This is usually considered a shy-blooming species. Some flowers are also enclosed of *Dendrobium splendidissimum* *Leeanum*, which received an award of merit when shown before the committee of the Royal Horticultural Society in February last. It is now flowering a second time; it did the same last season. It is a cross between *D. nobile* and the long-bulbed variety of *heterocarpum* called *philippinense*, and, although like that

plant, it is destitute of perfume, the fact of its flowering twice in the season is a decided gain. With these come flowers of *Cypripedium Rothschildianum* and *C. Elliottianum*, which certainly appear to be only varieties of one species. These and a few other things of minor importance make up a beautiful lot of flowers.

WILLIAM HUGH GOWER.

ORCHIDS IN SMALL GARDENS.

ONE of the most pleasing features of our present-day civilisation is the great and increasing love for all kinds of flowers. Not so very many years ago exotic flowers were considered to be one of the luxuries of the rich; now they are almost one of the necessities of our every-day existence. Amongst plants which have become very popular during the last few years, exotic Orchids hold the foremost place. Ever since it was discovered that some of the most beautiful of Orchids would grow in a temperature not warmer than that of an ordinary greenhouse in summer and autumn, and with but little increase in winter, their cultivation has increased in all directions. At one time Orchids were exceedingly expensive plants; now they can be obtained as cheap as ordinary greenhouse plants, and cheaper than some. Moreover, by a wise provision of Nature, the most beautiful of them are the most common. If plants are of free growth, they necessarily become common, and those difficult to cultivate are likely to be scarce. The cool house *Odontoglossums*, the *Masdevallias* and some of the *Oncidiums* are amongst the most beautiful of Orchids. *Cattleya Mossii*, *C. Mendeli*, *C. Trianae*, *Lælia purpurata* and *L. elegans* are all common and unsurpassed in their genera and species. Amongst those who grow Orchids well without any help from expensive houses and gardeners specially trained to look after them, a notable instance are the Rev. F. D. Horner, of Lowfields, and Mrs. Horner. It is a great treat to visit the collection at Lowfields, and listen to the expounding of the various cultural details of this and that favourite Orchid, and it is also a very pleasant sight to see many species not only difficult to manage, but which positively refuse to grow in some of the best collections in the country, growing and flowering here with the greatest vigour. At the time of my visit to Lowfields in April, I found about a score of plants of *Cattleya citrina* in flower. The plants are certainly the finest I have ever seen, and they increase in vigour every year. They are mostly on blocks, and the aerial roots hang down from the plants to the length of half a yard. There is always a wealth of bloom in the Orchid houses, and Mr. Horner assures me that he does not use more artificial heat than is absolutely necessary to keep up the temperature, and rather than over-heat the hot-water pipes, the glass roof is covered with some thickish protecting material in frosty weather, and the fresh green colour, combined with the substance of the foliage, shows that this treatment manifestly benefits the plants. There is a lean-to house in two divisions and the Orchids are crowded very closely together. I fancy, and Mr. Horner agrees with me, that the Orchids do better if they are placed rather close to each other in the house.

The *Dendrobiums* succeed admirably, and very beautiful they are when in full flower. They do not here get such a long and decided rest as some cultivators give their plants in winter. For instance, *D. Falconeri* succeeds admirably, and in a note to me Mr. Horner says: "D. *Falconeri* is really handsome; the purple nodded stems tipped with green leaves are quite impressive. This Orchid never rests here, and evidently requires continually keeping moist. The fibres are very thready and never stop growing. I water it continually all the year round, and therefore give it very little material about the roots. Our plants are placed upon inverted pots in baskets, and the pots inside are netted with roots, that also wander about the baskets and over the sides. It is at the end of the warm house where a cooler current from the annexe passes it. I tried

one plant with resting treatment and it soon lost ground." *Cattleya citrina* is always kept growing, and the plants never have flowered so well as they have done this year. *Cymbidium Lowianum* succeeded better in the cooler intermediate house than in the warmer house, the temperature 55° falling to 50° as a minimum. *Maxillaria Sanderiana* grows with excessive vigour. A very fine specimen was in flower at the time of my visit; it had nine large flowers open upon it, and certainly the vigorous development of this as well as of other plants of the same species is something uncommon. It grows freely either in pots or baskets. The single-flowered stems sometimes push through amongst the potting material, and when they touch the edge of the pots they push upwards. It is well to be rather careful when watering the plants with the flowers pushing outwards and upwards, as the buds may rot. They require plenty of water when growing, and must not suffer for lack of it at any time. It is interesting to see at Lowfields so many different genera of Orchids growing together and thriving admirably with the same treatment such as the *Dendrobiums* from Burmah; *Lælia anceps* from Guatemala and Mexico; *Phalænopsids* from the Philippine Islands, Java and Borneo; *Oncidium splendens* from Guatemala; *Vandas* from India and from the Philippines. A great deal depends upon the interest the cultivator takes in his plants. If an Orchid cultivator really loves the work in which he is engaged, he will know the position of every plant under his care; and if it does not succeed in one place he will find another position for it, and will find out whether it needs much or whether it needs little water, and the right time to apply it; and so by continual loving daily and nightly attention Mr. and Mrs. Horner succeed in getting such a wealth of bloom from their plants as would astonish even experienced Orchid cultivators. *Bollea cœlestis* and *Pescatorea Dayana* make admirable growth, and Mr. Horner remarks, "they are additionally useful in our full house, as not objecting to comparative shade and distance from the glass." He also mentions with them *Galeandra Devoniana* as having very tender susceptible foliage, liable to be attacked by red spider and thrips. This is another trait in the character of a good Orchid cultivator to notice the peculiar characteristics of each plant, and to treat it accordingly, for few would believe that *Pescatoreas* and *Bolleas* could be grown well in the same house with *Lælia anceps* and *Cattleya Dowiana*; but there they are, the one set of plants suspended near the glass in the lightest part of the house where they catch all the sun that shines on the glass, the others where they are safe from it, and where the leaves of thin substance are kept free from the attacks of red spider and thrips.

Some of the favourite occupants of the *Cattleya* house are new *Utricularias* (*nelumbifolia* and *reniformis*); they grow freely on the *Bromeliads*, but have not yet flowered. *U. Endresi* grows admirably and produces its lovely blue flowers. *Cycnoches*, *Catasetums*, *Cœlogynes*, and *Houllettia Brocklehurstiana*, some of the *Cymbidiums*, *Brassias*, and *Stanhopeas*, with many uncommon species of Orchids, are grown in an intermediate temperature, for Mr. Horner likes to grow things that are not to be seen everywhere.

In the cool house there are many fine Orchids doing admirably, amongst others *Nanodes Medusæ*, a fine plant which grows well and flowers freely; it is hung up outside in an Apple tree during the summer months. *Oncidium macranthum* grows freely in the cool house, and there in contrast to it is the pretty little *Oncidium cheiroporum*, with its elegant spikes of primrose-coloured flowers very sweetly perfumed. *Cœlogyne corrugata* also delights in the coolest part of the cool house. There is, of course, a wealth of *Odonoglossums*, always the glory of the cool house. At the time of my visit there were in this small collection no less than forty-eight species of Orchids in flower in eighty-seven plants.

Mr. Horner is well known as the leading grower of Tulips and Auriculas in the north, and his success in Orchid culture has been accomplished by

the same attention to the minute details of the work, for careful attention is very necessary, as it is not given to the easy-going, careless cultivator to produce such Tulips and Auriculas as one may see annually in their season in the garden at Lowfields.

J. DOUGLAS.

Palumbina candida (*Seeger and Troup*).—This is a rare little plant which I brought to Kew in 1862 from Consul Schiller's collection, and flowered it the following season. It has been compared to flying doves by Reichenbach. This is well borne out by the pretty little flowers. The plant comes from Guatemala, and it does best when grown in the cool house, standing it or hanging it near the glass.—W. H. G.

Cattleya Mendeli.—I am in receipt of a flower of this plant from J. Collins. It has a beautifully frilled lip. The front lobe is wholly of a rich magenta, and the sepals and petals pure white; it is a very handsome flower. I also have a flower very similar in colour from F. M. Burton, but this is tinged in the sepals and petals with flesh colour, and the lip is deep crimson-purple and smaller, base yellow, more like the typical plant.—W. H. G.

Dendrobium crepidatum.—"J. B." sends me some beautiful flowers of this species. It is a fine plant, which was sent home about forty years ago, but it never appeared to become thoroughly popular. Its flowers, mostly produced in pairs, are thick and waxy in texture, white flushed with lilac, the lip being of a very deep yellow. It comes from Assam, and it may be rested cool and dry when the leaves have fallen.—G.

Oncidium loxense.—"O. T." sends me what had apparently been a fine flower of a good variety of this rare and beautiful species. What a pity such flowers should be spoilt by bad packing, by being placed in a dry wooden box with a little bit of dry wool. This plant was first introduced in a living state by Mr. Sander, of St. Albans, and those at home who have the plant should take every care of it, as this Orchid appears to be scarce in its native home. It likes the cool house and plenty of moisture.—G.

Cattleya Schilleriana (*H. H. H.*).—This is a nice flower of this very variable plant. The flower sent certainly resembles the form known by the name of Regnelli, having the sepals and petals bronzy green, transversely spotted with brownish purple, the side lobes rich purple bordered with white, the middle lobe rich velvety purple with a white border. This plant is very variable in colour. It is stronger growing than *C. Aclandiae*, which it much resembles. The flowers, too, are considerably larger, measuring over 4 inches across in the flower before me. It requires similar treatment to *C. Aclandiae*.—W. H. G.

Oncidium dasytyle.—"R. J." sends me a fine form of this species for a name. The flower is nearly 2 inches across, of a good clear rich yellow, and the large callosity on the lip of a deep blackish purple. This plant was first flowered by Mr. Williams, of Holloway, who received it from a lady living at Peckham, whose son sent it to her from the Organ Mountains. It was not long afterwards imported in some quantity, and it became somewhat common. The plant enjoys a cool house, and produces a many-flowered spike of bloom when strong. The flower sent is by far the richest coloured form I have yet seen. In the type the yellow was very pale.—W. H. G.

Cattleya Aclandiae.—F. M. Burton sends me a flower of this beautiful species, which has the sepals and petals of a very light straw colour, spotted profusely with reddish-purple; lip light rosy-purple with deeper veins, the column bright rich purple. It is remarkable for the distinct colour of its sepals and petals. This plant comes from one of the warmest parts of Brazil; consequently it requires the warmest place in the house, but it must be shaded from the hottest mid-day sun. It does not like to have its roots encumbered with soil, and for this reason I prefer to grow it on

a block of wood in preference to a hanging basket. It requires an abundance of water in the growing season and a thoroughly moist atmosphere, and although it likes a decided rest, this is better brought about by lowering the temperature than by roasting the plants.—W. H. G.

Dendrobium Falconeri giganteum.—A flower of this variety comes from Mr. Cypher, of Cheltenham. I do not think I have seen such a fine form as the one sent. It measures 4½ inches across the petals, which are broad, and with the sepals are waxy white flushed with rosy purple and tipped with amethyst-purple; lip large and full, having a very large velvety maroon-purple blotch at the base surrounded with rich deep orange, this again having a zone of white, the point being broadly tipped with the same amethystine hue as the petals. This plant likes plenty of warmth during the growing season and to be rested cool. It should be kept moist all the year round to prevent the bulbs shrivelling.—G.

EPIDENDRUMS.

The plants belonging to this genus are becoming greater favourites than they used to be. Several new and handsome species have been found and better skill in their cultivation has been exercised, so that we now have many beautiful kinds to grace our collections. The species are very numerous, and are found more or less over the whole of the South American Continent, while several species are found in the territories of the Northern States. It is recorded by Linden that one species found by him on the Sierra Nevada of Merida grew on wet rocks, at but a little distance from the eternal snow, 13,000 feet above the sea, and he adds that it is especially remarkable, for all the plant, flowers included, is covered over with varnish. This is *E. frigidum*, so named by Linden. The flowers are of a soft rose colour, produced in long and branching racemes. It has never yet been brought to Europe in a living state. Then we have *E. dichromum*, which comes from a very hot part of Brazil, so that to grow these plants well it is absolutely necessary to know from what district they come. "G. H. B." sends me blooms of a very bright and large-flowered form of *E. cochleatum* that bloomed in this country so long ago as 1787. It was not, however, until some fifteen years afterwards that the plant was figured in the *Botanical Magazine*, t. 572. The flowers from "G. H. B.," however, are far superior to those figured, and certainly it is a form worthy of cultivation. I should really like to know where this plant came from. I have also received from "J. H." two forms of *E. prismatocarpum*, 1 being a small and pale coloured form; 2, a very fine variety, the sepals and petals heavily spotted with blackish purple on a greenish yellow ground, the trowel-shaped lip bright rich purple. This plant is very showy and most effective when grown in small pots. Mr. Cannon, of Merton, in Surrey, also sends me for a name a panicle of blooms of what appears to be *E. alatum*, the flowers are sweet scented, the sepals and petals being somewhat spatulate, the lower half greenish yellow; lip yellow, streaked with reddish purple. This comes from Central America. Mr. Ross sends me a spray of *E. ambiguum*, which is also a very sweet-scented species, and is sometimes confounded with *E. alatum*; the sepals and petals are nearly equal with plain edges and of a pale yellow colour tinged with light green; lip much toothed, yellowish-white, streaked and dotted with rosy-lilac. It comes, I believe, from Guatemala, its fragrance being its chief recommendation. "C. C. M." sends some blooms of *E. Brassavolæ*, but of the three forms

sent not one is worth growing. *C. Arbutnot*, however, sends a splendid form, quite as good as the first flowers which opened some twenty-five years ago at Biddulph Grange, near Congleton, then the residence of Mr. Bateman. It was first discovered by Warscewicz some twenty years previous to this when gathering Orchids on the volcano of Chiriqui, but from the quantities imported during the past few years it has proved a very disappointing plant in its colours, so that the variety sent by *C. Arbutnot* should be cherished. *E. nemorale* is a Mexican species, which requires the same treatment as *Lælia anceps* and other kinds from the same district. I have just had a nice spray of this beautiful plant from Manchester under the name of *E. verrucosum*, but the true plant that bears this latter name is far inferior to the above named species, the flowers being fewer on the spike, much smaller, and green and pale yellow. The flowers now before me each measure some 3 inches across, the sepals and petals being nearly equal and of a soft rosy-mauve, the small side lobes of the lip being tinged with rosy-purple, and the large middle lobe white in the centre, streaked with rosy-mauve. It is a charming and delicate species well deserving of general cultivation. It is quite useless giving any general treatment for the above named plants because they come from so many different elevations. The plants should be placed with other Orchids that come from similar regions, and thus their requirements can be found out.

WM. HUGH GOWER.

SHORT NOTES.—ORCHIDS.

***Oncidium insculptum*.**—"O. T." sends me a flower of what I believe to be this species. The flower was really dried too much to venture an exact opinion upon it. I have very rarely seen *O. insculptum*, although it has been introduced for twenty years.—W. H. G.

***Cypripedium Lawrenceanum*.**—F. M. Burton sends me a remarkably fine flower of this species, the dorsal sepal being very large and richly coloured, pure white, stained in the lower half with a vinous red, broadly veined with the same colour, saving at the extreme base, where it is bright green; the petals, too, carry a greater number of black wart-like dots distributed over the entire surface.—W. H. G.

***Lælia purpurata*.**—From Mr. Cypher, of the Queen's Road Nursery, Cheltenham, comes a remarkably fine form of this species, having pure white sepals and petals, the latter being sparingly veined at the tips with purple; lip large and well formed, with open throat, yellow veined with purple, front deep rich crimson-purple with a light central splash. This must have looked very fine, as Mr. Cypher tells me there were four blooms on the scape.—W.

***Rheum palmatum*.**—This, growing by the waterside, is the most ornamental plant in the garden just now. It has the appearance of a gigantic *Spirea*, and its enormous erect plumes, over 8 feet high, have a charming effect at any time, but most of all in the twilight when seen against a background of Horse Chestnut, or from another point of view against the dark still water with a fine Beech tree some hundred yards away. This is one of the most satisfactory of the things which we have established in the rough herbage, and should commend itself to anyone caring for things that want no protection and very little looking after. *Primula japonica*, too, is doing very well; indeed one fine plant with its roots in the water has now a dozen flowering stems and many developed flowers, while there are many scores of smaller plants around growing as freely as Cowslips. I cannot understand how this fine

Primula came to be regarded as tender, but I was told a few days ago that it certainly was not hardy in a garden not far from here, which cannot, from its position, be colder than this is. I have been thinking that these two plants, flowering as they do at the same time, would associate well together, the *Primula* forming a carpet for the *Rheum*, and I intend trying them in this way another year if possible.—J. C. TALLACK.

KITCHEN GARDEN.

LEEKS.

LEEKS are very generally grown in all parts of the country and in the gardens of all classes, but it is doubtful if they can be termed a



Leek Musselburgh.

really popular vegetable. At any rate, they are not greatly appreciated in the more southern parts of Great Britain, their principal use being for flavouring soups; but I cannot help thinking if more would give them a fair trial as a vegetable, they would have every reason to be well pleased that such a wholesome addition to the somewhat meagre list of green vegetables was available. Probably if they were more difficult to cultivate or more of a rarity they would be thought more of by a certain class of people, ease of culture and extraordinary hardiness not doing much towards popularising Leeks. If only wanted for soups, there is no real necessity to go to the trouble

of growing them to a great size, or of so carefully blanching the stems, and I have repeatedly seen the blanched stems thrown on one side and only the green portion of the leaves cut up and used by clever cooks. For cooking and serving as a vegetable they cannot well be grown either too large or blanched too thoroughly, and they then prove very tender, succulent, and mild in flavour. Those to win prizes at flower shows must also be grown to their fullest size, a good length of thick, well-blanched stem being indispensable. All things considered, the best variety for ordinary purposes, that is to say, for cultivation by those who are not exhibitors, will be found in the old Musselburgh, of which an illustration is given. Properly treated, this variety forms long, moderately large stems, which may be blanched to a length of 9 inches or more; but if grown nearly on the surface of the ground, they are liable to become short and thick, or much as shown on the left-hand side of the woodcut. When cooked it is fine-grained, tender and mild in flavour, in these respects comparing most favourably with the Lyon, Monstrous Carentan, and other large sorts that exhibitors find answer their purpose so well.

If wanted extra fine, the requisite number of plants should have been raised in heat, the seed being sown not later than February. The seedlings, if duly pricked out into boxes of light and fairly rich soil, would be ready for the open ground by the middle of May. Those who have raised a stock of strong early plants, or can procure the same elsewhere, should lose no time in getting them finally planted out. In the event of the land being of a light, free-working character, prepare trenches as for Celery, good solid manure being freely used, and other cultural details necessary for growing good Celery observed. Very fine Leeks may also be had by planting on the surface of freely-manured well-worked ground, this plan being most desirable in the case of heavy soils. In this instance the ground ought to have been manured and dug sufficiently long to become well pulverised, lumpy ground not suiting Leeks, and the plants should be put out, each with a good ball of soil and roots attached, 9 inches apart in shallow drills drawn 2 feet apart. In either case, whether in trenches or on the surface, plenty of water ought to be given during the growing season, the rainfall rarely being sufficient for such coarse-rooted crops, liquid manure being also freely used.

Blanching can be most cleanly effected by heavily bandaging up the stems, enclosing the lower part of the leaves, with folds of brown paper or strips of canvas, and this may further be supplemented with a bank of soil or not, as the cultivator pleases. Many growers are content to merely mould up with soil, much as Celery is commonly treated, but in this case the finer portions are liable to be washed down into the outer leaves, and the Leeks when lifted have to be considerably reduced. If kept well supplied with moisture at the roots, Leeks will continue to increase in size while the blanching process is going on, so that those who want them extra early may safely commence excluding light

from the stems before the plants are fully grown.

Very good Leeks can also be grown with even less trouble. If the seed be sown in the open late in February or early in March somewhat thinly and on good ground, abundance of strong plants should be ready for finally planting out during June or not later than the first week in July. These may either be planted in trenches or on the surface of well-prepared ground, as advised in the case of any raised in heat, or another simple plan may be adopted. I find Leeks succeed admirably on outside wall borders with a north-east or other somewhat cool aspect either near to walls or in the open, and, being rabbit-proof, they may well be grown outside garden walls in all cases where those troublesome animals have to be reckoned with. The site ought to be early prepared for them, being heavily manured and deeply dug, though not necessarily trenched. Not till the plants are strong and 12 inches or more in height are they really fit for the method of planting I am now about to describe. The rows may be 18 inches apart and the plants 9 inches asunder, or all can be put out 12 inches apart each way. Prior to planting the carefully lifted Leeks, very lightly shorten the longer leaves and then drop them the full length of their stems into holes made with a stout dibber. See that the roots rest on the bottom of these holes and have a little fine soil about them, a watering being all the further fixing necessary. Being planted thus deeply, it is not often that a second watering is needed, and all the further trouble needed is to stir the surface of the ground with a flat hoe occasionally, the better to keep down weeds, this also lightly closing the holes about the stems of the plants. During mild winters growth is steadily going on, and a very serviceable lot of Leeks with moderately long well-blanching stems is obtained. Any raised in the open are very late in running to seed, but even those that do throw up flower-heads early are not without a use. Pinch off these flower-heads directly they show, and a supply of thickened stems will be available at a time perhaps when Onions are very scarce.

I. M. H.

EARTHING UP POTATOES.

THE work of earthing up Potato plants is now demanding constant attention. The principles of earthing up are none too well understood, because we subject various plants to the operation for various reasons. In the case of Celery we earth up to whiten the stems. We earth up Potatoes to secure the plant stems from injury from the wind, or to keep the tubers blanched by excluding light and air. How far we may succeed in inducing Potato stems to remain firm and erect by the aid of moulding depends materially upon the earthing, for it by no means follows that the expected end is gained; indeed it not unfrequently happens that, so far from supporting the stems with soil, the stems are left in a furrow or basin barely touched by the soil; hence the support is more presumptive than real. It does not at all follow that Potato plants in such case are in any way benefited, but the tubers may be so because air and light are partially excluded from them. In America, where the hill system of planting prevails, the plants are earthed more effectively because moulded both lengthwise and crosswise, so that a complete mound of soil is thus produced. Generally at home we plant Potatoes too close, so that earthing up is usually indifferently done. Only in the case of very dwarf early varieties which are lifted before they have become fully grown is this somewhat close planting desirable. Where breadths have to be left to complete growth and ripen the tuber

crop, crowding and bad moulding always militate against the cropping powers of the plants, and the result is disappointing. As one result of giving ample room between the rows, that is various distances according to top growth of from 2½ feet to 3½ feet, the tubers are always finer, the produce relatively heavier, and there is less disease. I have seen rows of Potatoes planted at even 4 feet apart turning out immense crops, but of course in rich soil, which is as a rule far from being the best for Potatoes. Where room is small for earthing, the depth needful to go for obtaining enough of soil to make sharp ridges compels the exposure largely of the roots. Where the earthing is shallow and indifferently done, the result is to leave a furrow just where the plants are, with a ridge of soil on either side. The tubers below are to some extent protected from light, but the stems have no sustenance from the soil; they play about in the wind and form round each plant a basin into which all the water which falls on the plants is conducted, and that penetrates into the soil about the newly forming tubers, often forming a muddy casing, which helps to retain the moisture and in such case if disease be prevalent it is invariably worse than is found where the earthing has been perfectly done. When the rows are wide apart there is then ample room to find soil enough to make a sharp sustaining ridge about the plants, no furrow or basin is formed, and excess moisture is thrown outside the ridges away from the tubers and into the furrows proper, where the moisture does benefit the roots. All Potato growers know that the drier relatively the newly forming tubers can be kept the more likely are they to escape disease. Those nearest the surface, too, invariably suffer most, presumably because, as Mr. Jensen has pointed out, the fungus spores will in their active season penetrate into the tender skins of the exposed or thinly-covered tubers as easily as into the plant's stems and leafage. Thus it is that this distinguished botanist has so strongly enforced the value of protective earthing of the tubers, only that his practice differs from our ordinary moulding methods; as whilst we mould up the stems equally on either side, so as to keep them erect, the Swedish proposal is to mould heavily on one side only, and thus lay the stems over all one way. Not only in such case are the tubers covered with a thicker coating of soil than is usually the case, but the stems being all laid on their sides do not move about in the air, and hence form no basins for the undue reception of moisture. Then it has been shown that the method of protective moulding does appreciably check growth and cropping; hence that presents an obstacle to its adoption also. Practically the best solution of the matter is found in giving greater width between the rows, thus enabling earthing to be more completely done, so that with sharp ridges of soil cast up on either side of the plants, leaving no furrow about the stems, and covering the tubers with a thick coating of soil are the benefits which moulding chiefly gives. The frequent use of the horse hoe or cultivator between the rows induces at once destruction of weeds and the production of a deep fine, loose surface soil, presenting the very best conditions for successful moulding. In dealing with large areas we have no implement that can equal the horse hoe for stirring the soil, whilst light forking necessitates a greater expenditure of labour than usually can be afforded in the early summer. Thus it is that in gardens, in spite of the fact that the areas of Potatoes are relatively small, the moulding is often less perfectly done than is similar work in the fields.

A. D.

Seeds failing to germinate.—One of the bad effects of the wet, dull, and cold autumn of last year is that most kitchen garden seeds are germinating very indifferently and irregularly owing to unripeness, and in all probability to older seeds being mixed in to help up the bulk. We sowed more thickly than usual. Seeds generally germinate with remarkable freedom in our soil, so I fear that where the soil is cold and heavy the losses may be serious. Peas

have failed to germinate to the extent of 50 per cent. at least, which makes serious gaps in rows of the newer kinds, such as Prodigy, Duke of Albany, &c., and one of the worst, being naturally a late Pea, is the old favourite Ne Plus Ultra, a variety we depend on largely to come in for late and main crops. We have tried the experiment of lifting the plants from very bad rows and mending the gaps in the others, and this having been done directly after a heavy rainfall, the plants do not show any signs of suffering yet, though they may possibly do so if we have a dry season. I have a good word to say for two old varieties which I have not grown till now for some years, but which, anticipating a failure with some others, I have sown largely; these are William I and Champion of England. Both of these have come through splendidly and look remarkably fine and healthy, in strong contrast to some other kinds. Criterion, too, is looking fairly well. This is a Pea which may always be depended on to pay its way and to be acceptable at the table, as the quality is very good indeed.—J. C. TALLACK.

BOLTING OF CABBAGES.

FAILURES with Cabbages have been very general this season, never more so probably, and "Caledonian" (p. 483) has done well in directing attention to the need of some light being thrown on the subject. In very many establishments there is little or no demand for Cabbages after Peas, Beans and Cauliflowers become plentiful, or at any rate only the very early tender hearts are appreciated in the dining room. When, therefore, the latter are not forthcoming there is a void not easily compensated for with other vegetables. As "Caledonian" pointed out, a great percentage of the plants that survived the winter were much stunted, and instead of duly hearting in, bolted to seed and had to be pulled up accordingly. Undoubtedly to something other than the severity of the winter or coldness of the spring must be attributed the cause of this unfortunate failure, or otherwise how comes it that one or two varieties have done so well under precisely the same treatment as the rest? We commenced cutting nice little hearts of Ellam's Early Spring at Easter, and have had abundance ever since, and the good old Wheeler's Imperial has done nearly as well. Alongside these were growing Veitch's Matchless and a trial variety, and nearly the whole of these bolted.

In the course of my gardening career, experience has been gained in counties very widely apart, and I have long since discovered that the date of sowing Cabbages ought to vary considerably, or otherwise success will be doubtful. Thus in some parts of Kent, Sussex, Essex and Middlesex, the first, and in some instances the second week in August is quite soon enough to sow the seed, anticipating that date very probably ending in the premature seeding of the majority of the plants. Farther north the seed has to be sown from a week to a fortnight earlier in order that the plants may have good time to become well established in their winter quarters before severe weather sets in, those indifferently rooted being the most liable to fail. It is, therefore, possible to be either too early or too late in sowing Cabbage seed, and it has been my custom on going into a fresh locality to ascertain the popular date for sowing. When I first came into this presumably warm part of the country it was somewhat of a surprise to learn that July 15 was considered the proper time for sowing Cabbage seed, and I soon found that to be successful with either Ellam's Dwarf or Wheeler's Nonpareil, the latter being a favourite small and early local variety, the seed must be sown on or about the date mentioned. It is only right to add, however, that the first week in August answers better for the larger or stronger growing varieties, so that we now make two good sowings instead of one, this usually being attended with satisfactory results. Last autumn the ground was cold and wet, and plants put out late in close succession to Onions did not make sufficient progress to be strong enough to contend against the

most unfavourable weather experienced in the spring. In all probability they would have done better if planted on freshly-manured, freely-worked ground rather than the close undug Onion quarters.

Somersct.

W. I.

PREPARING FOR WINTER.

At this season of the year it is advisable to make a note of what we may term green vegetables which will be required during the following winter and spring. Failures of the past can be guarded against, and kinds which have succeeded well must be planted in sufficient quantities to meet the supply, as it is very annoying after having only planted a small quantity of any kind for the supply to be quickly over, and to have to fall back upon others of poor merit. Many people only commence to find out what they really require when the planting season is over, or, indeed, perhaps not until the winter storms have commenced their destruction. It is very evident that crowded planting is answerable for many of the failures which do occur, and whilst summer vegetables are allowed ample room for their development, the winter kinds, and which should have the most room afforded them, are generally the worst off in this respect. The highest prices have been obtained by growers for sale during the past spring months, and those who were wide-awake enough to give their produce rational culture were well repaid for their pains. Last year, when so many green vegetables were destroyed by frost, Spinach was about the only kind which came out unscathed, and growers who were fortunate in having good-sized breaks realised good prices. But what a marked difference to this past spring, when the Spinach crop was cut up as badly as anything or even worse, and although the plants were not really killed, as it was only the outer leaves which suffered, yet when a change did occur they grew away freely enough. But however wholesome a vegetable Spinach may be, it is not everyone who cares for it, especially to use it regularly. However desirable it is to grow such a crop, other staple kinds must be forthcoming. Of the undoubted hardiness of Brussels Sprouts there cannot be any question. It is without doubt the most popular and useful winter vegetable we have. To crowd such a useful and esteemed winter vegetable up amongst rows of Potatoes is a great mistake, and I know of no other crop which so well repays for good culture. The plants after they have finished growing should stand up erect, and when this is the case, through having a due amount of room afforded them, solid sprouts from base to summit will reward the grower for his pains. This is in marked contrast to crowded-up plants, for these are invariably weak-stemmed and the sprouts are loose instead of being solid and compact. Of the value of Kales there cannot be any doubt, and although these may stand rougher treatment, yet they will repay for liberal attention. These must be full-grown plants by the time winter sets in, and then whatever weather—for they seem proof against all kinds—occurs, may they be relied upon. In proportion to the strength of the plants, so will secondary sprouts be produced. It is in these secondary sprouts wherein lies their value, for after the main head has been cut out, sprouts which are more delicate in flavour burst out in profusion and keep on until the month of May is well advanced. The old Cottager's Kale is as useful as any, the young sprouts being very delicate in flavour and not at all bitter. The Green-curbed, Read's

Hearting, and Asparagus Kale may well find a place, the last being the latest of all. It also does not appear to be very particular as regards site, as in my case it was planted in the shade of trees and has turned out well, being now (the first week of June) still good for use. Of other useful vegetables, or rather green kinds, I may instance the hardy Coleworts, so well known in the London markets, but not seen very much in private gardens. Why not, is a question, for they have a flavour, and this a very palatable one, peculiarly their own. Of their undoubted hardiness there cannot be any question. By two or at the most three sowings, a succession may be obtained if a lengthened supply is needed. The first may be made now, the second at the end of the month, and the third with the sowing of the earliest Cabbage.

Other useful vegetables are Chou de Burghley and the Winnigstadt Cabbage. Large plantings of Savoys are not so very serviceable; certainly they are very acceptable whilst they are good, but not so hardy as the above mentioned kinds. Tom Thumb from a sowing in May is always very serviceable, and, being of a small size, the plants do not succumb so quickly to frost and damp, and after being touched with frost they are very delicious. Like the Coleworts, they may be planted a foot apart on borders cleared of early Potatoes. Broccoli I have touched upon in a former article, and grown as there suggested serviceable crops may be secured. All the above kinds being of a hardy nature, there should certainly not be such dearths in the early spring as there have been in many gardens during the past two seasons. It may be probably on account of relying on doubtful kinds of Broccoli and also too many Savoys. I cannot give any other reason, as if the kinds I have mentioned are rationally grown, a winter supply of green vegetables should be assured. Of the value of late Celery, or indeed a good main supply, there cannot be any question, and if care is taken not to commence earthing too early, the stems keep sound and good throughout. When Celery decays it is through forcing on the growth, through over supplies of rank manure, and this with early earthing is the main causes of failure, too often attributed, but very erroneously, to the action of the frost. Certainly frost does play havoc, and seriously at times, but the saddle is only too often put on the wrong horse. Another useful vegetable is Celeriac. Spinach cannot be dispensed with, but, as I have previously stated in the pages of THE GARDEN, the mistake is generally made in not making two sowings instead of one, or it is even better to have three, the first the latter end of July, and which will be fit, and may be gathered from early so as not to interfere with the winter crop, which should be sown about the middle of August, or even a few days later, and the third the latter end of September.

Root crops I need scarcely refer to, as the value of Salsafy, Beetroot, &c., is well known, and the preparation of which, or at least the sowing, is now past. The above, it will be seen, is a fairly long list of hardy vegetables which may be produced in the open air.

A. Y. A.

Shelter for early vegetables.—It is astonishing how a little shelter to vegetables which are planted during the spring months aids their growth. I have found much advantage accrue from the shelter afforded by ridges to early Cauliflowers, Brussels Sprouts, Cabbages and Leeks raised early under glass. When ground is trenched or dug and thrown up into ridges, the plants indicated are placed in these ridges, which are left as they were

thrown up to the action of frost, and by passing the hoe through, as may be necessary while the season advances, earthing up is gradual, and the advantage to the plants is very observable. The past April was very trying to vegetation generally, but Brussels Sprouts and Cauliflowers on the ridges are very promising.—M. T.

Chou de Burghley.—In order to have this Cabbage at its best or most serviceable state, a too early start must not be made. When first distributed it was advised that a batch of plants be raised under glass and otherwise treated much the same as the earliest Autumn Giant Cauliflower; but this led to the production of extra large plants, with great, close conical hearts that cooks did not know what to do with. Since, however, I have hit upon the plan of sowing the seed in the open about the first week in May, a very different complexion has been put upon the value of Mr. Gilbert's "hybrid." The plants are treated very similarly to Savoys, being given a fairly rich and firm open piece of ground, and planted about 18 inches apart each way. They are not spoilt by being kept long enough in the seed beds to become extremely leggy, and if well attended to after they are dibbled out, soon recommence active growth, becoming strong without approaching coarseness, while the neat, well-blanced hearts are of the greatest value at midwinter and thereabouts. Much earlier than then they are not appreciated, and seeing that nothing but an exceptionally severe frost will injure them, we are never in a hurry to commence cutting.—M. H.

Large Leeks.—Is it necessary to have this vegetable as large as is often recommended? I am never anxious to sow early in heat, as recommended by some, as I find Leeks large enough for any purpose may be had by sowing in March, and planting in trenches when ready in the same way as Celery. I do not like Leeks of immoderate length, as it is impossible to cook them without cutting or shortening, so that I fail to see where the value comes in. A short thick Leek double the size is more valuable than a long drawn one. For exhibition, large Leeks make a show, but I never allow them points over others grown more sturdy and often better for cooking. The same holds good in the case of large Onions, which are not so generally useful as the medium-sized ones. In these days of large vegetables everyone tries to get large things, but often at loss of flavour and good keeping properties. The pot culture of Leeks is certainly a troublesome business, and one I cannot bring myself into sympathy with. I do not object to any trouble to get the best results, but I feel sure in the southern part of the kingdom good Leeks fit for any purpose may be had without the trouble of sowing in heat and potting off. For exhibition it may be necessary, but it is not advisable, as awards should be made for quality, and not size. For early produce I have found the Lyon best, being a quick grower and of delicate flavour. For long keeping it is difficult to beat the old Musselburgh.—S. H.

DESTROYERS.

THE RASPBERRY MOTH.

ACCORDING to a pamphlet issued by the Board of Agriculture, the caterpillars of this moth are most destructive to Raspberry canes. The culture of Raspberries has enormously increased within the past ten years, as they have proved in some seasons to be a most profitable crop; their enemy, the Raspberry moth, has multiplied in a proportionate degree. Last year's production of this valuable fruit was much decreased by its action, and it was consequently considerably dearer than other fruit, Currants, Strawberries, and Cherries, for instance, as may be seen by the higher prices charged for Raspberry jam of 1891 make. On many fruit farms the crop was one-third short in consequence of the attack of this insect. A fruit farm at Otford, in

Kent, was visited in the first week in May, 1891, upon which at least half of the buds of the Raspberry canes had been destroyed. In some of the buds the caterpillars were still actively working; in some they had changed into pupæ. This was the condition of many Raspberry plantations in England and Scotland. Also in gardens and allotments where patches of Raspberry canes are cultivated much mischief was occasioned. Upon close examination it was seen that the soft juicy part at the base of the buds had been eaten away, so as to kill the buds and prevent their foliage and blossoms from being put forth. There was also a hole in the cane at the base of the buds in which the pupa was ensconced. Many complaints have already been made this season of the number of caterpillars in the buds of Raspberry canes, and of the mischief they are causing.

The *Lampronia rubiella*, or Raspberry moth, belongs to the family Tineidæ, of the group Tineina. It is a most beautiful moth, of a light brown colour, with a series of spots like burnished gold upon its fore wings. The hinder wings are slightly lighter in colour, with light fringes. It is barely half an inch across its wings, and its body is only about the fourth of an inch in length. It may be seen towards the end of May or the first week in June flying around the Raspberry canes. The moth places her eggs upon the flowers of the Raspberry canes at the end of May or in the beginning of June. After five or six days the caterpillar may be found in the raised white receptacle upon which the fruit, or more correctly the collection of little fruits composing the Raspberry, is formed. The caterpillar does not appear to injure the fruit, nor, indeed, to feed at all at this time. Mr. Stainton, in his "Manual of Butterflies and Moths," says that the caterpillar hibernates without feeding. When it is fully grown the caterpillar makes its way out of the receptacle, which, as is well known, does not come off with the ripe Raspberry when it is gathered, either by crawling or by letting itself down by silken cords to the earth beneath the canes, and passes the winter in a case, or kind of cocoon. It emerges from this state of hibernation on the first approach of spring, and crawls up the Raspberry canes, and, getting to the buds, worms itself into these at their bases, and makes up for long autumn and winter months of fasting by feeding upon them. In a communication, dated June 15, 1891, Dr. Chapman stated that the caterpillar leaves the hibernating cocoon in March, early or late, according to the season. When the time arrives for pupation, the caterpillar scoops out a hole in the pith of the canes, just below the bases of the buds, in which it turns to a chrysalis. From a quantity of pieces of Raspberry canes, whose buds were badly infested with caterpillars, sent from Otford on the 8th of May, and kept in a glass case, moths came forth on the 9th of June. That there might be no possible doubt as to their identity, some were sent to Mr. Stainton, who pronounced them to be *Lampronia rubiella*. The larva is close upon a quarter of an inch long, decidedly pink in colour for the most part, though the shade of colour varies somewhat in individuals, and becomes more red in most as they get older. The head is black. There is a patch of black on the first segment. It has three pairs of black feet on the thoracic segments. The pro-legs number four pairs, and there is a pair of anal feet. The pupa is exactly the fourth of an inch long, tapering somewhat unusually, and has a curious spine upon the back of the last segment.

METHOD OF PREVENTION AND REMEDIES.

The caterpillars are just under the surface of the ground, around and among the stocks of the Raspberry canes. As it has been shown, they remain there from about midsummer until March. Therefore, forking the ground round and between the stocks deeply with a pronged fork, or even hoeing it with a three-toothed hoe would destroy some and bury others so deeply, that they could not get forth. Dr. Chapman was good enough to suggest the following practical method of prevention: "The caterpillars are in the crown of the stock, or near it, and under rubbish the collector. Take

this away, and earth the stock up again, and you will thus bury them, and most will perish." Soot, lime, ashes, or soot and lime mixed, which form a pungent compound, might be forked or prong-hoed into the ground in the autumn or winter. Raspberry canes in field culture are nearly all cut away, so that there are but few canes or stems. It would be easy, therefore, to put a little thick soft soap composition containing paraffin oil, or carbolic acid, or some other offensive stuff, with a large paint-brush, upon the lower part of each cane that is left, in order to prevent the caterpillars from crawling up. They are very small, and the least obstruction of a disagreeable nature, it is believed, would stop their progress. Cutting off and burning the infested stems while the caterpillars are in the buds or receptacles, between April and the middle of June, would destroy many caterpillars. This may be very freely done, as Raspberry canes throw up plenty of shoots to take the place of those cut away.

GARDEN FLORA.

PLATE 861.

FLAME FLOWERS.

(WITH A COLOURED PLATE OF *KNIPHOFIA CAULESCENS* *)

THIS beautiful genus of mostly hardy plants has attained a very prominent place in gardens since the introduction in 1707 of *K. Uvaria* and *K. pumila* in 1774. The genus, as understood by botanists, is restricted to the Cape and mountains of Abyssinia, with the exception of one species found by Speke and Grant near the equator, and one or two from the mountains of Madagascar. There are in all between twenty and thirty species, and of the six found in Abyssinia none are identical with those found at the Cape. The *Kniphofias*, especially the forms of *K. Uvaria*, it is needless to say, are amongst the grandest and most striking of autumn-flowering plants. We do not see the *Kniphofias* so often in the Grass, in the wild garden, or by the woodland walks as they ought to be. Large irregular groups in the more open exposed spots give a very brilliant effect in autumn, and they require no attention more than an occasional top-dressing of rich soil or well-rotted manure. Many of the species and varieties have suffered very much during the last two winters from frost and damp, the latter more particularly, but this may be averted by a covering of dry leaves when the foliage begins to yellow in autumn. They are readily increased by division, by offsets and by seeds, the latter giving most curious results and many good varieties. The following are amongst the best of those in cultivation:—

K. ALOIDES, or *Tritoma Uvaria*, under which name it is even now known in many gardens, is perhaps the oldest, and still one of the very best of this fine genus. It is the Flame Flower of old English cottage gardens, an extremely valuable plant, and one of the noblest and most brilliant of autumn Lily-worts. It is an excellent border plant, suitable for all kinds of soils and conditions, and few plants are better adapted for picturesque grouping in the wild garden, where with a fairly open space and deep rich soil it forms large and very handsome groups. It is the most valuable of the known species, perhaps as much as 70 per cent. of the garden forms being traceable to this *K. aloides*, either as seedlings or hybrids. It is a native of the Cape, and is figured in the *Botanical Magazine*, tab. 758, tab. 4816, and var. *maxima*, a taller form with very large flower-heads, tab. 6553. The variety *præcox*, discovered and introduced by Mr. Cooper, flowers much earlier than any other form of *K. aloides*, being

in full perfection from the middle to the end of May. The leaves are broader than those of the type, not glaucous, the raceme shorter, and the stem only about half as long as the leaves. The flowers, with the stamens not protruding, are bright red, passing into yellow tinged red when older. The variety *nobilis*, which is very near if not similar to *grandis*, is a very robust and noble plant. The leaves are more distinctly serrated and deeper keeled. The flowering stem is from 5 feet to 8 feet in height. The flowers vary from scarlet to orange-scarlet, anthers prominent. It blooms from the beginning of August to September. The variety *serotina* or *chloroleuca* blooms a month or so after all the other forms are over; the flowers are greenish yellow only occasionally tinged with red. The var. *Saundersi* has bright green leaves and very rich orange-scarlet flowers; var. *longiscapa* has very long flower-heads and is a most desirable form; var. *maxima globosa* earlier than *maxima* with globose heads of yellow and red flowers; var. *glaucescens*, large spikes of vermilion-scarlet flowers shading to orange. This is a free-flowering plant, and one of the very best in heavy rich soil. There are many more forms to be found in gardens, having been raised in recent years. Most of these are distinct and good.

K. BURCHELLI.—The type, as introduced by Mr. Burchell from the Cape, is a very distinct and beautiful plant. It is figured in the *Botanical Register*, tab. 1745, but this figure differs somewhat from the plant now in cultivation, which we take to be a hybrid or connecting-link between that species and *K. aloides*. The latter form has a purple-spotted stem, the flower-stalks being much shorter than in the type and the plant dwarfer. It flowers soon after midsummer, and just between *præcox* and the other *aloides* forms. The leaves are bright green, firm in texture, 2 feet to 3 feet long, and tapering very gradually to the apex. Heads moderately dense, the flowers bright red, those on the lower end bright yellow. The style in this case protrudes, the stamens being included in the tube. A useful and very distinct plant, suited well for dry banks, &c.

K. CAULESCENS and *K. NORTHLE* differ from all other Flame Flowers in cultivation by their distinctly caulescent habit. From all the *Uvaria* forms *K. caulescens* differs also in its smaller size, glaucous leaves, short heads, and less curved flowers. The accompanying coloured plate gives a good idea of its noble habit, and though less brilliant in colour than most of the other species, it is one of the hardiest species we have, with a very distinct and robust habit, flowering as a rule early, which is a specially welcome feature. It was first found, we believe, by Mr. Cooper in 1860 in the Stormbergen Mountains, South Africa, and is a very striking plant for rockeries, where it does well and flowers freely on dry slopes. Its cultivation, indeed, may be said to be of the easiest, and it may be propagated freely from suckers and by cutting up the short stem. The suckers or offsets taken off in early autumn root freely in sand in a cold frame.

K. COMOSA seems to be closely allied to *K. pumila*, and gives a very peculiar effect with its long protruding style and anthers. It is much dwarfer in habit than the well-known *K. Uvaria*, the leaves much narrower, the flowers smaller, and of a uniform bright yellow. The leaves are in dense rosettes, narrow, erect, and of a bright green, very pointed, and almost three-cornered. The flowers are all drooping, in a dense oblong head, bright yellow, much narrowed or constricted above the base. The stamens and style are about twice the length of the flower tube. A showy, but rather tender plant, flowering in September. It is figured in the *Botanical Magazine*, tab. 6569.

K. FOLIOSA may be said to be the counterpart of *K. caulescens*, but having distinct stems instead of being stemless. It is one of the most robust of the whole genus, and is easily recognised by its broadish leaves and protruding stamens. It was first flowered in England by Mr. Elwes about 1881, but Max Leichtlin's specimen was more robust and with a tinge of bright red on the flowers, which

* Drawn for THE GARDEN by H. G. Moon at Munstead. Lithographed and printed by MM. Lemer cier fils, Paris.



KNIPHOFIA CAULESCENS

they rarely get in England. The leaves are collected in a dense tuft on the top of a longish bare stem, 3 inches to 4 inches broad at the base, and tapering into a long point; green or very slightly glaucous, obscurely serrated. Stem stout, 1 foot to 3 feet high. The flowers, in a dense oblong head nearly a foot long, are bright yellow or tinged red. Native of the Cape, flowering in late autumn. Figured in the *Botanical Magazine*, tab. 6742. *K. Quartiniana* is a synonym.

K. LEICHTLINI was named in honour of Herr Max Leichtlin, of Baden-Baden, who has done so much to furnish English gardens with rare and beautiful hardy plants. The present species is a native of Abyssinia, and requires protection in winter even in the south of England. It was discovered by Schimper, and first flowered in the Royal Gardens, Kew, in September, 1881. It is, perhaps, nearest to *K. pumila*. Leaves in a dense tuft, about 2 feet to 4 feet long, spreading, dilated at the base into a broad clasping shield, gradually narrowing to the tip, three-cornered, bright green, with entire margins. The flower-stems are from 2 feet to 4 feet high, the head about 6 inches long, flowers drooping, of a dull vermilion-red and yellow, stamens slightly protruding. The variety *disticha*, which is quite distinct from the type, is more robust, the leaves are broader, the flower tube shorter, and the stamens decidedly longer. Two and even three heads of flowers of a bright deep yellow colour are produced on the same stem. Native of Abyssinia, and flowering in August. It has been suggested that this is a hybrid between *Leichtlini* and *comosa*.

K. MACOWANI.—A distinct type, differing from most of the other species by the reflexed segments of the corolla and dwarf habit. It was discovered by Professor Macowan in grassy places of the Boschberg Mountains at an elevation of 4000 feet to 5000 feet above sea level. The leaves are 1 foot to 2 feet long, narrow, and distinctly keeled, with deeply grooved margins. The flower-heads are small, and the flowers of a bright orange-red. The plant is perfectly hardy and suitable for rockeries; rigidissima and maroccana are garden names, and the variety *longiflora* has much longer flowers. *K. corallina*, a very fine robust hybrid raised by Deleuil, of Marseilles, between this species and *K. aloides*, is exactly intermediate between the two, and a very desirable plant.

K. NORTHLE.—A new species from Grahamstown, of undoubted hardiness in the neighbourhood of London. It was first discovered by Mr. Dugmore, and the plants sent to the Royal Gardens, Kew, flowered in the Cactus house in 1889. It is most nearly allied to *K. caulescens*, but the leaves are much broader, not keeled, serrulate on margins, flower-heads dense, about a foot long, the flowers pale yellow, only the upper half tinged red towards the tips.

K. ROOPERI is one of the best species in cultivation. It is nearly allied to *K. Uvaria*, but is an early or summer-flowering plant, the stamens being included in the tube, the flowers paler and less curved and the leaves broad and very glaucous. It is a native of Caffraria and requires a little protection during severe winters. It has a fine bold appearance when in full bloom, the heads from 6 inches to a foot long, and the crowded flowers of a bright orange-red, getting yellowish with age. The plant usually called *Rooperi*, flowering in November and December, is a variety of *K. aloides*.

K. SARMENTOSA, figured in *Botanical Magazine*, tab. 744, as *K. media*, is a distinct and very useful plant. It is readily distinguished from *K. Uvaria* by its smaller glaucous leaves, the edges and keel not serrated as in that species. The flower-heads are 6 inches to a foot long, cylindrical, the flowers red in the upper half, yellow or yellow tinged red in the lower. It was first introduced by Mr. Williams, nurseryman, Turnham Green. It is perfectly hardy and readily propagated by suckers. There is an excellent hybrid between this species and *K. Uvaria*. Native of the Cape.

Other species not noticed in detail are *K. triangularis*, *carnosa*, *pumila*, *pallidiflora*, *pauci-*

flora, *natalensis*, *Kirki*, *Tysoni*, *modesta* and *Granti*.—D. K.

—There are now fifty or sixty varieties of these brilliant Torch Lilies, in place of the few known, say twenty years ago, but had we only the old *Kniphofia* (*Tritoma*) *Uvaria*, it is a plant capable of yielding very fine effects as planted in quantity either alone or grouped along with other suitable vegetation. One of the first things that impressed me in gardening out of doors was a long strip of Grass by a lake-side backed by shrubs and trees and planted with *Tritomas* and *Pampas* Grass, the distant effect, as seen across the water, being very beautiful during the late autumn months.

The old garden name is *Tritoma*, but a prior name, *Kniphofia*, is that now generally adopted by botanical authorities in honour of Johann Hieronymus Kniphof, a professor of medicine at Erfurt in the 18th century (1704—1763). The true species are about twenty only, and the majority are from Tropical and South Africa and Madagascar. All the hardy kinds grow well in deep well-drained loam and are readily increased by division or by



Kniphofia aloides var. *grandis*.

seeds, which some varieties produce freely in mild localities. Once well planted in bold groups, *Kniphofias* form the most effective masses of colour, and their effect is visible at long distances, so that they are plants of much value to the landscape gardener who may use them on lawns, or wood margins, on banks, and near water, either alone or along with other vigorous plants, such as *Spiraeas*, *Helianthus* of the perennial kind, *Pampas* Grass, *Arundo*, or the Giant Knotweeds, such as *Polygonum sachalinense* and *P. Sieboldi*. A bold group of these flowers backed or partly surrounded by Bamboos, such as the dark-leaved free-growing *B. Metake*, is a sight in October not readily to be forgotten. They are very fond of moisture at the roots, and a good watering with weak manure water is of great service just as their flower-spikes appear in August or September.

Mr. Grant formed a splendid collection of varieties when at Hope End Farm, Ledbury, and of late years Messrs. Krelage, of Haarlem, Herr Max Leichtlin, of Baden-Baden, and Mr. Smith, of Newry, have done much in the rearing of new and improved seedlings and in the popularising of these desirable garden flowers.—F. W. B.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

BRUSSELS SPROUTS.—The season for planting out this important crop is now upon us, and if plants were raised under glass and duly pricked out as I have advised, good plants will now be forthcoming. By all means if possible devote a plot of ground to them, for if any crop repays for this extra attention, it is the subject under notice. If grubs at the root are likely to be troublesome, do not neglect a dressing of lime previous to planting, a little of this being carried down to the roots when fixing with the dibber. As an extra precaution, dip the roots in a puddle formed of soot, lime, and soil. Set out in rows quite 3 feet apart, the distance in the rows being the same, or in any case not less than 30 inches. Previous to planting draw rather deep drills, in which set the plants, as after becoming established the drills may be filled in, thus steadying the plants. Close planting results in weakly stems, and the foliage turning yellow and decaying in the autumn, on account of direct light not being able to reach the plants. If planting between rows of Potatoes is a necessity, put in alternate rows, the haulm being turned back in the intermediate row.

RUNNER BEANS.—The recent beneficial rains have started these into growth nicely, and when they are to be staked this operation must be attended to before they commence to wire, or else there will be endless trouble in parting the growing points. Where the seeds were sown in double rows, what is termed cross staking is the best, especially if tall stakes are used. These must be securely fixed by having a support running along the centre. Supported in this manner, they resist strong storms of wind and rain. It will be necessary to lightly tie the points to the stakes, so as to give them a start, for if this small detail should not be attended to the points become mixed up. Faulty rows may also be made good by transplanting, for which purpose it may be necessary to break up a row rather than have the others gappy. Take them up and plant with a trowel in showery weather if possible. If not, give a gentle watering, when growth will soon start away. Others which are being grown as dwarfs must be pinched as soon as they commence to wire, when they quickly assume a bushy habit.

LATER CROPS.—A sowing should be made now to provide a late supply. Fruiting as they do until far into the autumn, or until cut down by frost, they prove one of the most useful of crops. When a glut occurs, they may be salted down in earthenware jars for winter use. Give a good root-run by deeply digging and manuring on strong land, and also provide trenches on light soils. Being very partial to strong land, they will succeed in any part of the garden or even partial shade. Germination will be hastened by soaking the seeds twelve hours before sowing, when bad seeds may also be picked out, this preventing faulty rows through seeds not germinating.

PARSLEY.—It must be borne in mind that although Parsley appears to grow freely enough when left unthinned during the summer months, yet no crop pays better for having room so as to become freely developed. Being such an important crop, too much stress cannot be laid upon the necessity of early thinning out the seedlings. These need not be cast aside, for the thinnings if carefully attended to may be transplanted for providing a supply during the winter months. It is from these thinnings or from a sowing made at the beginning of next month that we must look for our winter supply. In transplanting the thinnings select an open or sunny spot so that protective measures may be afforded when severe weather arrives. The soil must neither be too rich nor too loose. The growth when made with free exposure is also better able to stand against alternate spells of wet and frost. In trans-

planting insert the seedlings firmly, and although moist weather is the most suitable, yet by being carefully watered after planting and fairly strong crowns being used there need not be much fear of their failing. If the grub is troublesome, dress the soil over with soot or lime.

AUTUMN BROCCOLI.—All things considered, Veitch's Self-protecting Autumn Broccoli is the most useful form in cultivation, forming an admirable succession to the autumn Cauliflowers. By making about two successional plantings heads may be forthcoming until late in the year. The first which was raised under glass and duly pricked off is now ready for putting out, to be followed by the succession plants as soon as they are ready. Draw deep drills in which insert the plants, the rows being quite 30 inches apart, and the plants 2 feet in the rows.

A. YOUNG.

HARDY FRUITS.

STRAWBERRIES.—If the mulching material applied to these is not of a sufficiently clean character, no time should be lost in facing it over with short clean straw or a good substitute for the same. Straw can be most effectively and economically used if cut up into short lengths, and this can be done very quickly if run through a chaff cutter with only a single blade at work. Grass from the mowing machine is frequently used for lack of better material, but it is apt to become musty and flavour the fruit. Spent tan is better than might be expected, as it forms an excellent mulch and is a good preventive of insects and slugs. It also keeps the fruit clean and imparts no perceptible bad flavour. Flat roofing tiles and earthenware collars are admirably adapted for laying under clusters of Strawberries, as they serve to keep them clean and to forward ripening. During wet seasons and where the foliage is very robust, much fruit frequently rots on the ground, and in this case wire crinolines (either home-made or bought) are desirable for bringing the fruit well up to the light and air. This year the foliage, as a rule, is weak and thin, and therefore there will be less need to prop up the fruit. Birds start eating Strawberries before they are coloured, and their attacks on the finest fruit should be prevented by the aid of fish nets. Raise the latter well above the rows or quarters, as new netting especially is liable to damage the tender leaves, and then, again, birds can help themselves through the nets when these are merely laid on the plants. Prop or swing them clear of the latter by means of numerous strong stakes driven into the ground and either light cross stakes or tar twine strained over the beds. If rains have not thoroughly moistened the ground to a good depth, a soaking of water may well be given before the nets are put on, liquid manure being of great assistance to the older plants, but this should either be kept clear of the fruit or washed off it afterwards.

YOUNG STRAWBERRY PLANTS.—The smallest of these produce flowers, but it is a mistake to let them bear fruit. If the young plantations are not showing sufficient fruit to pay for covering with nets, they ought not to be allowed to bear any at all. If kept free of fruit and runners, unless the latter are particularly required, the young plants will grow strongly and produce extra good crops next season. Already the earliest varieties are producing runners, and these should not be injured more than can possibly be avoided when the fruit is being gathered. If these early runners are pegged down on a layer of fine soil or in pots directly the bulk of the fruit is gathered, and kept well moistened, they soon become strongly rooted. If planted on properly prepared ground in July or not later than the first week in August, they will attain a great size before active growth ceases, and next summer grand early crops of fruit should result. Especially is it desirable that Noble be treated in the manner just described, as it is very certain young plants produce much the earliest, finest and the best flavoured fruit.

RASPBERRIES.—These were badly injured by frosts or frosty winds last winter, at least one-half

of the strongest canes breaking very irregularly and feebly in consequence, and in some instances they were killed outright. This check to the top growth has caused the stools to push up far more suckers than usual, and these if left undisturbed will greatly weaken and spoil each other. All growth springing up between the rows or clumps ought to be hoed up and the rest freely thinned out, this being to the advantage of the fruiting canes as well as those forming for next year's crop. Those cut down hard with a view to having an autumn crop also push up more growths than ought to be left. If they are freely thinned so as to admit plenty of sunshine and air to those reserved, these will produce fruit in abundance throughout nearly their entire length. A wet and cold site does not suit Raspberries, nor on the other hand will they thrive if starved at the roots. A surface-hoeing ought ere this to have been given, a heavy mulching of strawy manure following; if water is applied let them have it freely, liquid manure not being wasted on Raspberries that have been on the same ground for some time. Those newly planted ought not to be allowed to fruit, and in addition to the mulching of manure should have a soaking of water occasionally; these not having had time to become well rooted, are therefore to a certain extent still dependent upon the watering-pot.

CURRENTS.—Red and White Currants are carrying far heavier crops than at one time was thought possible, and, as usual, are growing very strongly. Summer pruning is not very generally resorted to in the case of these Currants, but it ought to be all the same. A mass of leafy growth does not actually prevent the fruit from colouring, but the fruit would ripen more quickly and be less acid if more light and air reached it. Leave all leading shoots to their full length, and also any that are well situated for improving the size and value of the tree, but spur back the rest to the fourth or fifth leaf, the pruning being completed next winter; those against walls should be similarly treated. The latter are not unfrequently the first to produce ripe fruit, but they should not be gathered from till the rest are used, as they can be the most conveniently netted or matted over. Black Currants are also bearing well, but will require no pruning now. These are very moisture loving, and unless in a cool site should always have a heavy mulching of strawy litter.

W. IGGULDEN.

ORCHIDS.

WE are still finding work to do amongst the Dendrobiums; such species as *D. Wardianum*, *D. nobile*, *D. lituiflorum*, *D. crassinode*, and seedling forms of them produced by hybridisation are in some instances nearly half through their growth, and the roots are pushing freely from the base of the young growths. Any of these plants may still be repotted if they really need it—that is, if the pots or baskets are well filled with roots, but it is very undesirable when they are in this stage to disturb the roots much. Merely remove them from the pots or baskets as carefully as possible, injuring no roots. The late-flowering species, such as *D. Bensoniæ*, must be repotted as soon as they pass out of bloom. No time should be lost, otherwise the roots which start into growth very early may be injured to the detriment of the plants. This species does not for long remain in good condition in our Orchid houses, probably because we do not repot it at the right time, or give it exactly the treatment best suited to its requirements. It is a very lovely Dendrobium, valued all the more for its pleasant perfume. I grew it many years and kept it in good health by repotting the plants as soon as ever they passed out of bloom, taking much care to preserve the rootlets just pushing from the young growths. If these deciduous Dendrobiums are carefully watched, it will be found that some form new roots at a much earlier stage of the young growth's development than do others, and it is very undesirable to check the plants by injuring these roots after they have made considerable growth. The very strong growing species, such as *D. Dalhouseanum* and *D. moschatum*, should be put into

the very warmest house as soon as they pass out of bloom. They make a fine display on the centre stage of the warmest house. We had a plant this year with thirty-three spikes of its large handsome flowers all open at one time. It made its growth last year in the warmest house, with the plants almost touching the glass. At this time it may be desirable to repot some of the *Phalænopsids*, all the more showy of them, such as *P. amabilis*, *P. grandiflora*, *P. Schilleriana*, *P. Sanderiana*, and all such allied species, and also the *Aerides* and *Saccolabiums*. The plants very soon recover from any injury done to the roots at this time of the year after they have been repotted. The thick fleshy roots run freely in the fresh green Moss, but there is danger of introducing slugs with it; therefore, it is well to place baits here and there to attract them before they find the roots. I have before me a catalogue of Cattleyas and other choice new Orchids offered for sale by auction. This is an excellent time of the year to purchase these plants, for they may be repotted at once in the usual peat and Sphagnum compost without any danger of the plants not pushing out young roots very speedily. The new *Cattleya Victoria Regina* is a very distinct and fine species, reminding one of *Lælia elegans* Turneri, and the same treatment will doubtless do well for this species. The newly-imported *Dendrobiums* are almost sure to do well; they recover from their long journey very readily, and roots are soon formed. The leaves and pseudo-bulbs of the Cattleyas should be washed clean before being repotted, and a very careful inspection be made for any dangerous Orchid foes that may be lurking in root, bulb, or leaf. I remember that many leaves of one of the importations of *Cattleya Lawrenceana* were much injured by a leaf-burrowing maggot or worm of some kind, but I failed to find a good specimen or indeed any specimen alive. I have sometimes wondered that we do not introduce some of these foreign pests in a living state with the Orchids; doubtless we would do so but for the care taken to well cleanse the plants before introducing them to the houses. The after-treatment of these imported Orchids goes a long way to make or mar the work of establishing them. What they most require is a fairly moist atmosphere and not to be exposed to anything like a draught, and in watering I merely keep the compost moist, neither wetting the leaves nor the pseudo-bulbs. The leaves get enough support from the moisture in the atmosphere at night, but it is well to watch the state of the pseudo-bulbs and prevent if possible their shrivelling. I need not again urge the importance of looking well to the condition of plants liable to be attacked by green-fly and thrips, for these troublesome pests will attack the plants when we are least expecting them. Our own collection of Orchids seems to be perfectly free from thrips at this present moment, but such Orchids as *Miltonia vexillaria* and *M. Roezli* with others of this type, including the lovely new hybrid *M. Bleui* splendissima, cannot be depended upon to remain free from this tiresome pest, and it is well to dip them in the diluted tobacco liquor at intervals of a month or six weeks as a preventive. The insects may be there in numbers, but all of them invisible to the naked eye. Indeed the first knowledge we have of their presence sometimes is the traces of their work upon the leaves. They get into the sheaths in their course of development, and as the leaves increase in size and the bulbs plump up the traces of thrips are seen, very much disfiguring them.

The treatment of the various departments as regards watering, ventilating, shading, &c., requires careful attention. The nights have become warmer and much artificial heat is not needed in any of the houses; for this reason the plants will not suffer so much from the effects of dryness as they would when the nights were cold and the sun gave much heat by day. The wall ventilators may be open all night even in the warmest house, and in the morning the first thing that ought to be done is to go round all the houses and open the ventilators a little at the top if the temperatures are right. The cool house should be about 55° in the

morning, the *Cattleya* house about 60° to 65°, and the East India house about 70° to 75°, for the sun will have had time to raise the temperatures a little before 6 a.m. When the temperatures have risen and the sun is likely to do injury, run down the blinds, but it is necessary to consider that they are only needed to prevent the sun's rays scorching the plants, and should be drawn up again if clouds intervene. Success in the culture of Orchids can only be attained by giving careful attention to the minor details of the work. J. DOUGLAS.

PLANT HOUSES.

AMARYLLISES.—These handsome plants are becoming very popular, but it is doubtful if their real merits as decorative subjects for the spring months in our private gardens are yet sufficiently recognised. If, however, it is so, the extent to which they are at present cultivated belies the conviction as to their utility. It cannot be said that there is any real difficulty in their culture, nor that it is absolutely essential to devote whole houses to their cultivation so as to gain good results. Were this the case, many would be debarred from attempting their culture; it is, however, happily not so, for they may be grown in many houses or pits where they can receive a fair share of attention. This is, however, what they do not at all times receive; hence they are considered as unsuitable by many who might, I think, grow them well if but a few points were considered. If I were asked when Amaryllids are most neglected, I should certainly say the present time. The flowering season being now comparatively past, the plants escape notice oftentimes, being crowded probably with other plants so as to have their foliage drawn up weakly for want of light, or else through being stood under or amongst plants that are being syringed, if not heavily, at least frequently. In neither of these cases would the soil dry up so quickly in the pots as is desirable, the result being that the roots as well as the foliage suffer. Plants that have flowered should now be encouraged to perfectly develop their foliage by being retained in a growing atmosphere, with only sufficient shading to prevent scalding. The foliage should be carefully preserved intact as long as it remains in a healthy condition, being guarded against injury from breakage as much as possible. The better way is to allot a space to the culture of the Amaryllises rather than attempt to grow them indiscriminately mixed with other plants; a shelf probably could be given up to their exclusive use, or a portion of the staging in a not too lofty house. They may also be grown successfully in pits with the additional advantage of not being frequently disturbed whilst in growth. Ours are being thus grown now and their progress is most satisfactory; these are chiefly young plants mostly not more than twenty months from the seed, without having been yet rested at all. To all appearance they should flower well another spring. Younger ones are with them, the ultimate intention being to devote a three-light pit with a good command of warmth to their exclusive culture. The plants are plunged in cocoa fibre, thus receiving a gentle bottom-heat for the present. Thrips are an enemy to the Amaryllis; these from now onwards will want looking after. Mealy bug should not, of course, be tolerated. Those who contemplate increasing their stock or commencing the raising of seedlings should sow the seed immediately it is ripe; this will be in the early autumn.

GLOXINIAS.—Old plants will now be doing good service where they were started fairly early, the flowers being not only useful on the plants in the houses, but also of considerable service in a cut state. Too much moisture overhead should be guarded against, but they must not stand in too dry a place, otherwise thrips will attack the foliage and soon render them unsightly. When they are well advanced towards the flowering stage, a temperature of a few degrees less than that in which they have hitherto been growing will be found to lengthen out the flowering season. If this plan be resorted to, rather more caution with re-

spect to the watering will be found requisite, for if over-watered the plants will in a cooler house receive a greater check. Successional plants, as the forwardest of this year's seedlings, should still be kept growing. Where the growth has already been a good one, it is probable that another shift will be necessary, but do not go to any excess in this direction, otherwise the good intentions will be defeated, too much soil being inadvisable. Where there are more young plants than are required in pots and a frame is at liberty where they are near the glass, with a slight bottom-heat if possible; although not essential, these seedlings may be advantageously planted out. This is a good way to obtain fine bulbs for another season, whilst the flowers produced can all be made use of in a cut state. Under this mode of culture damp has to be guarded against during any prolonged period of dull or rainy weather; even last year they did well with attention.

ACHIMENES, GESNERAS AND TYDÆAS.—The first of these where started early in March will soon be in flower. If they are not yet required in flower and the growth is (as it should be) free, the plants will bear stopping all over; this will result in a more compact lot of plants, at the same time adding to their vigour, for when once the flowering begins it is too profuse to admit of the amount of growth hitherto made. As the plants commence to bloom, occasional applications of either farm-yard liquid manure or Peruvian guano (both in a weak state) will greatly benefit them. This will be found much better than growing them in pots or pans of extra size. Plants in baskets will require extra attention now in the way of watering. Gesneras of the ornamental section should now be well looked after before the growth is too far advanced. Plunged in a pit near the glass these plants do remarkably well and make fine autumnal decorative subjects. The green-leaved kinds should be treated like Gloxinias, save that they can now be easily struck from cuttings. Tydæas are worthy of more attention than they often get in an ordinary way. Taken as a whole, they require rather more generous cultivation than Achimenes in the way of root-room; thus treated, with good attention to watering and light shading, so that the foliage is preserved in a healthy state, they will give a good return in flower. If not so profuse as in the case of Achimenes, the handsome markings of the blossoms make full amends. JAMES HUDSON.

ORCHARD AND FRUIT GARDEN.

SUMMER PRUNING.

WALL trees generally have made much more healthy and clean growth than usual, and if neglected there is every likelihood of much of their vigour being wasted, the crops also suffering in more ways than one—that of being unduly smothered. With me Plums on moderately warm walls were the first to require attention, and these, unfortunately, not being so heavily laden with fruit as desirable, are extra exuberant in wood growth. The first proceeding in the case of this fruit should be an early thinning out of all shoots likely to become other than short-fruiting spurs, and even those of the latter standing out straight from the trees ought to have been removed. Those reserved, whether short or long, should be left at least 3 inches apart, and any not required for furnishing blank space should be shortened to the third or fourth leaf according to their vigour, leaving the natural short-fruiting spurs to their full length. Most of the strong shoots so stopped will form other young shoots, and the latter should in their turn be early stopped at the first and second leaf. Thus treated, the trees will have every opportunity of maturing good crops of fine fruit, while the reserved growths, and there ought to be a good many

such on trees requiring renovation, will attain a good length and firmness, a considerable gain to the productiveness of the trees being the eventual result. In amateurs' gardens especially a superabundance of young growth is often to be seen over the tops of walls, and when no check is given to this, the lower part of the trees soon becomes feeble and unproductive. Frequent pruning does not afford a remedy for this bad state of affairs, but, on the contrary, a thicket of useless growth is the inevitable result. The best way out of the difficulty would be to boldly pull off all the strong shoots produced on old wood near to or extending beyond the top of the walls, and to saw the latter cleanly off next autumn. This will be followed by stronger lower growth, and if a few well-placed shoots are laid in during the summer, a greatly improved state of affairs will soon prevail. Any young shoots laid in now, and which may reach the top of the wall, should not be stopped till the time for winter pruning arrives. Pyramids also are apt to grow more vigorously than desirable at the highest point, and in this case wholly removing gross shoots should be resorted to. In other respects, too, the treatment of these trees ought to be the same as accorded to those against walls, side shoots being thinned out, others stopped, and those at the ends of the branches or required for furnishing left to their full length; cordons should have all side shoots stopped, and the leaders only laid in to their full length. Young standards might well have their young shoots thinned out where crowded or badly placed, and any taking too strong a lead should have their points taken out. Apricots and Cherries other than Morellos should be treated in every way similar to Plums. The Morellos bear principally on young wood formed during the previous growing season, and this, therefore, should be freely thinned out, that facing outwards being wholly removed. Peaches and Nectarines also bear the most surely and the finest fruit on young wood formed during the preceding summer, and this ought to be reserved and laid in thinly in order that it may have a good chance of ripening properly. Leave three or four leaves on any shoots springing from the joint where fruit is left to swell, also a leading shoot on all fruiting wood; but any not required for furnishing should be cleanly removed, spurring back in this case being a mistake.

Pears are the most often neglected, or, to put it more mildly, the least often summer-pruned. Several experienced gardeners that I have debated the matter with have expressed the opinion that August is quite soon enough to shorten back the lateral growth on Pear trees, whether against walls or in the open, their idea being that the trees are strengthened rather than weakened by their retention till the crops are nearing the period of their final swelling. I have tried both plans, and give the preference to earlier stopping, always provided it is done in no half-hearted manner. Light stopping at the present time or earlier will not do, or it may happen that the requisite further shortening of the spurs at the winter pruning may not be followed by a strong break or even the production of fruit buds. The shoots should be either pinched back or early cut to the third or fourth leaf, other shoots following upon this being still more closely cut back, or else the pruning should be deferred to the early part of August. The moderately hard stopping is the most likely to lead to the formation of either a cluster of fruit-buds or a strong break of wood-growth; whereas, if light stopping, the shoots being left from 4 inches to 6 inches in length, the winter shortening may not be suc-

ceeded by growth of any kind, bare branches being the consequence. This is no imaginary evil attendant upon faulty or light stopping, as experience must have proved to those who have tried it. I am referring more especially to last year's leading growths of either cordons, horizontally or fan-trained trees, as in the case of well-furnished older trees a considerable number of strong lateral shoots springing from spurs well clothed with fruit buds, or what will become such, might well be wholly pulled clean out of their sockets. Cutting such back would only result in the formation of still more shoots, and seeing that fruiting spurs are already present in sufficient numbers, one of the principal objects in saving and stopping young growths has lost its point. Any young shoots required for furnishing should be laid in to their full length, the only exception being in favour of the central leader on horizontally-trained trees. If these are strong and early, directly they become moderately firm, cut back to a length of about 12 inches, and from the subsequent breaks select three of the best-placed shoots, one being laid in as a fresh leader, and the others one on each side. In this way two tiers of branches will be had in one season, a decided gain where it is the aim to cover walls quickly with fruiting trees. Treat pyramids, bushes, and cordon trees much as advised in the case of those differently trained, lateral growths being freely thinned out, that is to say, wholly removed where crowded or badly placed, pinching back all the rest other than those at the extremities or wherever there is room for more branches, these latter being left to their full length. Shoots on the larger trees in the open, including standards, may be thinned out with advantage, the principal pruning, however, being deferred to the winter, but young standards should be treated as advised in the case of Plums.

The growth on Apples is the most backward of all, and as far as large old trees are concerned, whether these are on low or comparatively tall stems, may well be left untouched till the time for winter pruning arrives. Wall trees of all descriptions and also horizontally and cordon trained ones in the open should be treated very much as recommended in the case of Pears, and a certain amount of disbudding and stopping may be resorted to with pyramids and bushes, taking good care, however, to leave the leading or best placed outside shoots on the more robust growers, or any that are to be grown to a larger size unpruned. Not unfrequently leaving a sprinkling of unpruned young growths all over comparatively large and unfruitful trees will completely change their character for the better, and the same plan may change an unproductive young tree to a most productive state without having resort to root-pruning.

M. H. F.

Pears. Whilst the general verdict so far as Apples are concerned seems to be an abundant crop, with regard to Pears the verdict is greatly qualified, and without doubt it is a fact that generally on bush, pyramid and standard trees the set is thin; but on walls the promise is a much more abundant one, and indeed in many cases the set is remarkably good. Going over the capital lot of trees, on west walls chiefly, at Maiden Erlegh not long since, I found Duchesse d'Angoulême, Souvenir du Congrès and Marie Louise coming in succession all good. Jersey Gratioli was thin, whilst Bergamote d'Esperen was very heavily set and would need a lot of thinning. Brockworth Park was very thin, but the fruits are of little value. Fondante d'Automne, on the other hand a really valuable Pear, was densely set with fruit; so also

was Glou Morcean, whilst Doyenné du Comice, never a great cropper, was fairly good, and Josephine de Malines very thinly set. Doyenné du Comice was fruiting almost exclusively on the wood of two years' production. That excellent Pear always so much in request here, Winter Nelis, was very thin, and Conseiller de la Cour had no fruit; whilst Beurré Hardy had a heavy crop. Beurré Diel was thin, Williams' Bon Chrétien good, Zephirin Grégoire very fair, though usually a very free cropper. Urbaniste also was fairly well set with fruit. Chaumontel had none. Jean de Witte, a capital late Pear, had an excellent crop; so also had Seckel on an east wall. In the same garden fairly free-grown pyramids of Marie Louise had a moderate crop; Beurré Clairgeau very good; Beurré Hardy a heavy set. Peach Pear, a variety which usually crops well, had a good set. Marie Benoist was fair; so also were Catillac and Comte de Lamy. Generally, however, the trees in the open were sparsely cropped. If this report be at all representative of the average state of the Pear set, we shall have a pretty fair one after all, especially on walls, and certainly with many varieties it is only on walls that we get really good fruit.—A. D.

WATERING EARLY STRAWBERRIES.

WITH the ground in a parched condition and a light sandy soil, moisture will be required to get large fruit. The plants in this district have set abundant crops, and with an absence of moisture small fruits will be the result if timely assistance is not given. In such seasons as the present the advantage of early mulching is seen, especially on light soil. I would advise a thorough watering at this date, as I find the roots of the plants are in a very dry state. Those who have the means of flooding with water between the rows with a hose will find less difficulty in doing the work, but I would advise a thorough watering in all cases, as the size and weight of fruit will amply repay for the labour. When liquid manure is given, it should never touch the fruit; indeed, I would prefer to apply clear water afterwards. Vicomtesse Héricart de Thury has set enormous crops of fruit this season, and as this is a useful variety it would well repay for thinning. This may not suit some persons, as they think the small fruits come in useful for preserving; but it is a good plan, as there is more weight of fruit in the end, and being finer is more readily gathered and it does not decay so quickly in wet seasons if thinned. This variety forms so many crowns, hence the enormous quantity of spikes, and if time cannot be given to remove the weakest flowers or smallest fruits, I would advise removal of some of the weakest trusses on the older plants. The question of applying manure to Strawberries just after setting is one about which there is considerable difference of opinion. I would give a quick-acting manure if given at all, and well wash it down to the roots. I have a great liking for fish manure applied before mulching, lightly raking it in and mulching afterwards, doing the work in showery weather. This manure is quick in action, and, what is better, slugs do not like it. If a heavy manuring is given after the fruit has set, there is no time in dry seasons for the plants to obtain the benefit of it; indeed, it goes to the formation of runners, which are not wanted on old plants. I apply it at this date to our young plants that give us our stock of runners, and it assists in giving strength and developing root-action. The watering of these latter, that is, those to give the stock of plants for another season, is very important, and to get strong runners, early application is important. On heavy land moisture is not so necessary, but often the early plants are on exposed quarters or on sloping banks, and here they soon suffer from drought. If the supply of water is obtained from a spring, it should be applied when the ground is warm, so as to prevent the roots being chilled. When given through a hose it is a good plan to allow it to run slowly along the rows, shifting the hose at intervals. This does not wet

the fruit and foliage, and the water may be applied early in the day during full sunshine.

G. WYTHES.

Notes on Melon culture.—I am no believer in the starvation of Melons; still I halt a considerable distance before reaching the other extreme Mr. Iggulden so ably advocated on p. 463, such an extreme really that one hopes he does not seriously intend its application generally, but only in exceptional cases and with certain varieties. If the former, I much question if his doctrine will be added to the articles of faith of many, at any rate, old wary hands, for do not numbers of us know from bitter experience the ruinous results of over-luxuriance, sometimes owing to the roots ramifying in partly-spent materials composing the hotbeds, from over and injudicious feeding, or other causes? Will Mr. Iggulden kindly inform us by what means he secures the first set, say a couple of fruit, on plants that have been treated on this Cucumber growing principle? Will he also further oblige by giving the names of a few varieties that set freely and carry good crops on this treatment? Of course, Melons setting freely and ripening in succession for a long season is no new thing. Years ago it was exceptionally well done at Eaton Hall, Chester, the variety, if I remember rightly, being Conqueror of Europe. They were grown on the extension system, a couple of plants filling a fair-sized pit (I have no means of knowing if it is still carried on there). At that time this system obtained in more places than is now the case, but in not a single instance do I remember seeing them treated throughout to the liberal diet generally accorded to Cucumbers, and must admit if it had been so I am sceptical as to the results being so satisfactory. Young growers should proceed cautiously with this liberal feeding policy, first experimenting on a small scale, and be then guided by results for future proceedings.—J. R.

Thinning fruit buds.—I do not confound fruit blossom-thinning with thinning of the fruit, as suggested by "D. T. F.," but first thin the blossoms and then the fruit, leaving the strongest and best placed of both. First, an active boy is sent to rub his finger along under the shoots, leaving the side next the sun untouched till the blooms are expanding, then they are judiciously thinned, leaving those which are strongest and in most favoured positions quite separate from each other. There is no waste of time, as blossom-thinning can be done more expeditiously than removing the superfluous fruits when jammed together like heads of Wheat. Buds thus relieved of their fellows open strongly, having more fully the advantages of sun and air. I have thinned fruit blossoms in this way for nearly thirty years past, and I am fully convinced of its advantages. When located in East Anglia, many years ago, in close proximity to a very successful fruit cultivator, he gave me much information as to what he had witnessed in Belgium, France, and Italy, which induced me to adopt other practices besides blossom-thinning, such as I have never regretted. I do not remember to have seen the benefits of blossom-thinning more conspicuous than during this season. In our Peach case the shoots of Peaches and Nectarines were all extra loaded with blossoms. Some trees left unthinned till after fruit-setting are very satisfactory, but their fellows, which were manipulated as indicated above, are decidedly superior in every respect. With regard to expenditure of labour, the advantages are on the side of bud-thinning, as blossoms are more expeditiously removed than fruits, and I believe that when trees (which are heavily cropped every year) are relieved of their superfluous flowers their vital power is materially conserved. I have experimented with other fruits, especially Pears and Cherries, and have clearly proved that the strongest and best placed buds give the finest fruit, and that thinning off the crowded small blossoms was in favour of size of fruit also.—M. T.

Cobæa scandens in Cornwall.—I am surprised to find this old climber has stood the winter

without protection, which with *Eucremocarpus* is making rapid growth. *Abutilon vitifolium*, fully 10 feet high, is now covered with its beautiful mauve-coloured flowers. The Arums, too, around a large pond, which were cut to the water's edge by the frosts, are coming up again grandly, showing thousands of flowers, some fully open. The above says a great deal for the climate of Southwest Cornwall.—SANGUINEA.

FLOWER GARDEN.

IONOPSIDIUM ACAULE.

(VIOLET CRESS.)

This is one of the most charming little early spring annuals we possess. It has for many years been a general favourite for rockeries, and especially old crumbling walls, where it makes itself quite at home, and in a very few years takes full possession. It forms dense tufty rosettes from 1 inch to 2 inches high, with innumerable kidney-shaped leaves and abundance of pale violet flowers. It is a hardy annual in the true sense of the term, seedlings springing up in all directions where plants have seeded

ago this bank was sown with a coarse Rye Grass which I want to replace with something prettier. Already the common sweet Violets, blue and white, flourish and give us some very early flowers, which are most acceptable, and all the other things named above do well, but as the bank is a long one, I should, if possible, like more variety.—J. C. TALLACK.

GENTIANA VERA.

THIS charming little hardy flower appears to be attracting a considerable amount of attention just now, and valuable hints respecting its culture have recently appeared in *THE GARDEN*. There is, however, one little detail that I have not seen alluded to. From what I have observed at various times, I have come to the conclusion that frosty winds, such as prevail with us for days and weeks together, are frequently the cause of its dying out. Everyone engaged in gardening has had occasion to note the effects of a period of hard frost accompanied by parching winds on even the more robust forms of evergreen plant life. *Gentiana verna* is one of the least robust habited of hardy flowers, and it is reasonable to assume that it would be similarly affected. As a fact, I know that such conditions, prevailing for a certain period, will kill it outright, that is, where the plants are much exposed, and this often

sphere. It is worthy of note, too, that Mr. Ewbank succeeds with it exceptionally well, and though I have no doubt that he has an excellent method of culture, I cannot help thinking that he is materially aided by the mild climate of the Isle of Wight and the moisture from the sea. An experiment worth trying would be the placing of two sets of plants in positions widely differing as regards exposure. The placing of one lot in perfect shelter and another in a more exposed position would help to determine what may possibly be an important point in connection with this lovely little *Gentian*. J. C. B.

FLOWER GARDEN NOTES.

WHAT a grand incentive to growth in the herbaceous border, especially if the soil be naturally somewhat shallow and the subsoil of a porous nature, is the annual surface mulching. At any time during the winter when the ground is frost-locked we get on to these borders a dressing some 2 inches thick from a heap that is composed of one part stable manure and two parts leaves, and if this is thoroughly well broken up and evenly distributed, it is a wonderful help to all plant life in a dry season. At present on these borders all foliage is in the best of health, and the early-flowering subjects, as Columbines, some of the Irises, Pæonies in variety, Pyrethrums, and other things, are at their best. I was very pleased with Mr. Martin Smith's paper on border Carnations; only one thing was wanting, the different varieties that do best with him. He is an enthusiast in their culture, as such an annual preparation of border must necessitate the spending a considerable sum if he has to purchase his soil and take up a lot of time. Respecting his query as to the relative vigour of habit of selfs, flakes, and bizzars which has as yet elicited no response, my two best seedlings so far are a self something in the way of Miss Joliffe and a scarlet flake. Of the two the scarlet flake is much the more robust, and is, with Raby and Mrs. Reynolds Hole, as good in constitution as anything I have. The last two weeks have been a busy time in the flower garden, especially if an early summer display is required, and if the beds were tenanted with spring-flowering stuff. In this case, Daisies, Polyantheses, Aubrietias, and such things have to be lifted and consigned to their summer quarters, and Forget-me-nots, Silene, Limnanthes, and Wallflowers have to be cleared, often regretfully, as they are only but a little past their best. With each succeeding year we endeavour to limit as much as possible the number of bedding plants by filling up the beds and borders with the best and most enduring of herbaceous plants, but there is annually a lot of bedding stuff required. My chief bugbear is a long border some 60 yards by 4 yards, which swallows up between 3000 and 4000 plants. It is so situated that the stronger growing herbaceous things would be out of place and character, but I fancy it would look well so soon as we can raise a sufficient stock of the necessary things, planted with large alternate blocks of a deep crimson Pyrethrum and a Spiræa, say, palmata alba or Ulmaria fl-pl., and all intervening spaces filled with a soft mauve Viola. The list of bedding Pelargoniums given on page 501 is admirably adapted for small gardens. Surprise as a salmon, with Golden Harry Hieover and the silvery-leaved Ivy-leaf, might be added. There are, however, situations and circumstances necessitating the employment of other varieties; thus for pyramids, such vigorous sorts as Lucius, Warrior, Amaranth, and Lady Plymouth are useful, whilst for large bold beds a free-flowering vigorous double, as Raspail, stands unrivalled. One of the most striking of our large beds last year was a mixture of this double scarlet and the variegated Ribbon Grass; it was a bit of good loamy soil and the Pelargonium made compact, sturdy growth, threw enormous trusses, and these showed to perfection against the clear bright variegation of the Grass. Verbenas are capital subjects for long borders planted either in regular colours or as a mixture, and, as before



Ionopsidium acaule. Engraved for *THE GARDEN* from a photograph sent by Miss Wolley Dod, Edge Hall, Malpas.

the previous year. As a weed in the rockery it is a very welcome one; the plants fill all the crevices and rarely get in the way of other dwarf growing alpine. It sows itself with such certainty as to possess all the advantages of a true perennial. Along rough stone-edged pathways, on rough stone steps, old brick walls, and indeed any receptacle that will give a plant a foothold, it may be grown with singular effect. The autumn-sown seeds produce plants which flower early in spring, and the plants from spring and early summer-sown seeds flower throughout summer and autumn. It is also largely used for early greenhouse work, either sown thinly or pricked out into suitable sized pots, half a dozen or more tufts in each. It is a native of Portugal and belongs to the Crucifers.

The Feather Hyacinth (*Muscari comosum monstrosum*) does splendidly on a hot dry bank where plants such as Violets, Drabas, *Sempervivums*, Primroses, and wild Strawberries are gradually taking the place of coarse Grasses. The Grape Hyacinth (*M. botryoides*) also does fairly well on the same bank, but is neither so satisfactory nor so showy. Will any of your readers suggest plants for this bank (facing south and somewhat overhung with trees here and there) which will be as holding as Grass, the bank being very steep? The soil is a very light yellow marl which some things dislike and in which a few others do well. Years

happens when they are set on elevated portions of the rockery. I began to grow this *Gentian* some six years ago with very indifferent success the first two seasons. By planting on a rockery fronting the east, in loam, a little leaf soil, and some mortar rubbish, and arranging for giving a thorough supply of moisture at the root, I afterwards got it to flourish very well, the plants yearly increasing in size and freedom of flowering. At the beginning of the past winter they were in good health, and remained so until the earth became hard-frozen to a depth of 6 inches for several weeks, with a pitiless easterly wind that shrivelled the leaves. I covered them with litter, but it was too late, and I have but one plant now, and that in a very sorry condition. This *Gentian* has very thin stems, which in time are apt to get bare at the base and can offer but a feeble resistance to piercing winds. Some fresh soil worked in among them every year would doubtless be of advantage. It has been said with some truth that the common idea of the welfare of this *Gentian* being assured in its alpine home by a snow covering is disproved by its luxuriance on the west coast of Ireland. Contradictory though it may seem, there is much similarity in the conditions under which this plant passes the winter in places so widely differing in character. On the Alps it is perfectly screened by the snow canopy from hard frosts and biting winds, and on the Irish coast these adverse conditions have hardly to be reckoned with. I should rather attribute the luxuriant manner in which it grows there to the mild winters and moist atmosphere, than, as has been suggested, to the salt-laden atmo-

noted, the flat surface can be relieved by the insertion at intervals of some fine-foliaged plants, such as small Palms or *Grevillea robusta*, and also by small pyramids of the *Verbenas* formed by little circles of Beech twigs some 18 inches high, allowing the *Verbenas* to ramble over these at will. In those places where *Verbenas* will not do kindly and their cultivation has been discontinued, *Phlox Drummondii* will be found an efficient and admirable substitute; it may be planted in a similar manner, and with the accessories advised for *Verbenas*. It is always advisable to procure a small collection and sow the colours in variety separately; they can then be planted to suit required tastes, and if a mixture is decided on, the colours can be blended and harmonised in a most effectual manner. If I had to pick out the gem of out-door flowers at the present time (the last week in May), my choice would fall on the double white poet'cus Daffodil. What a lovely flower it is, and how grand for cutting. With this, plenty of Lily of the Valley (just now flowering well on a north-west border), and small feathery plumes of *Spiræa*, one is never at a loss for material for button-hole or bouquet.

E. BURRELL.

NARCISSI IN GRASS.

In answer to the question concerning the growing of Daffodils in Grass, for eight years I have been planting them in the Grass, and it would be difficult to say what varieties do not thrive thus placed. Poeticus planted eight years ago was never better; the same may be said of the Tenby Daffodil and of the Star Narcissi in variety. The increase in Grass is slow, but the bulbs remain healthy and free from basal rot. Basal rot undoubtedly is due to superfluous moisture; the turf saves the bulbs from this besides protecting from frost. I have found also that the Leeds varieties may be naturalised; indeed, nearly all may be. Ard-Righ planted three years ago came up healthy and strong. Daffodils so planted seem to do worse in their second year; afterwards a large proportion may be relied on to give fine blooms every year. Last year I planted out pallidus præcox, cyclamineus, triandrus a'bus, Barka Johnstoni variety, moschatus, minimus, and juncifolius in the Grass. In this instance the ground was carefully prepared and thin sods of an alpine character were placed over the bulbs. The sods were obtained from the hills. The result has been encouraging, but it is too early yet to speak on the matter. It is difficult to determine as to whether the individual bulb dies in the Grass. I believe it lives for very many years, and if it dies it leaves a child behind in the shape of a young bulb. Raised mounds were prepared in the Grass here last autumn, and mixed Narcissi of many varieties were planted therein. This spring the ground was sown with Grass. I am inclined to think that this is unnecessary, and that it is better to put them into the turf at once. There have been three gradations of Narcissi here this year. The finest were those in the Grass; second, those in borders not lifted last autumn; the worst, those lifted last autumn and replanted in the Daffodil border. The reason, no doubt, is that those newly planted were lifted before being thoroughly ripe, owing to the wet and sunless summer we experienced, and to the fact that they were more exposed to the action of the frost.—G. H. C., *Brookfield, Hathersage*.

— The query on p. 500 respecting the endurance of naturalised Daffodils will doubtless elicit replies from those who have had a long and intimate and an observant experience. Personally, I should say the matter will always depend on the selection of suitable varieties for particular soils and situations. The best here after the old double yellow trumpet and the double incomparabilis (the latter very good and improving with age) are obvallaris, spuris, and the Scotch Garland among the trumpets, and John Bull, Cynosure, Stella, and Figaro in the Nonsuch section. Several varieties of Barri and Leeds, also juncifolius and cyclamineus, that we have tried, although good in the herbaceous border, have degenerated where the

attempt has been made to naturalise them on Grass. It is, however, a question if our soil is one naturally suited to Daffodils; the sand comes very near the surface.—E. B.

Scent of Solomon's Seal.—I have never met with the unscented form of this plant mentioned by "D. T. F.," and should be glad to know where it can be got, as I should like to try it side by side with the form we have, which is quite strongly and sweetly scented, and more valued year by year for its usefulness in the house.—J. C. TALLACK.

Violas are and have been a mass of colour. If only a few varieties are required, let me recommend Archibald Grant, Bullion, and Countess of Hopetoun in their respective shades. Very favourable reports have reached me as to the merits of Wonder, Duchess of Fife, and the bedding Pansy Bronze Medal, but I have not as yet given these a trial, and therefore cannot speak from actual experience.—E. BURRELL, *Claremont*.

Trollius asiaticus.—There is always a reason for a plant having numerous synonyms. One of the most common reasons is the variability of some species, and which we find well represented in *Trollius asiaticus*. It is called *T. Fortunei*, *croceus*, *japonicus*, *chinensis*, *nanus*, &c. Although all these names represent only one species, the forms are in some cases quite distinct. Some are tall, some dwarf, characters that botanists take no notice of; hence the synonymy, growers being compelled to give names as well for the convenience of others as their own.

Hardy hybrid Gladioli.—The special merit of Lemoine's hybrid Gladioli has hitherto consisted in their ability to resist the wet and cold of our winters, so that the troublesome details which attend the culture of the *gandavensis* section are avoided. If, however, as was recently stated in THE GARDEN, the newer varieties are lacking in hardiness, I fail to see what advantage is to be gained by growing them. I should certainly prefer those that were distributed some years ago, and which are thoroughly reliable. It stands to reason that if the finest forms of *gandavensis* are constantly used for the improvement of this race of Gladioli, the hardy nature of one of the original parents must in time almost disappear. Some years ago, when these hardy hybrids first began to attract attention in this country, I obtained some seeds from a collection of the best varieties. In due course I obtained a nice variety of flowers, and the bulbs proved perfectly hardy under very trying climatic conditions. That I still possess some of the original bulbs is a proof that the first two or three generations of hybrids were reliable garden flowers for English gardens. If some expert hybridist would take in hand the earlier varieties of these hybrid Gladioli, not employing the *gandavensis* section at all, and trusting simply to the improvements that would surely come by intercrossing them, some good might result. If something was lost in brilliancy and quality of bloom, we should at least have what we want—a race of thoroughly reliable varieties for our trying climate. Several years ago I crossed some of these hardy forms with *Gladiolus brachylepis*. These stood last winter perfectly well, and I look forward with interest to their blooming.—J. C., *Byfleet*.

Why Windflowers?—Occasionally, again, though the question has more than once been rightly answered in THE GARDEN, we are asked, why is the *Anemone* called Windflower? Pliny the Elder, who was a far better collector of fabulous lore than a naturalist, tells us it was so called because it only opened when the wind blows. Gardeners, more observant than he, who know that it is not so, have made various suggestions. The *Anemone*, they say, especially of the Wood *Anemone* class, likes shade and avoids wind. But the ancient Greeks, who gave the name, did not attempt botanical classification, and probably recognised no connection between their Windflower and the Wood *Anemones*. The Windflower of

Greece and Italy is the *A. coronaria*, *i.e.*, that used for making banqueting wreaths, for which purpose it was a favourite flower. There are in my garden here on raised soil and in full sun three very beautiful beds of St. Brigid's *Anemone*, of which all my friends ask for seed; so this year I am saving seed of all the best flowers, which I have marked accordingly. Every day or two I go round to collect what is ripe. Now, the conical solid seed-head of this flower does not seem to be courting the wind. If we see a Dandelion with its feathers spread, we know that the first gust which catches it will blow it away; but the *Anemone* head does not carry any visible sail. Feel the tip of the head with the forefinger nail, and if it is loose it is fit to gather; but the rapidity with which it becomes loose and disperses under the joint influence of sun and wind is surprising. I go round in a morning to gather from my marked flowers and find most of the seed-heads quite solid and hard, but six hours later the stalk is bare, or the seed rapidly vapouring away from the top downwards, and I cease to wonder any more why the *Anemone coronaria* has its name of Windflower.—C. WOLLEY DOD, *Edge Hall, Malpas*.

NOTES ON HARDY PLANTS.

Tulipa sylvestris.—The several commendable traits of this Tulip, briefly stated, are earliness, large showy flowers of a most desirable shade of yellow, rich fragrance, and the long duration of the bloom. To these qualities may be added the peculiar and interesting ones of the habit of the roots spreading by long stolons, and the very frequent appearance of two flowers on one scape. This is doubtless a flower to be safely recommended. It has not the least tendency to tenderness, and, unlike many other species and florists' varieties, it does far best when left undisturbed. I give it a bright situation and a light, but moist soil.

Gentiana angustifolia.—What a glorious colour this has! He would be a bold man to say that it were more beautiful than the typical *acaulis*, but really one may almost venture to be so bold. It has flowers of a much darker blue. The corollas are longer, more elegantly shaped, having a slightly contracted mouth, with a very large flange, the limb being deeply cut. It has brown-purple flower-stalks, rather longer in proportion than those of *acaulis*, and more slender. I notice this fact because it is of some importance in the duration of the flowers; for when they become partly filled with wet they lean over and empty themselves, and, indeed, never catch the large quantities, held by the flowers of *acaulis*, to their loss in colour and length of duration. The long leathery, deep green, narrow, and pointed leaves have a beautiful habit of weaving themselves into each other. The plants about which I am speaking are in pots, having been raised from seed five years ago. The variety evidently comes fairly true from seed. Then, from the fact that these plants have always been in pots plunged in the open, it may be reasonably assumed that this variety is more free flowering than *acaulis*, because I could never expect to get a flower on *acaulis* in a reasonably small pot—one that did not let the roots go deeper, say, than 4 inches.

Trollius Gibsoni.—I have not yet been able to find much authority for this name, but as a fair collection of the orange-coloured Globe Flowers is grown here, I think I may safely assert that whether there is authority for the name or not the plant is conspicuously distinct. Of all the orange colours it is the deepest I know. I sent you flowers last year, when you remarked upon the deep colour. Unlike the flowers of *asiaticus*, though semi-double, they retain the almost globular form. As is well known, the deeper shades of *asiaticus* are only revealed when the flowers open to their centres. With the plant under notice, not only are the leaves of a deep bronzy-green, but the flower-stems near the buds assume a distinct coppery hue. It is beyond doubt the richest coloured *Trollius*.

Another interesting fact in connection with this variety is that raised from seed the seedlings prove true to the parent form, at least so far as my seedlings have flowered, as a few have done in two years from date of sowing.

Trollius giganteus.—Be this a variety of europæus or whatever it may, it is a noble kind and merits its name. The plant grows a yard high when well established, the flowers are laxly distributed over the ample foliage, having thick, slightly bending stems, and they measure 2 inches to 2½ inches in diameter, although they never expand, but remain flattish globes with the sepals not too tightly folded, which much enhances their beauty. But the chief charm of all is the bright, sheeny, clear yellow colour of the bloom.

Camassia Browni.—This grows a yard high; the flowers are 2 inches across, chiefly lavender-blue, with many metallic tints on both sides. The spikes are truly noble, and I imagine they would make beautiful companions for the Eremuri. I say "they" because in getting this plant from seed I find almost every bulb to vary in tint, but which scarcely ever ranges beyond what may be described as pale purple. The richness, however, of these flowers is in their changeable hues, according to the strength of the light, and these are charmingly contrasted by the pale apple-green rudimentary capsule peculiar to the genus *Camassia*, even in the case of the youngest flowers.

Pæonies with drooping stems.—This is very common with many of the French hybrid herbaceous Pæonies. I believe it happens from contact of the new growths with the frozen surface, which, whether merely the ordinary soil or a mulching of manure, seems to give the frost extra power for injury. I think so, because the results here have been consistent with the theory ever since I formed it six years ago. The outer stems are those to go first. There are no signs of injury whatever until a severe frost succeeds growth. When that occurs, you may distinctly trace a blotch where the succulent stems are in contact with the surface soil that may have been hard frozen during the night, and then warmed by powerful sunshine the following morning. During the past three years I have completely saved my plants of this habit by drawing away all covering from the crowns and allowing no mulching thereon in the winter or spring. My reason for doing this is that it is a most pronounced habit of all Pæonies to sit in the ground with their crowns slightly exposed to the atmosphere and light all the winter, even when quite dormant. I may also add here that Pæonies deeply planted may grow quite vigorously, but will remain almost flowerless for years in succession, or until they grow to the surface level. There is another fault with a certain section of herbaceous Pæonies in the way of leaf-rolling. The leaflets become severely incurved, like Pea pods. This may be briefly described as distress from heat or drought. It takes several forms under different conditions. A powerful sunshine may disfigure a plant in the afternoon that was right in the early morning. As a rule, where the changes are so sudden, the plants may quickly right themselves with a little shade and a drench of water. I have experimented on plants in this way, when the curl in the leaf could be watched disappearing. In very dry soils and in some limestone districts the leaves are almost constantly curled. I also know of a place where the atmosphere is extremely dry, though the land is wet and retentive, where the leaf-curl of Pæonies is a great eyesore. The permanency of the leaf-curl and the frequency of its occurrence may vary in different gardens, but I believe they may always be traced to the same cause—heat and atmospheric dryness. Anyone may prove this for himself if he will surround a plant in full foliage with curled leaves with a lot of damp Sphagnum, &c., surround the plant also with a mat. The results will soon be seen, except in chronic cases where the foliar nerves or veins have become fixed in their contortions; but even in those cases the plant will show improvement. Of course, I am not advising that such fixtures should be habitually employed round the plants, as they would be too

unsightly for any garden; but I merely mention the dodge as one by which any gardening friend may satisfy himself of the soundness or otherwise of the above theory.

Hesperochiron pumilus.—In a contemporary the Rev. Mr. Dod describes *H. californicus*, and I wonder if my plant under the above name can be identical with his. I am under the impression that he was the kind donor of my plant some five or six years ago. Anyhow, the small pubescent spatulate leaves, all radical, are but 2 inches long; their stems are very tender, allowing the leaves to fall flat in rosette arrangement. The delicately tinted white flowers come singly, but in crowds in the middle, and somewhat resemble small *Convolvulus* flowers. The plant is remarkable for its slow increase in size and the difficulty with which it can be propagated. It is also remarkable in its relative vigorous development. It runs its whole visible life course in less than three months. The leaves quickly grow, and as soon as the flowers, which appear in early May, have done, the whole plant disappears, excepting perhaps a few seed-pods that may show at the ground level. It is an exquisite species and of more than ordinary interest. At this moment I have good promise of seeds, by which means only I can hope to increase a most desirable plant, which, so far as I know, is nowhere readily procurable.

Lewisia rediviva.—This is another early flowering gem, which rapidly runs its leaf and floral course and then suddenly collapses, with the consequent results of slowness of increase. Plants rarely offer in this country, in cultivation at least, a chance of increase by offsets. There is a wonderful charm about this plant when in flower, and it has many curious little ways peculiar to itself. Sometimes it is hard to accommodate it, but it is always slow to die, though I know many have thrown it away for dead, owing to the peculiar way in which it closes its season of bloom.

Woodville, Kirkcaldy.

J. WOOD.

BORDER SEA HOLLIES.

THERE is a distinct and unique group of border plants known as Sea Hollies, or Eryngos, to use the English name, and they are the Button Snakeroots of the Americans. There are about 100 species, but most of them are worthless for the garden, as they represent distinct phases of growth. About twenty species have their home in the Gulf States of America, and these for the most part constitute the Pineapple group of the genus, the foliage of which may be likened to that of the Pineapple, as it is of rich tropical aspect, and gives variety to the garden. They are ornamental-leaved plants of distinct beauty, and isolated clumps have a peculiar richness of aspect that suggests a use for them in the sub-tropical arrangements which to a great extent have superseded the pattern type of bed. The one great point is to have a well-drained soil, sandy and dry, except for the few kinds that require a stiffer ground. The noble *E. Lasseaui* will sometimes attain a height of 10 feet, and then make an imposing single specimen with its glaucous-tinted foliage. It is not the purport of these notes to bring forward the large growing Eryngos of the Pineapple and Screw Pine type, but rather that class of Sea Hollies which may be described as "border," for the reason that it is in the mixed border, on the rockery, or in clumps by themselves on the outskirts of the lawn that their unique beauty is best seen. And in their season few things give greater pleasure than a good selection of Sea Hollies. There is a beauty in the veined foliage and metallic lustre of the spiny bracts that no other class of plants can give, and several kinds may therefore be planted without fear of loading the bed or border with one colour, as a too liberal list of composites is apt to do, or producing a same-

ness which in gardening is one great thing to avoid. In the kinds that will be recommended there is a considerable difference in growth, from the pretty little Sea Holly (*E. maritimum*) of the seashore, that delights in a shingly soil, even if bathed occasionally in salt water, to the noble *E. giganteum*. Our common species makes a pretty border or rock plant, as it is quite dwarf, and the whole plant is of that quiet silvery tint, against which the blue of the conical flower-heads acquires depth and lustre. A good kind is *E. alpinum*, and, though one of the oldest, is not seen so much as it might be considering its distinctness and the length of time it has been grown in British gardens. It came from Switzerland and Piedmont about 150 years ago, and, unlike the sand-loving *E. maritimum*, it should have a deep soil, so that its roots may go straight down. It is a splendid Eryngo for the mixed borders, and in many good gardens this wants a little variety and bright colour of a different stamp from gaudy yellow. One excellent way to increase the stock is from the buds emitted from the root stem, as these quickly make plants when helped with a little heat. The flower-stems rise to a height of about 2 feet, that is, if the position suits the plants, and unless in full exposure to the sun, it is useless to expect the involucre to put on the rich metallic steel-blue colour so splendidly seen in the dwarf Eryngos.

The alpine Sea Holly has a comparatively large head of flower, the colour a beautiful blue, brilliantly set off by the involucre of leaves. Taking the kinds alphabetically, the beautiful amethyst Sea Holly is one of the best of the genus, as the growth is compact, and not coarse, dwarf, making little tufts, which look well on the rockery or in the front of the border. Its name is derived from the rich amethyst lustre of the flowers, which are as rich and penetrating in colour as the costliest amethyst. Usually it grows about 18 inches in height, and loves a sunny situation and dry soil. There is a use for the flowers with their blue-coloured stems that is not often thought of, and that is, when dried, they help to make charming winter decorations. If I could only grow three Eryngos, *E. amethystinum* would be one I would select. Another good type is *Bourgati*, a well-known Sea Holly, as it is the one usually found in gardens, and makes rich clumps on the turf, in the border, or on the rockery. Like the amethystine Eryngo, it is dwarf in growth—seldom rising above 2 feet in height—and relishes a well-worked, not too dry soil and plenty of sun. The flowers are set in a spiny involucre of sky-blue, a pretty and distinct colour. Of quite a different kind is *E. giganteum*. It justifies its name as far as this particular group is concerned, but compared with the strong and tall-growing *Lasseaui*, it is wrongly named. It grows between 3 feet and 4 feet high, and makes a glorious clump on the border, in a bed by itself, or on the higher parts of the rockery, where its beautiful foliage and delightful silvery involucre can be seen to advantage. It is a type of plant that should never be omitted from the garden. The lower leaves are almost self-green, showing very few silvery veins, but higher up the stems they are netted with silver like a piece of filigree work from the hand of the jeweller. The flowers are metallic blue, produced in a kind of cone, and set off by the spiny involucre of leaves. It likes a soil of good depth, and in a warm sunny spot, which is essential if a luxuriant growth is desired, ripens a good quantity of seed. It is a noble Caucasian Eryngo.

Two more Sea Hollies must be mentioned, and one is *E. Oliverianum*, a Levantine kind,

which has a conical head of blue flowers and narrow metallic-blue spiny bracts. These are of the same colour as the flower-stems, and thus we have a rich and distinct mass of an unusual colour. It is of robust habit, likes a good loamy soil, and may be planted on either rockery or border. There was a vigorous mass of it on the Kew rockery about half way up, and surrounded with deep green-foliaged plants. The rich metallic lustre was brought out to the full by such a happy foil. The last to name is *E. planum*. This is quite distinct from such as *Oliverianum*. It has small conical heads of blue flowers set in a basin of narrow bracts, and is in the summer months one mass of bloom. It grows about 2½ feet high, and looks well on a sunny bank, where I saw it last season in a Surrey garden. It is as free and beautiful as any of its race. As regards propagation, there is little to be said.

Most of the *Eryngos* ripen sufficient seeds, and if these are not forthcoming, resort can be had to division, which may take place when growth is commencing in the spring or in the autumn, but it must be carefully done to prevent mishap. In common with most plants, the *Eryngos* have a dislike of being disturbed at the roots.

One special attribute of the flowers before us is their attractiveness for bees, such as to render them of value to the apian. Wherever a clump of such a kind as *Eryngium planum* is grown, there the hum of myriads of bees, which seem to find a palatable and specially favourite food from the small crowded flowers, is heard. Things close by, and which one would have thought richer in food for bees, are neglected for the spiny *Eryngos*.

TREES AND SHRUBS.

HARDY AZALEAS.

MANY years ago hardy Azaleas were very popular; then came a period when, in common with all our beautiful flowering shrubs, they were comparatively neglected. Within the last few years, however, they have greatly advanced in popularity, and great strides have been effected in them, particularly by incorporating the bright coloured varieties with the larger and more massive flowers of the newer *A. mollis* or *sinensis*, while by intercrossing with the two late-flowered North American species, *A. occidentalis* and *A. viscosa*, the season of blooming has been greatly extended. These last two have flowers of a pale tint, so that their progeny are wanting in the vivid reds and yellows of the earlier varieties. The first of the hardy Azaleas to bloom in the open ground is the Chinese *A. rhombica*, with purplish coloured blossoms of much the same hue as the Canadian *Rhodora canadensis*, but the blooms are a good deal brighter, and altogether it is when at its best far more showy. Though an old species, this Azalea is by no means common, and as far as I know it has not at present been employed by the hybridist. After this we have *A. mollis* in its numerous forms, and very beautiful they all are; the one thing in their case to which objection may be taken is that the blooms are sometimes injured by late spring frosts, which very seldom happen in the case of the older varieties, usually, but erroneously, spoken of as Ghent Azaleas. This group has been obtained by the intercrossing of the North American *A. nudiflora* and *A. calendulacea* with *A. pontica*, a native of the Black Sea region. Some of these have been

grown for many years, as quite a long list of varieties is given by Loudon, most of which were cultivated in those days by the once important firm of Loddiges at Hackney. Messrs. Osborn in their long celebrated nursery at Fulham, now covered with bricks and mortar, used to make a special feature of hardy Azaleas, many of which in the shape of large bushes formed a magnificent display during the flowering season. The Azalea beds at Kew, again, are and have been for many years objects of great beauty, and form one of the most attractive features of the place. Of late years Mr. Anthony Waterer has devoted a good deal of time, attention, and space to hardy Azaleas, and many new varieties have sprung from the celebrated Knap Hill Nurseries. Numerous examples of these Azaleas were exhibited by Mr. Waterer at the recent Temple show and were much admired, whilst to one of them, Mrs. Anthony Waterer, a first-class certificate was awarded. This variety was a good illustration of the increased size of flower that is to be found among the various hybrid forms, but I must confess to a great liking for the more Honeysuckle-like blossoms of some of the older kinds, especially as many of them are so elegant in habit. There is now quite a long list of varieties with double blossoms, examples of which are to be met with in most nurseries, Messrs. Veitch in particular often showing them in good condition. The double blossoms do not yield any greater display than the single forms, but they stand longer before dropping, and that is an especial advantage when they are flowered under glass or used in a cut state. Among other desirable features possessed by the hardy Azaleas is the fact that they are unsurpassed among our outdoor shrubs for the great range of colour that is to be found in their blossoms, as they vary from white to vivid scarlet, through all the intermediate shades of yellow, orange, salmon, and orange-scarlet, as well as different tints of pink. The light and elegant habit of these Azaleas when compared with that of their allies, the Rhododendrons, is also another point in their favour, while the pleasing fragrance of the blossoms is very noticeable, especially during sunshine, and a few blossoms will suffice to scent a room.

Peat soil is by many considered absolutely necessary to the well-doing of these hardy Azaleas, but such is by no means the case, as they will thrive well in loam, especially if some leaf-mould is incorporated with it. The one thing essential is that the roots are not parched up at any time; therefore, in selecting a place for them a cool, fairly moist spot should be chosen and the soil must be free from lime. They are seen to the best advantage when planted in large masses or groups, as by a careful selection of colours some grand effects can be produced. These Azaleas may be propagated by means of seeds, layers, or by grafting, but to anyone about to plant a group the better plan is to purchase good established bushes, as they can be obtained at a moderate rate, while, owing to their dense masses of fibrous roots, they may be shifted at the proper season without risk. Still seedlings can if necessary be raised in quantity, though they take some time to attain flowering size, and some very interesting experiments in hybridising can be easily carried out, though perhaps the pleasures of anticipation indulged in before the plants bloom is far greater than that experienced when the flowers make their appearance. A good illustration of this happened a few years ago in my case, for I raised a quantity of plants by crossing *Azalea mollis* with two of the Indian varieties, and *vice versa*. The result was a curious lot, in general appear-

ance about midway between their parents, but not a single one was worth keeping, the flowers of most of them being very poor. Of *A. mollis* itself a far greater range of colour in the blossoms is to be found than was formerly the case, as the blossoms of some are very pale yellow (almost white), while deep yellow, orange, orange-red, and pink, are also represented among them. In concluding these few remarks on hardy Azaleas one other feature claims notice, and that is the bright tints assumed by the foliage of many of them in the autumn just before they drop, as in some the leaves are of such a rich glowing crimson as to vie with their allies, the North American *Vacciniums*.

T.

Lilacs in flower.—At this time of the year, when so many places are charming with the bloom of the common, and what is generally called the Persian, Lilac, it may be well to remind our readers of the many beautiful plants of this class which are obtainable in the best nurseries, especially on the Continent, where much more is thought of the Lilac than here. There is only one obstacle to our enjoying them, and that is the habit of grafting them, which, in the rare varieties, prevents the free growth which we generally see in Lilacs increased from suckers, and usually growing freely in fairly good soil. In a very good collection of Lilacs which we bought at Troyes, in France, perceiving how slow the growth was after several years' trial, we pulled up the roots to see (childlike) what was the matter; and not without reason, as the young plants were all grafted on the common Privet, which was sending vigorous roots, in all directions under the ground, refusing too clearly to ally itself with the Lilacs, which were starved. Why people who pretend to know their business should do these things it is difficult to see. This we do know, that the Lilac grafted on the Privet is one of the worst frauds, among the many, we owe to the much-lauded "art of grafting."—*Field*.

Tree knowledge.—It is surprising, with all our talk about botany and books and long use of learned terms by the gardener and others, how little is really known about trees. The Bird Cherry has lately been sent to us many times for naming. One correspondent writing from Bournemouth says: "I shall be much obliged if the editor will kindly tell the name of the inclosed. There are large shrubs, almost trees, of it here in the public gardens looking like snow. Beyond its being some kind of Plum, no information can be got here about it." In the same way ladies and gentlemen often send us the common white Beam, saying that in their district nobody can make it out. This points to the fact that the ordinary way of teaching young people the names of trees is certainly a most ineffective one.—*Field*.

Shrubs with ornamental foliage.—At the recent Temple show some fine examples of hardy shrubs with foliage of an ornamental character (principally Japanese Maples) were shown by Messrs. Veitch, and while they had undoubtedly been brought on under glass, nothing more than simple protection is necessary; whereas in beauty they were equal to many of the choice fine-foliaged plants that require the heat of a stove. Particularly noticeable among them were *Acer palmatum sanguineum*, with its bright red foliage; *A. japonicum aureum*, whose many-lobed leaves are of a pleasing shade of soft yellow; *A. septemlobum purpureum*, whose foliage is so deeply cut as to be almost Fern-like in character, while it is also of a rich purple colour; *A. polymorphum decompositum*, with lobed leaves of a soft green tint; *A. palmatum roseo-marginatum*, whose leaves are prettily edged with rose, which feature (when the plant is grown in the open ground) is not always seen at its best; *A. palmatum dissectum*, also known as *ornatum*, is one of the finest of those with deeply-cut leaves; while *A. polymorphum linearilobum* is a distinct variety by reason of its narrow lobes. In addition to the above, a mass of

the dwarf Alpine Currant (*Ribes alpinum pumilum aureum*) was very showy. This little shrub, which is seen at its best during the spring, loses its attractiveness as summer advances and soon becomes quite green. This forms a dwarf spreading shrub which is most effective when planted where it is fully exposed to the sun, as then the young foliage, even when the buds are but partially expanded, is of a bright golden hue; but in a shaded position the leaves are pale green in tint. This forms a pretty rockwork shrub, and its value in this respect is heightened by the fact that it is not likely to choke or overgrow its neighbours. The golden-leaved *Ribes* possesses an additional item of interest, as when awarded a first-class certificate eleven years ago by the Royal Horticultural Society, it was exhibited by the once prominent nursery firm of Messrs. Osborn, of Fulham. By this it will be seen that the Currant in question is by no means a new plant, but at the same time it is very little known.—H. P.

NOTES OF THE WEEK.

A mixture of May blossoms.—In a park near Cavendish, in Suffolk, the other day I noted some fine specimens of Paul's Scarlet Thorn. They were all smothered with bloom and exceedingly beautiful, but on one of the specimens the common White Thorn stock had thrown out some strong branches that formed a sort of weeping white crown over the crimson. The effect was exceedingly chaste and rich, and I made a note of it for commendation to and imitation by the many readers of THE GARDEN.—D. T. F.

Solanum crispum.—For the last fortnight *Solanum crispum* on a south-west wall here has been a lovely sight, the long spell of cold winds and subsequent drought having apparently been to its liking. Having remained unpruned, it has been all the prettier, as the drooping branches were laden with bloom. When it first came out, *Piptanthus nepalensis* was in bloom not far off, and they looked nice together. A scarlet trumpet Honey-suckle has grown in among the branches of the *Solanum*, and though its flowers are not yet expanded, the bright buds give a nice shot-silk effect among the delicate bluish mauve blossoms of the Potato tree.—M. R., *Liphook*.

Lælia grandis tenebrosa.—Plants showing the superiority of this variety over the old and typical form of *L. grandis* were exhibited at the Drill Hall, Westminster, on Tuesday. In the species itself the flowers are from 4 inches to 5 inches in diameter, but on these plants they were more than half as large again. The sepals and petals, instead of being nankeen-yellow, are of a rich coppery brown, the petals being much larger and broader than the sepals. The lip is of a deep maroon-purple, with rose on the front lobe and in the throat. The whole flower presents a combination of the richest colouring. This variety was introduced from the Sierra da Itaraca, in Brazil, and has only been in cultivation a few seasons. It was figured in "*Reichenbachia*" last year.

Calochorti at Oakwood.—In 1876 you had from me a painting of *Calochortus venustus* by Mrs. Duffield, from a plant grown in our orchard house. This was so wonderfully reproduced in THE GARDEN (see Vol. IX, p. 132), that it was much talked of among my gardening friends. I had long since given up the cultivation of *Calochorti* with the exception of *Calochortus pulchellus*, formerly called *Cyclobothra pulchella*, which has taken care of itself for many years, blooming beautifully on a mound in full sun at Oakwood. Owing to a visit from M. Hoog, of Messrs. Tubergen, of Haarlem, my attention was again called to *Calochorti*, and a collection was planted in pots here and in two situations at Oakwood. I bring you up a cut spike from one of the pot plants of *Calochortus albus* with six flowers out and five buds. We shall bloom most of the species in pots; some of them planted out have

bloomed well, but there is a good deal yet to learn as to soil and situation, and much of this each individual must learn for himself, though M. Hoog in a recent visit has, after seeing our plants, given valuable hints and suggestions. *Calochorti* are a glorious family well worth taking trouble over.—GEORGE F. WILSON.

Plants wanted.—I should feel obliged for any information about the Guelder Rose, which is in unusual beauty this year. It is a form of the wild Guelder Rose (*Viburnum Opulus*), and I want to know if that form is now ever found wild. It is a very old garden favourite, and was grown by Gerard 300 years ago under the name of the Rose Elder. It was described by other writers before him, of whom the oldest, according to Caspar Bawtree, was Cordus, who described it in 1525 as *Sambucus aquaticus flore globoso pleno*. As far as I can make out from Pritzler, it has never been figured. I should also be much obliged if anyone could tell me where I could meet with *Saxifraga virginica plena* and the white *Melittis melisso-phylum*. They are old favourites which I have lost for some years, and should like to get again.—HENRY N. ELLACOMBE, *Bitton Vicarage*.

Primula imperialis.—A coloured plate issued with the number for September 19, 1891, has already made known this gigantic Primrose to the readers of THE GARDEN. It was prepared from a plant flowered at Kew last June, and several plants may be seen therein in the annexe to the Orchid house. The leaves are much larger than those of any other species of *Primula*, some having measured a foot and a half in length by 5 inches in breadth. The spike is erect and eventually upwards of 2 feet high (on the summit of the Pangerango Mountain, in Java, it was noticed by Dr. Wallace to be even 3 feet in height); at the base it is nearly as thick as a man's little finger. The flowers are densely packed in whorls, the species belonging to the verticillate section of the genus. Each flower is three-quarters of an inch across, the colour being a bright, but rich yellow. Compared with the size of the plant and its inflorescence, the flowers are small, but they are borne in great numbers, and as has been the case with other members of this genus, there is little doubt of the possibility of their being improved by cultivation and selection from seed. It requires to be grown in a cold frame.

A note from Japan.—Mr. Alfred Parsons, who is in Japan with the view of sketching its flowers and vegetation, writes on May 5 from Hase:—

I came here yesterday to try to make a water-colour of the Bhotan *Pæonies* which grow by the temple steps, but it is pouring with rain this morning in such a persistent way, that I cannot venture out. The wet time has begun, and I see that it will be very difficult to get studies of all the flowers which I wanted to paint. They come out very quickly and are over in a day or two. When I got here the Plums were in blossom and the weather was bitterly cold, and I caught the *lumbago* badly, so that I did not do much with them. The various kinds of Cherry are lovely, and I made several water-colours of different sorts at Nara and at Joshino, a village up in the mountains very rich in plants. I often wished you had been there with me. It must be always a damp place, for the Palmetto and Bamboo are particularly luxuriant, and the banks are covered with Ferns, Mother of Thousands, and a very beautiful pale mauve Iris with a great many small flowers on a stalk. I have not seen it in England, and should like to send home plants, but perhaps our climate would be too cold for it. The auratum Lilies and Funkias and Cyripediums were just coming up, and the young red fronds of Maiden-hair—*Adiantum pedatum*, I think it is—were all over the woods. The hills in this part of Japan (Yamato) are very well timbered, and only the valleys are cultivated. I miss our meadow lands with their broad stretches of flowers; the eye gets weary of the little quaint fields of Wheat and Peas and Beans. The Rice ground is bare yet and mostly under water. There are plenty of wild Azaleas of all colours on the hills. Yesterday I saw a field of Peas, the sticks of which were the tall mauve Azalea; they had come into flower in the damp ground, and the effect was very pretty. The people are particularly funny on wet days, and I sit in the verandah and watch them for hours. The little girls have their petticoats tucked up, a sheet of oiled paper over their shoulders, and nothing but bare

legs below, and the countrymen wear huge hats and grass overcoats which make them look as if they were thatched.

PUBLIC GARDENS.

The Hilly Fields, Lewisham.—Already the City companies have subscribed upwards of £1000 to the fund that is being raised for the purchase of the Hilly Fields, Lewisham. The guilds who have thus helped include the Goldsmiths, the Fishmongers, the Leathersellers, the Clothworkers, the Grocers, the Skinners, the Mercers, and the Drapers.

The Inner Temple Gardens.—The Inner Temple Gardens will, by permission of the Benchers, be open to the public every evening until the end of August from 6 o'clock until dusk. The privilege thus granted is intended more especially for the benefit of the poor children inhabiting the surrounding crowded districts.

Mitcham Common.—A memorial was presented by Mr. Deputy Bedford from conservators, owners, and residents in Mitcham and the neighbourhood, asking the Court to assist them in preserving Mitcham Common by a grant in aid of the expenses in bringing an action to stop the digging of gravel there; and—should an opportunity offer—by a contribution towards the buying up of the rights of the lords of the manor within which the common is situated. It was stated that with one exception, the common, which extended over 500 acres, was the largest near London. Mr. Bidder, Q.C., one of the petitioners, said the rights of the lords of the manor might be bought out for £3000. The petition was referred to the Finance Committee.

Opening of Avondale Park.—A public recreation ground, called Avondale Park, after the late Duke of Clarence and Avondale, was formally opened last week. The park, although in the borough of Kensington, is situated in a very crowded district. The ground covers an area of a little over four acres, and was purchased for £9200, towards which the London County Council have contributed £4250 and the Metropolitan Public Gardens and Open Spaces Association £2000. Subscriptions were raised towards the payment of the rest. The land, which used to be a brickfield, has been laid out at an expense of £8000. The greater portion of the ground has been arranged as a playground for children.

Open spaces.—At the monthly meeting of the Metropolitan Public Gardens Association, 83, Lancaster Gate, W., Mr. Deputy Bedford, vice-chairman, presiding, in the absence of the Earl of Meath, a legacy of £75 was reported from the late Mr. George Mackenzie, which it was hoped would be followed by others, this being only the second legacy the Association has obtained in nine years. It was announced that De Beauvoir Square, N., St. Botolph's Churchyard, Aldgate, E., and the Pottery Lane Fields, now called Avondale Park, had been opened to the public. It was reported that the laying out of the Burial Ground, Hackney Road, E., Spitalfields Churchyard, E., and St. Ann's Churchyard, Soho, W., would be completed by the end of June, and as regards the last-named, Lord and Lady Hobhouse had kindly consented to perform the opening ceremony on the 27th inst. It was stated that the Duncan Terrace enclosure, Islington, N., had been transferred to the Vestry by Lord Calthorpe, and on the application of the Vestry it was agreed to lay out the same and contribute one-half the cost. The secretary announced that seats had been accepted for the Horsemonger Lane Playground, S.E.; that twelve Bay trees had been placed in front of the National Gallery; and that Bishopsgate Churchyard, E.C., was to be opened to the public during the summer months under the care of the association. It was decided to offer seats for the Brompton Road, S.W., Acton, W., and Wandsworth, S.W.; to apply for an extension of the hours during which the Tower Gardens are opened; and to take steps to secure the Running Ground, Bromley, E., and St. James's

Churchyard, Pentonville, N., as public open spaces. It was learned with regret that the Bill of the London County Council for the acquisition of Lincoln's Inn Fields had been defeated in committee of the House of Commons.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

JUNE 7.

THIS meeting was not by any means an extensive one, but it embraced many Orchids, miscellaneous flowers and fruits of more than passing interest. The remark was made more than once that this small, but select gathering was by the visitors more highly appreciated than the far larger display at the Temple, where the productions were so numerous as to be completely overpowering in their beauties and rich assemblage of colours.

Orchid Committee.

A first-class certificate was awarded to—

WARSCWICZELLA LINDENI.—A pure white variety in which the lip is the most conspicuous feature, being nearly 3 inches in diameter, but somewhat incurved, the inner portion having a few faint veins of lilac, a singular, but beautiful flower. From M. Linden, Brussels.

Awards of merit were given to—

CYPRIPEDIUM ALICE (Spicerianum × Stonei).—This is one of the prettiest hybrid Slippers shown for a long time, the flowers being very elegant; the petals resemble those of Stonei, the dorsal sepal more after that of Spicerianum, the pouch more after that of Stonei. The spike shown bore two flowers and one bud; the foliage is long in the way of Stonei, but narrower. From Mr. Drewett.

LÆLIA GRANDIS TENEBROSA (Warnham Court var.).—This is a grand variety of this beautiful Orchid; the sepals and petals are broader than in the species, while the colour is much deeper than in tenebrosa, the lip more after L. purpurata, of an extremely rich shade. From Mr. C. J. Lucas, Warnham Court, Horsham.

ODONTOGLOSSUM CRISPUM WOLSTENHOLMIE.—A lightly marked form, but extremely handsome, the spike bearing ten fine flowers, the ground colour of a light rose shade with pale brown blotches and spots. From Baron Schröder.

ODONTOGLOSSUM CRISPUM REX.—This is another splendid variety and may be fairly considered one of the finest; the sepals and petals are broad, suffused with a rosy shade, having large blotches of a rich chocolate colour, the lip with a similar blotch and deep golden markings. From Baron Schröder.

Botanical certificates were given to—

CYMBIDIUM LOISE-CHAUVIERI.—This is very suggestive of *Cœlogyne pandurata*, having the same singular combination of green and black. From Mr. Ingram, Godalming.

CYCNOCHES PERUVIANUM.—This is an Orchid more singular than beautiful, of a pale green colour with small spots of rosy purple, flowering from the apex of the bulbs, as in the *Chysis*. From M. Linden, Brussels.

CORYANTHES LEUCOCORYS.—This novelty is of Stanhopea-like growth, flowering in the same manner, but having a pouch more like the Pitcher plants; a most singular Orchid. From M. Linden.

ONCIDIUM AURIFERUM.—A pale golden variety of great freedom, with a profusion of spikes loaded with small pale golden-yellow flowers; a beautiful variety for many purposes. From M. Linden.

BULBOPHYLLUM ELEGANS.—A small variety more interesting than beautiful, of dwarf growth and with small flowers. From Sir Trevor Lawrence.

A cultural commendation was given to Mr. C. J. Lucas for *Promenæa xanthina* (P. citrina, Hort.), an Orchid of very compact growth, with small pale golden-yellow flowers, similar to those of a *Zy-*

gotetulum, forming quite a small specimen, the flowers borne singly on short stems.

The same award was given to the same exhibitor for *Dendrobium McCarthiae*, a Ceylon species of slender growth with large flowers, somewhat of the colour of those of *D. macranthum*, the blossoms and spikes being very fine for this somewhat shy-growing species. Mr. W. Furze had a choice group of Orchids, consisting of *Lælia purpurata* Schröderæ, a very beautiful form with pure white sepals and petals and a pale rosy lilac lip; various good specimens of *Cattleya Mendeli* and *C. Mossiæ*, with well-grown *Odontoglossums*, chiefly good forms of *O. crispum*, *Dendrobium suavisimum*, *D. thysiflorum*, and *D. transparens*, a variety now seldom shown; *Epidendrum vitellinum majus*, fine; *Anguloa eburnea*, a pure white form; and *Vanda Denisoniana* with two spikes, forming in all a beautiful group (silver Flora medal). Mr. Wythes, Syon House Gardens, had another good group, consisting of well-grown and freely-flowered *Cypripedium barbatum majus*, *Odontoglossum vexillarium* in good condition, and *Aerides odoratum* (bronze Flora medal).

The first prize for a new Orchid was awarded to Messrs. Sander and Co. for *Cattleya Arnoldiana* (C. Mossiæ × L. purpurata), the sepals and petals of which are of the colour of those of a good form of C. Mossiæ with the labellum much after L. purpurata, but coloured to the edge (see GARDEN for June 13, 1891, p. 556, and for June 4, 1892, p. 523). The second prize for a new Orchid was awarded to Mr. Ingram for, singular to say, another hybrid resulting from the same cross as the preceding, but quite distinct from it; in this instance the flowers bore more resemblance, on the whole, to those of C. Mossiæ, but the colour of the labellum was much lighter than in L. purpurata, with the form of the other parent. This was named C. Canhamiæ.

From Messrs. Sander and Co. also came *Cattleya Forbesi* (Sander's variety), which is quite a superior form with flowers of a nankeen-yellow, the lip having in addition a lighter margin. *Oncidium Lanceanum* (a pale variety) came from the same source; this fine old *Oncid* is now seldom seen. From Mr. Temple, Leyswood, Groombridge, came two splendid forms of *Cattleya Mendeli* in the best possible health and vigour; one named *gigantea* is of extra stout growth with grand flowers, paler in colour than usually seen, the sepals being, however, fully 3½ inches wide; the other var. called *rubra* is a richly coloured form in which also the lip is finely fringed; with this exhibit was included a *Cattleya Mossiæ* (the first time of flowering in this country) in which the well-known colours of the labellum had been partially imparted to the sepals. Should this be a fixed characteristic, it will prove all the more interesting.

M. Linden sent from Brussels *Odontoglossum Lucasianum*, apparently a natural hybrid, the spike an erect one, the flowers of a bright chestnut colour with light yellow tips to the petals, and *Stanhopea eburnea*, a waxy-white variety. Baron Schröder showed in addition another fine *Odontoglossum* called *O. dellense*, a superior form of *O. excellens*, or between that and *O. Pescatorei*, as shown by Sir Trevor Lawrence at the same meeting. This latter was named *O. Pescatorei Prince of Orange*, with a yellow ground and chocolate bars and spots. From the same source also came *Oncidium loxense* bearing a strong spike, the lip of which is singularly striking in colour (a rich golden shade), and *Dendrobium Parishianum*, an interesting variety with pale coloured flowers. Mr. Wigan, Clare Lawn, East Sheen, sent a small group of (as usual) well-grown examples; these consisted of *Cypripedium Rothschildianum* bearing fine flowers; *C. Veitchianum*, also finely flowered, with the novel *Cattleya Schilleriana*, after C. Aclandii, but more handsome, particularly in the colouring of the lip, which is veined with rich purple. *Lycaste aromatica* was also included, with the novel feature of flowers issuing from the crown of the bulb as well as from the base. *Cattleya Mossiæ* and *C. Mendeli*, both extra fine forms, were also shown.

Messrs. H. Low and Co. had a small group of

Cattleya Mossiæ, consisting of excellent varieties showing great diversity in the shades of the labellum, yet all being fine forms. From Mr. Shaw, Ashton-under-Lyne, came cut examples of *Cattleyas*, including *C. gigas* and *C. Mendeli*, with *Lælia grandis tenebrosa*. From the Rt. Hon. Joseph Chamberlain came also cut flowers of fine vars. of *C. Mossiæ* and *C. Mendeli*, the blooms of extra size. Mr. Hudson sent from Gunnersbury House twenty-four flowers of *Lælia purpurata superbens*, cut from a plant that had been grown on from a small piece with three bulbs, now having seven leads. For the prizes offered for cut Orchids not less than twelve bunches, there was only one collection staged, that of Mr. Wythes, Syon Gardens, whose fine exhibit would have been hard to beat in numbers or variety. These included *Aerides odoratum*, *Lælia purpurata*, *Cattleya Mendeli*, *Odontoglossum vexillarium*, *Cypripedium caudatum*, *Dendrobium thysiflorum*, *Cattleya Mossiæ*, *Odontoglossum crispum* and *Cattleya Skinneri*, all in large bunches, with two graceful spikes of *Oncidium divaricatum* (first prize).

Floral Committee.

First-class certificates were awarded to—

DIPLADENIA ATRO-PURPUREA VAR. CLARKEI, in which the throat of the flower is of a rich orange colour, the whole flower of a richer shade than in the species, a very free-blooming variety of small growth, partaking of the character of *D. bolivensis*. From Messrs. Sander and Co.

IXORA WESTI.—A hybrid raised by Messrs. Veitch and Sons, Chelsea Nurseries, some few years back; the trusses are large, the flowers opening a blush-white and assuming a rich pink shade with age, quite a distinct form and of robust growth. Shown by Mr. Hudson, Gunnersbury House Gardens.

Awards of merit were given to—

PYRETHRUM ALFRED KELWAY (double) with full flowers of a rich crimson shade, an acquisition to its class. From Messrs. Kelway, Langport.

PYRETHRUM PRINCESS MARIE.—A pure white single variety of extra size with a well-defined disc and a double row of guard petals; also from Messrs. Kelway.

GLADIOLUS BYZANTINUS ALBUS.—A white variety of this fine early species of the *Gladiolus* much resembling *G. Colvillei albus* The Bride in colour. From Rev. W. Wilks, Shirley, Croydon.

GLOXINIA THE BEACON.—A variety of free growth, with self-coloured flowers of a rich reddish crimson, in its colour quite superior. From Mr. Donaldson, Tower House, Chiswick (Mr. Dones, gardener).

GLOXINIA ENSIGN.—A spotted form with large flowers, having a broad band of rosy-purple and a light edge. Mr. Donaldson.

CARNATION YELLOW QUEEN.—A pure yellow-coloured variety of Tree Carnation of free growth with medium-sized full flowers, not given to bursting the pod. Mr. Donaldson.

Messrs. Kelway and Son had a most extensive display of *Pæonies*, *Pyrethrums* and *Amaryllises*; the *Pæonies* were represented by the best of the single and double kinds, including *Psyche*, *Louis d'Estrés*, *La Flèche*, *Princess Marie*, *Whitsuntide*, *Regalis*, *Somerset Lassie*, all splendid new kinds. The *Pyrethrums* embraced all the shades between white and deep crimson; some of the best of the doubles were *Ernest Kelway* (dark), *Carl Vogel* (light), *Melton* (dark), *Leo Kelway* (pink); of singles, *Agnes Mary Kelway* (dark rose), *Albert Victor* (dark red), *Balentinus* (pink), *James Kelway* (extra dark crimson), and *Ruth* (pale pink). The *Amaryllis* blooms had been cut from plants grown in cold frames. *Beatrice Kelway*, a bright crimson with light edges; *Voltigeur*, dark red, and *Countess of Zetland*, of a lighter shade, were three of the finest kinds (silver Flora medal).

Messrs. Wm. Paul and Son had a dozen boxes of cut *Rhododendrons* (hardy) from plants grown in loam at their nurseries; the trusses were fine, the colours good, with plenty of vigour in the growth. A few of the best were *Sappho*, a light kind, with extra dark spots; *Concession*, deep rose; *Zuleika*,

a light shade; and *Everestianum*, still one of the best. Messrs. W. Paul & Son also showed Hybrid Perpetual Rose *Clio*, of a pale pinkish blush colour, growth vigorous (silver Flora medal). Messrs. Dobbie and Co., Rothsay, had another of their characteristic collections of tufted Pansies and Sweet Peas. Of tufted Pansies the collection was most varied, the best being Mrs. H. Bellamy (dark), Ariel (light), Max Kolb (deep purplish blue), Gipsy Queen (light); these were all shown in a very fresh condition (silver Banksian medal). Messrs. Paul and Son, Cheshunt, had a group of hardy herbaceous plants, including several excellent vars. of Iris, embracing different kinds of *I. germanica* with *I. orientalis* in fine colour, also *I. virginica* and *I. versicolor*; with these were included some good pans of *Ramondia* in the three shades of colour, also of *Pentstemon Menziesii*, *P. Scouleri* with bluish flowers, *Vancouveria hexandra* and *Anthericum Liliastrium majus* (silver Banksian medal).

For the prizes for cut Rhododendrons Mr. Wythes took the first prize with a large boxful of good kinds, Lady E. Cathcart, Kate Waterer, and Lady Dorothy Neville being amongst the best. Mr. Sage, Ham House, Twickenham, came a close second with very fresh trusses. Mr. Crasp, Canford Manor, was first for the prizes offered by Messrs. Kelway for Pyrethrums, being the only exhibitor in the class.

Fruit Committee.

There was not a great number of exhibits before this committee. Seedling Melons were shown in quantity, but of poor flavour considering the favourable ripening period of late.

Awards of merit were given to the following:—

MELON RITCHINGS' PERFECTION (a cross between Read's Scarlet and William Tillyer).—It is of medium size, with light green flesh, and of good flavour. From Mr. Ritchings, gardener to Dr. Frankland, Reigate Hill, Surrey.

PEACH AMSDEN JUNE.—Of remarkably rich colour and large size. The fruits had ripened in fifteen weeks from the date of starting the house. The tree was planted in 1891 and is now carrying a heavy crop. From Mr. Wythes, The Gardens, Syon House, Brentford.

A seedling Melon named Worden Hall Favourite, from Mr. R. Frisby, Worden Hall, Preston; a large scarlet-fleshed fruit, named Spring Grove Hybrid, a cross between Hero of Lockinge and Scarlet Premier, from Mr. Debenham, Spring Grove House Gardens, Isleworth; a scarlet-fleshed seedling from the gardens of Mr. T. W. Drake, Shardeloes, Amersham; a white-fleshed variety from Mr. Bowerman, Hackwood Park Gardens, Basingstoke; and a seedling from Mr. Ely, Joyce Grove, Henley-on-Thames, were also shown.

A nice dish of Dr. Hogg Peaches was sent by Mr. Debenham, gardener to Mr. Pears, Isleworth. Mr. Hudson, Gunnersbury House, Acton, sent a grand dish of Lord Napier Nectarines of great size and highly coloured. They had been gathered from a tree cropped heavily every year during the last thirteen years (silver Banksian medal). A new seedling Cucumber was sent by Mr. W. H. Castle, The Gardens, Castlemans, Twyford, a nice smooth fruit, but rather large for private use. From Syon House was sent Veitch's Extra Early Milan Turnip, nice sound bulbs, to show its earliness over other kinds grown in the open ground. A collection of four varieties of Spinach was sent from the society's gardens, Chiswick, the thick-leaved being best; a round-seeded variety was good; Long-standing was also fine, and possesses several advantages over others, as it remains much longer before going to seed; Prickly Flanders is too much inclined to run to stalk, and is not superior to existing varieties. The first two varieties are similar to the Victoria Round Spinach, a valuable introduction. Victoria and Ryder's Perfection Rhubarb were also sent, but it was difficult to see any difference between them. Mr. C. Hooper, Elmleigh, Beckenham, sent drawings of gardens and fruit trees to represent the mode of teaching adopted in country districts to illustrate fruit culture.

The hon. secretary in the absence of Mr. Young, The Gardens, Abberley Hall, Stourport, read the lecture on the summer pruning of fruit trees. Mr. Young said that such trees as Apples, Pears, Cherries, except Morellos, when severely pruned in winter gummed badly, and it was to prevent this that resource must be had to pinching and summer pruning, as trees carefully attended to in the summer formed more natural fruit-spurs. With young trees it was necessary to get well-balanced growth at equal distances, and to get the wall furnished. Often the reverse was the case, as a few leading shoots were allowed to run to the top. These, if not checked, meant ruin to the future trees, and naked walls at the base. Once undue freedom is allowed, the tree cannot perform its proper functions, so that it was necessary to check the centre shoot and to train three or more side shoots on each side of the leaders, keeping the trees open, cutting back the gross centre shoot, and thus equalising the growth of the tree. The shoots of young trees should be laid in more freely than is often done, the strongest only being shortened back. Only the strongest or those which unduly rob others should be cut, and more pinching in a young state should take place to induce the trees to form natural spurs. In pruning it is better to remove the strong shoots than shorten all back, this latter system encouraging a mop-headed growth. Whenever possible, good matured wood should be laid in for the support of the trees. Allowing young, strong leaders to go ahead brings about canker and unfruitfulness, and paves the way for gumming and other evils. Strong shoots should be pinched first when ready to the fourth or fifth leaf. The growth formed afterwards is needed for the support of the trees. Should the growth be gross it may be necessary to root-prune, but this much depends upon the stock, as Pears on walls either fan-trained or cordon grew much stronger on the Pear stock than on the Quince. When the trees are hard cut they only formed a few fruiting spurs, and it was better to pinch to admit light, as a tree could not be kept in a fruitful state by pruning only, as often the roots were at fault. It is a mistake to prune leaders or main branches, as if left intact they do not push out, but bear in a much shorter time and continue fruitful. Trees in the open ground must be pruned according to the amount of growth. Early summer pruning of these trees causes a secondary growth of wood which does not get ripened. Stray gross shoots should be checked to form well-balanced trees, but they should not be pruned before the end of August. By pruning in September no gumming takes place. There are also less trouble and a far greater certainty of fruit every year.

In the discussion which followed, it was asked if "ringing" was good for fruit trees, as often they bore after this had been carried out on old trees. Mr. Bunyard did not advise it, as though it might prove beneficial for a time, in the end it would ruin the trees. Mr. Hooper said he had seen it much practised abroad, but it was not advantageous in the end, as it caused gumming and canker. Mr. Cheal said he had some experience of "ringing" years ago, and he had given up the practice, as it was dangerous, killing the trees in time. He said summer pruning was done too early. Trees would be more fruitful if pruned later, as Mr. Young advised. Mr. Wilks said he had applied extreme measures to large unfruitful trees and got fruit afterwards. He had Beurré Hardy Pears that he only removed the side shoots from at the end of August, a picture of health and which bore fine fruits, and he advised leaving Morello Cherries alone in the way of pruning. Mr. Pearson said gumming was caused by excessive pruning. He advised more freedom of growth, merely thinning the branches. He said that we seldom see Apricots in a thriving condition, as they cankered so badly. He thought planting under the eaves of houses had something to do with unhealthy trees on buildings. Mr. Wythes stated he would in this district prune or stop Pears a little earlier than Mr. Young recommended, but much depended upon soil, situation and stock. He considered Apricots often required more moisture

in dry soils than they got when growing under projecting walls. He had moved large old trees that never bore to better aspects and got heavy crops.

The Gardeners' Orphan Fund.—The usual meeting of the committee took place at the Hotel Windsor on the 3rd inst., Mr. William Marshall in the chair. The minutes of the last meeting having been read, the following receipts were announced: Ealing District Gardeners' Mutual Improvement Society, proceeds of lecture, £10; the Manchester Local Committee, proceeds of concert at Altrincham, per Mr. W. Plants, £20; Mr. J. Wills, £10 10s.; Miss Gibbons, per Mr. J. Hughes, local secretary, Birmingham, £5; Tadcaster Paxton Society, per Mr. H. J. Clayton, £1. The hon. secretary brought up a gratifying report of the recent annual dinner on behalf of the fund. The recent death of Lady Goldsmid, the wife of the president, having been announced, the following resolution was unanimously passed: "The committee of the Gardeners' Orphan Fund have learned with deep regret the death of Lady Goldsmid, and desire to express their sense of the kind interest taken in the fund by her ladyship, as was particularly shown by her attendance at the floral fêtes in aid of the fund held in the wholesale flower market, Covent Garden. The committee tender to Sir Julian Goldsmid, their president, and the members of his family their sincere condolence and respectful sympathy under the great bereavement they have sustained." It was further resolved by acclamation "That this committee express to Sir James Whitehead, Bart., their high appreciation of the great services he rendered to the fund by taking the chair at the recent annual dinner, and for his exertions in securing such a highly satisfactory subscription list. The committee also desire to tender their hearty thanks to Sir James for his eminent services thus rendered to the fund, and they have the gratification of placing on record their sense of the unprecedented success which marked the new departure in the matter of the annual dinner." Also the committee, in recording their sense of the marked success which attended the celebration of the recent annual dinner of the fund, "desire to express their hearty thanks to their chairman, Mr. W. Marshall, to their hon. secretary, Mr. A. F. Barron, for arranging the details of the dinner and carrying out the same in so satisfactory a manner; also to those friends who supplied flowers and who so kindly assisted in decorating the dinner tables."

Death of M. Margottin.—We regret to have to announce the sudden death of this well-known rosarian at the age of 74. The following list comprises the most beautiful Roses that have been raised by him: 1851, Général Bédau, Louise Odier; 1852, Rosine Margottin; 1853, Jules Margottin, Duchess of Norfolk; 1854, Gloire de France, Mme. Domage, Mme. Place; 1855, Triomphe de l'Exposition; 1857, Duke of Cambridge, Lord Palmerston, Mme. van Houtte; 1859, Belle de Bourg-la-Reine, Duc de Magenta; 1860, Alexandre Dumas, Comtesse Oubaroff, Jean Bart, Boule d'Or; 1861, Souvenir du Comte de Cavour; 1862, Jean Goujon, Louis Margottin; 1863, Rev. H. Dombrain; 1864, Bernard Palissy, Charles Margottin, Mlle. Amélie Alphen, Maréchal Forey; 1867, Duchesse d'Aoste; 1868, Souvenir de Monsieur Poiteau, Léopold II., Ad. Brongniart, Adrienne de Montebello; 1869, Charles Turner, Mlle. Juliette Alphen; 1871, Mme. de Ridder; 1874, Bernard Verlot; 1875, Triomphe de France; 1877, Boieldieu, La Saumonée, Mme. Jean Joubert; 1878, Deuil du Colonel Denfert, Dr. Baillon, Dr. Jenner; 1879, Gloire de Bourg-la-Reine, Henriette Petit; 1880, Mme. Isaac Perière.

New or rare flowers for drawing.—Readers will kindly remember that we shall be greatly obliged for any specimens of new or rare plants, or information concerning them.

Names of plants.—*Norman Bushworth*.—*Iris orientalis*.—*J. R.*—Kindly send branches with cones if possible.—*F. Hand*.—*Calycanthus floridus*.

WOODS AND FORESTS.

POPLARS.

FOR some reason or other the Poplar and the Willow are usually classed together, possibly on account of their being found in similar situations, and because the quality and value of the wood are about equal, and the trees are of unusually free and easy growth. There is generally a feeling of worthlessness when talking of the trees, this being brought about by the small demand and small price that even the best trees of either the Willow or Poplar realise. Then they will grow anywhere and where few others can subsist, and this, too, has a powerful influence in depreciating both trees in the minds of most persons. That both trees have, however, in common many valuable traits cannot be denied. Regarding the value of Poplar and Willow timber, it is certainly not great when viewed in a commercial sense, but for all that the rapidity of growth lessens the fault somewhat, while the wood has this value that it can be successfully utilised in one particular way, and for which it has no equal amongst our generally cultivated trees. No other timber of home growth is so free from splitting and splintering. Rarely do we get more than about 1s. per foot for the timber, but even at that price, when we remember that the trees grow quickly, and in soils, too, that are very unsuitable for almost any other tree except the Alder, these particular forest occupants pay well for the breadths of land on which they are cultivated. There is a great demand for Willows for basket and crate making, but this peculiar industry has suffered much at the hands of our keen competing neighbours on the Continent and elsewhere.

Of the Poplars frequently planted in this country the

ABELE (POPULUS) ALBA, or *nivea*, is perhaps the most interesting and ornamental. It is of large growth, suckers freely, and adds quite a charm to the margins of woods and plantations around which it has been planted. A variety of this is found in the grey Poplar (*P. canescens*), with smaller leaves and covered with a greyish tomentum.

THE COMMON ASPEN (*P. tremula*) and the American Aspen (*P. tremuloides*) are both trees that are worthy of being planted, particularly where the ground is almost unsuitable for any other class of timber.

P. NIGRA.—In this we have a commonly distributed species of from 60 feet to 80 feet in height, with triangular-ovate, somewhat silky leaves and very glutinous buds. There is a well marked variety in *P. nigra salicifolia*.

P. BALSAMIFERA (the Balsam Poplar) is readily recognised by the fragrant resin given off by the buds.

P. PYRAMIDALIS (syns., *dilatata* and *fastigiata*) needs no description, the unusual upright habit of the tree rendering it distinct from almost every one else.

Several of the lately introduced Poplars are of unusual interest either for the ample foliage or rapidity of growth, as also capability of withstanding the generally injurious effects of an impure atmosphere. Three American species at least are planted largely in this country, these including the Necklace Poplar or Cotton Wood (*P. monilifera*—syns., *canadensis* and *acladesca*) with long pendulous catkins and shining, serrated, deeply veined leaves; the Carolina Poplar (*P. angulata*) with curiously winged or angular branches; and *P. grandidentata*, in which the leaves are thickly covered with a cottony down.

Than the Willow and the Poplar no trees are more readily misplaced and put out of character

with their surroundings, and this is a point that should ever be remembered by the planter. Being of free, easy growth, and capable of being planted where few other trees could succeed, as well as being in most cases very ornamental, should induce those who are planting and laying out new grounds to judiciously use them in their clumps and belts. A. D. W.

PLANTING FOR UTILITY AND ORNAMENT.

I HAVE always considered it practicable to plant a permanent undergrowth of evergreen and deciduous trees and shrubs to serve either as screens near or away from a mansion or cover for game, and at the same time to ensure a free growth of profitable and ornamental timber.

In one instance I have planted in masses what I intended to be the permanent trees which were to form a screen to shut out some unsightly buildings. The kinds of trees planted for the purpose were chiefly Oaks, Spanish Chestnuts and Elms. Then others of the same kinds, but of smaller size, were planted between them as temporary plants, to effect an immediate blind, by way of filling up the spaces until the principal trees begin to extend their branches, when the supernumerary trees are to be taken out in two, three, or four years to plant again as single trees, or in groups, hedgerows, or for any other purpose for which they may be wanted, as they will be suitably prepared for such purposes; otherwise they must be cut down or taken out before they injure the permanent trees. The other spaces should be filled up with Beech and Hornbeam, which, when headed down, generally retain their foliage through the winter months, when such thick cover is most wanted. Such plants for undergrowth I take care to divest of their leading upright shoots, at from 4 feet to 6 feet or 7 feet high, according to their appearance and effect with the side branches of the intended permanent trees. Divesting them of their upright aspiring shoots prevents them from getting up to injure the permanent trees, and increases their lateral or side branches, so as to fill up the blind and keep a permanent undergrowth. This work should be attended to for a few years to prevent them acquiring fresh leaders, which they are naturally inclined to do.

At the base of the permanent trees I planted young Hollies, either common or variegated, for future effect, at from 1 foot to 2 feet from the stem, with the head leaning towards it, to allow for the increase of the trunk or stem, as well as to form a surer mark than any other I could think of to know the permanent trees by. Then, round the outsides of the belt and occasionally in the interior, I planted Spruce and Silver Fir and Scotch Pines, each kind by itself in groups or masses as it were; the Firs being from 4 feet to 7 feet in height, taking special care to shorten the leading upright shoot, or break out the central leading bud of the upright shoot, at the desired height; also to shorten or break out the central or leading bud of the side branches where necessary to thicken the blind and prevent them getting out of bounds and destroying or injuring the fences. Scotch Pines should be planted principally at or near the outside, as they do not endure under the shade so long as the Spruce and Silver Firs. In front of this belt, viz., the side most in view, were planted various kinds of evergreen, deciduous and variegated dwarf flowering trees and shrubs; at least to be kept dwarf so as not to injure the effect of the permanent forest trees in the background, as well as more effectually to ensure the main object, an effectual permanent blind, not forgetting embellishment as well. Although I have recommended Beech and Hornbeam for under-cover, I would prefer common Hollies, common Laurels, Rhododendrons, or other suitable Evergreens, which will endure under the drip and shade of other trees, but they are of such slow growth at first, and are, besides, dearer and not so easily procured as the Beech and Hornbeam.

At any rate, the Evergreens should be planted at the first making of the plantations, and, as they get up, the Beech and Hornbeam could be removed if thought desirable; but in each case attention must be, for several years, regularly paid to divesting them of their aspiring shoots, and occasionally shortening some of the side branches to prevent straggling growth and to ensure the permanent undergrowth. I will just observe that Beech and Hornbeam are best adapted, in distant high exposed situations, for permanent undergrowth in narrow belts or clumps, and Evergreens nearer home in more sheltered places.

By following up this plan for a few years, we can ensure a permanent close and thick undergrowth of evergreen or deciduous trees and shrubs, with the most beautiful, picturesque and profitable forest trees, instead of those unsightly naked plantations, open at bottom, with nearly valueless timber trees, so frequently to be seen; and which plantations, with a very little trouble or expense, might be made both profitable and ornamental at the same time. W.

PLANTING AND WHAT TO PLANT.

THE careful selection of trees suitable for various soils and situations is a matter of the highest importance to those who contemplate tree planting for profit. I need scarcely add that the neglect of this consideration is in nine cases out of ten the cause of failure. On light, poor, hilly lands and moderately exposed the Larch is the most profitable tree to plant for a main crop. When the altitude or exposure is too great for the Larch, a shelter-screen should be planted with Austrian, Corsican, and Scotch Pines, planting the Austrians on the outside or exposed sites, as they are of a more bushy habit than the others and the best Pines grown for shelter. The Scotch and Corsican Pines thrive well and make excellent timber on exposed poor plains, where the Larch has been found to be a failure. On the other hand, the Larch generally is more vigorous and less liable to disease when grown on the declivities of hills with a south-west, west, or north-west aspect than in any other situations, the reason being that the sun's rays do not reach these aspects so early in the day, and thus the trees do not suffer from late spring frosts so much as when planted on east or south-east aspects.

If shelter for game be required, or ornamental effect in the landscape scenery be desired, masses, clumps, or groups (according to the size of the plantation) of the Silver and Spruce Firs should be planted in judiciously chosen positions to give the most pleasing and natural effects without stiffness and formality. The Douglas and Menzies Spruce, Nordmann's Silver Fir, and the Wellingtonia, which are now more plentiful than they have been and may be bought at moderate prices, might also be introduced in smaller groups in the lower sites, where the soil is tolerably deep and the situation somewhat sheltered; they are all hardy, fast growing, and beautiful conifers, being very effective when planted in groups amongst deciduous trees. FORESTER.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols., price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

"The Garden Annual" for 1892.—Contains Alphabetical Lists of all Branches of the Horticultural Trade corrected up to November 10 last. The Lists of Gardens and Country Seats (containing over 9000) have been very carefully and extensively revised, and are admitted to be the most complete ever published. Price 1s.; by post, 1s. 3d.

No. 1074. SATURDAY, June 18, 1892. Vol. XLI.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

AMONG THE ROSES.

ROSES are full of promise, the growth being strong and healthy, the leafage clean and abundant, and the buds stout, betokening fine flowers at an early date. Truly our climate is remarkable. A month ago frosts were still with us, and it seemed as though the Roses would never break away, yet at the present time to see them one would imagine they had passed through no vicissitudes. The weather has been genial and pests have hardly appeared. When rain was wanted it fell copiously, thoroughly washing the shoots before it reached the roots, and succeeded by a week of sunshine such as we have had since the great cleansing thunderstorm of Whit Sunday, it was possible to mark progress from day to day. Ere these lines are in print, Tea Roses in the open beds will be fairly abundant, as already some are expanded. We have generally had to reckon Rubens among the first, but not so this year. Adam led the way by opening early in the week. Souvenir d'un Ami followed, but upon young newly set out plants it is not usually so early. A group of Ma Capucine will soon be a picture, the little bushes being covered with buds, the most prominent of them already showing colour. Upon walls there are flowers in abundance. There is no better way of ensuring an early and late supply of good buds than by planting against walls and fences. A Gloire de Dijon upon a low piece of wall not 4 feet in height with its roots under a gravel walk flowers beautifully year after year. It has a fitting companion in Safrano. The first and last Roses may always be found on these two plants. Several plants of Rêve d'Or covering a large space promise to repay us at last, and doubtless will continue to bloom freely for the future. They are own-root plants, and were planted three years ago. They have grown tremendously and faggots of wood have been cut out of them. All things considered, and taking it from year to year, Bouquet d'Or is one of the very best wall Roses. It is as good as Gloire de Dijon, has better shaped buds and produces more flowers.

We have enjoyed a great immunity from caterpillars this year. The rains by their orce and freedom have kept green-fly in check, but a few always escape, and at the time of writing I notice they have made the most of fine weather to increase rapidly. They are more easily destroyed now, however. It is a difficult matter when they pounce upon the shoots before they are of any length, sucking out the juices and stunting the growth. Now flower-buds are formed the shoots are long and pliable, and there is no more thorough method of exterminating this pest than that I adopt, namely, dipping the tip of each shoot in a mixture of Fir tree oil and water. The plan is economical and effectual. A watchful eye must be kept now for mildew. Growers have their favourite remedies. I have found no need to depart from that I have previously advocated, that is sulphide of potassium, and as a precautionary measure all the plants have been syringed. A shilling bottle at quarter-ounce strength made sufficient for thirty-two

gallons of water. It was mixed in a water-barrel, and there was enough to do the lot. It is much more effectual and clean to use than sulphur. A. H.

Night soil for Roses.—In case anyone might be doubtful about using night soil as a fertiliser for Roses under glass, I may say that wood-ashes or burned refuse form a capital deodoriser. I have used a large quantity this season both for Vines and Roses, and its presence has not been in the least detected. By being mixed with a fair bulk of burned refuse and laid up for eighteen months, and also turned occasionally during the last six, the most sceptical need not have any misgivings as to its use.—Y. A. H.

Rose Reine Marie Henriette.—This is not yet an old Rose, but age and experience of it must enhance opinions regarding it and further prove its great merits. Some say it is the best in the autumn, and it is often very good then, but it has the greater merit of earliness, and for the past three years has been the first red Rose to bloom out of doors on a wall, being before Cheshunt Hybrid, to which, by the way, it is much to be preferred by reason of its clear, bright, unfading colour. It is a Rose for many aspects, and therefore the popular description of it as red Gloire de Dijon is not far wrong, for where one lives and blooms (and there is no aspect that may not have a Gloire de Dijon) there may the other be planted. We have it flowering finely on a south-west wall and promising a succession later from a north-east aspect.

Scotch Roses may be strongly recommended to those having gardens where the soil is hot and light, and in which the finer-flowered varieties do not do well in spite of abundant feeding. The Scotch Roses will grow and do well where the majority would starve. It is absolutely essential to starve these into profusion of bloom. We had some plants of the double white kind that were in a bed with Mo's Roses. They overran everything, but produced no blooms. They were taken out and put upon a very dry sunny bank, and now each June they are a mass of white. The yellow kind is there also in great quantity. We do nothing to them beyond keeping them free from weeds. When first planted upon hot soils these Briers seem to linger, but they throw up suckers everywhere and ultimately make a dense and almost impenetrable mass.

Rosa rugosa and its varieties.—We may simply treat these as ordinary shrubs and they are sure to do well. The common *R. rugosa* and its white variety are most abundant, and the white is specially beautiful with its long pure buds clustering in such rich foliage. *Rosa coruscans* appears to be but a variety of the Japan Rose, similar in wood and leaves, but with flowers of a pretty pink shade. It is in every way desirable to associate with the type. Mme. Georges Bruant came out as the first of a new race of hybrid forms of *R. rugosa*, but though as vigorous and free as the type, it does not seem to have yet become popular. It has the long paper-white buds of the white *rugosa*, but they are double instead of single; consequently are more enduring, and being borne in clusters the kind is just such as we want more of in gardens for producing pretty effects.—H.

Sty-blooming Roses.—"P. U." has hit the right nail on the head all through his article on "Strong-growing Roses" (page 518). He there shows clearly by precept and example that some Roses will not be forced into flower at the point of the knife. Naturally it is the strongest Roses that mostly resent this treatment. The reason is obvious: the stronger they grow, the harder they have been cut back, and the less mature the wood at the close of the season. A few shoots allowed to run full length to light and air will mostly ripen, and these if left so, merely removing the tips of any shoots that may have been frozen back, will give a good account of themselves. Not a little of success or

failure with these strong-growing Roses also turns on the time of pruning. Questioned once by a clever rosarian as to the best time of pruning such Roses as Banksian, Maréchal Niel, and Chibing Devoniensis, he was much astonished when I answered June or July—that is, immediately after flowering. The Banksian flowers best, spurred back after blooming; every spray will then become a wreath of blossoms next summer, but if pruned in winter these embryo blooms will be cut off. The strong-growing Roses named by "P. U." should have all the small spray and shoots cut off about midsummer, and no further pruning until next summer. Such magnificent Roses as Cloth of Gold were hacked rather than frozen almost out of existence, and Maréchal Niel is in great danger of following suit. Even Gloire de Dijon, which will bear any treatment, flowers superbly on the same lines as these other strong-growing Roses.—D. T. F.

INSECTICIDES FOR ROSES.

THIS is a wide subject, and one of immense importance in the successful cultivation of the Rose. Great care and judgment are needed in adding the different ingredients, and in mixing a solution of sufficient strength to kill the insect pests you are warring against, while at the same time avoiding injury to the tender foliage of your plants. Insects, as a general rule, attack the most tender and youngest growths, and this makes it doubly necessary to use great care in not applying any solution that is strong enough to affect such sensitive foliage as that of the young shoots of Roses. Generally speaking, we may take it that the syringe is the best medium with which to apply any liquid insecticides, one notable exception being in the case of scale. This is a very hardy insect, and, unlike the rest, it does not affect the young foliage and growth so much as the more matured wood of the plants; consequently one may use a solution that is far too strong for the tender young leaves to withstand; indeed it is absolutely necessary to do so in order to kill this enemy. There are several solutions that are excellent for destroying scale. A stronger solution than is recommended for such as green-fly, thrips, and red spider will usually be effectual in killing this pest. I invariably use a painter's sash-brush (or "tool," as it is called in some districts) when applying these strong solutions. One of the finest insecticides for use in connection with a sash-brush is a cake of Gishurst compound. Wet the brush in a little warm water and rub it on the soap until a slight lather is formed, apply to the parts of the plants that are affected, and after a few hours give the whole a thorough syringing. This remedy for scale may be made much more effectual by adding a very little paraffin oil. This will loosen the scale as soon as it touches it, and when carefully used paraffin is a grand insecticide. It may seem rather a long proceeding to clear plants of scale in this way, but in reality it does not take much time, as the addition of paraffin causes the mixture to spread over the wood rapidly, and the brush does not require filling very often. Scale is at all times a difficult pest to thoroughly eradicate. Unless the Rose be valuable, I would advise its being burnt at once, and a close watch kept for the first appearance of this enemy.

Green-fly, thrips, and red spider are the three insect pests most prevalent upon Roses, and, fortunately, these are readily killed without injury to the plant, but much care will be needed in applying remedies, and a due amount of patience must be exercised. One fumigation or one syringing is not effectual as a general rule; whereas two applications of weaker strength, and closely following one another, are very deadly to all insect life. I will now name a few simple insecticides that are very suitable for the three insect pests we have under consideration. In all solutions of these, soft soap forms a very important ingredient—in fact, in mild cases and when very few insects are about I frequently use this alone, and at the rate of a little over an ounce to a gallon of solution. Soft soap is much more effectual, and goes further

when boiled. Boil enough for several applications. It is just as serviceable weeks after being boiled as if used at once. Another advantage in having it boiled ready to hand is the quickness with which you can mix a solution at any time, not having to wait for the soap to dissolve, a process that takes some time unless hot water is at hand. Soft soap may be rendered much more deadly by the addition of other ingredients, the best of these being quassia, paraffin, and tobacco liquor. The last of these is a very powerful insecticide, but should not be used upon any plants coming into flower. It stains the blooms and makes them unsightly. I have found that half a pound of soft soap and a quarter of a pound of tobacco boiled together will make 20 gallons of solution. Another very useful and much cheaper addition to soft soap is paraffin. I am very much in favour of this as an aid to insecticides, but it needs careful using, and all mixtures containing it should be frequently stirred during their application. The best time to mix this oil with the soap will be when the utensil has been removed from the fire and while the soap is still on the boil. To every pound of soft soap add a wineglassful of paraffin, and thoroughly stir it together while still hot. The mixture will resemble rather dirty cream. Stir it up again each time before reducing any part of it to the proper strength for using. A pound of soap with the addition of paraffin should also make about 20 gallons of solution, and will be found as effectual and cheaper than the half-pound of soap and quarter-pound of tobacco previously recommended; it is also preferable on account of its leaving no stains upon the flowers or young foliage. The extract of Quassia chips boiled and added to the soap will make a third and very killing solution. I quite lately saw this insecticide used upon Roses out-of-doors, and also upon Morello Cherries that were badly infested with black-fly. So killing, and at the same time harmless, was this mixture, that the same solution which killed the black-fly did not injure the tender foliage of Roses in the least. Either of the above solutions is very useful for indoor or outdoor application, and if used twice and upon consecutive days will clean Roses of almost any of their numerous insect pests. Dusting with tobacco powder I do not advise. It is dirty, has rather an offensive smell for some time, is much more expensive, and not nearly so effectual as any of the solutions I have previously recommended.

When contending against mildew I would strongly advise the use of the solution of soft soap and paraffin with the addition of a little flour of black sulphur. It will be necessary to keep the solution well stirred on account of the paraffin, and this will also keep the sulphur in motion and result in a slight and uniform dusting being left upon all parts touched by the mixture. Sulphur and paraffin are both grand remedies for this terrible blight or disease, and will kill it, while leaving the foliage in a splendid condition for resisting further attacks. Fumigating is very useful in many cases, and when plants are badly infested with green-fly, red spider, or thrips, I would recommend that fumigation and syringing be combined. For filling a house with fumes of tobacco smoke there are several good means, among the most simple being the sheets of paper impregnated with tobacco juice and the fumigating cones so freely advertised. Rags and paper may also be purchased that have been steeped in tobacco.

R.

Rose William Allen Richardson.—At p. 528 I note that the above variety is referred to and its liability to produce pale and valueless flowers. Nothing is more perplexing to those who are anxiously watching and waiting the expansion of its blooms than to find when this season has arrived that the flowers generally are devoid of that rich colouring that makes them remarkable. Though prone to disappoint many by thus failing to colour, it does colour splendidly in some instances. Near where I write a fine plant of it covers a portion of a cottage wall having a south aspect. The buds are very rich in colour and the

expanded flowers very large and full. The plant covers a space of about 9 feet by 6 feet, and has 200 or 300 blooms upon it. The same plant was equally good last year, and so far as I am aware no special treatment is given it. The natural soil is poor and very shallow, gravel being quite close to the surface. Is it likely that a rich soil robs it of its many charms and that a poor stony soil would meet its requirements best? The plant I allude to makes very little wood yearly.—E. J.

Rose Persian Yellow at Abberley Hall.—This charming Rose always attracts attention whilst in bloom, and a large group which we have in the pleasure grounds is at the present time very effective. The group which we have has been planted for some years, and blooms most profusely every season. The plants are growing in very firm soil, never manured or even forked over, and fully exposed to the sun. Under such conditions the growth is very firm and short-jointed. The bushes are never pruned, not even the supposed exhausted wood cut out, for even on this blooms appear plentifully. Under like conditions the Austrian Copper flowers quite as well.—A. Y.

EARLY ROSES.

THE opening days of the Rose season proclaim the fact that though Roses were never more popular than at the present day, too much attention is bestowed upon one or two classes, while others more deserving of cultivation are almost or entirely excluded. The exhibition is not, or should not be the end and aim of all Rose growing, and fortunately those who grow Roses to beautify their gardens alone are increasing in numbers yearly. Exhibitions have done a great deal. By and through them the raising of new varieties has been and still is encouraged, and we have seen one or two classes improved to such an extent that it may surely be questioned whether it is possible to make them more perfect. The Hybrid Perpetuals and latterly the Teas have had all the attention that the skill of many growers and raisers could devote towards their improvement. These classes, therefore, have naturally been most prominent at the shows, and those who have taken up Rose growing in consequence of visiting a show have begun with the kinds they most admired. But with a collection of the two above named classes ever so complete the garden is not half representative of the great Rose family. Hybrid Perpetuals and Teas are perhaps not to be surpassed for effective display. This is a great point, but there are other attributes and charms to be sought after. June is the proverbial month of Roses. It is easy to have Roses then and at less cost and care than are essential for the production of the fine flowering later kinds. We must go back, however, to the types of modern Roses, and in these and kindred species and varieties we shall find Roses that come in the first days of June and often before that. We need not be so exclusive, as there is or can be made ample room for all in our gardens. June is a month of care and anxiety in the cultivation of Roses. A ceaseless watching for foes must be exercised. In the cultivation of the early Roses, however, there are none of these worrying details. We have only to plant groups of them as we should a common shrub and ever after leave them alone to grow as they will, some to make huge bushes, others to climb trees, and some to scramble down poor slopes or over dry banks where nothing so beautiful would thrive. We have some groups that are now perfect pictures on a sunny sloping border where besides are Weigelas, Deutzias and hardy Fuchsias. Whilst these last are hardly satisfactory and may eventually be removed, the Roses are exceedingly lovely and now full of blossom, whilst elsewhere only upon walls can a stray Rose bloom be found, and two or three weeks must elapse before groups of Teas can produce any effect. The Japan Rose (*Rosa rugosa*) is not depreciated in value because it is so easily grown. It blooms in the first days of June, and who could fail to admire its great buds and open

blossoms clustering in the richest leafage. It is a garden shrub of first rank, and beautiful from the bursting of buds till the fall of the leaf. Bushes of the double white Scotch Brier are perfect mounds of the purest whiteness, and the yellow-flowered kind is almost as profuse, whilst in the Austrian and Persian Yellow Briers we have a richness of colour not to be equalled by any species or variety succeeding them. The so called Copper Austrian Brier is about the most brilliant single Rose in existence, and a fine bush presents a truly gorgeous spectacle on a bright sunny day. It could hardly be scarcer in gardens if it was a rare and very expensive plant.

Many other species are of equal value, though not now enumerated, but *R. multiflora* or *P. ly-antha* must not be omitted. It is just the kind to climb and cover a tree. It is a pity that some have called it tender. I planted several about three years ago, and they promise to completely cover a low spreading Yew tree.

If we have walls and fences we can have many more early Roses, beginning with the Banksians, succeeded by the most glowing of all climbing kinds, namely, Fortune's Yellow. Unfortunately, it is a little tender, and a hard winter or an unkind spring may spoil all prospects, but if we give it the choicest spot the garden affords we shall surely be repaid with an effect of the greatest brilliancy. Again, it would be a pity if any of the many fine new Roses should supersede such an old favourite as *Jaune Desprez*. It is one of the earliest to flower, and though individually the flowers have not the good form and shape of those of many kinds, they come so profusely and in such clusters, and are so rich in delicious fragrance, that these charms will long be satisfying, and suffice to keep it in favour with many. *Reine Marie Henriette*, too, is one of the very best early Roses, clear and bright in colour, and probably the first among red Roses to open; two fine flowers were expanded this season by the second day of the present month. Doubtless those engaged in raising Roses might give us early-flowering kinds, and who shall estimate what gems have been destroyed with single or semi-double flowers, and vigour and freedom, kinds in every way adapted to plant in gardens. We cannot blame the raisers, as they work to supply existing demands, and these at present are for the large-flowered or exhibition kinds. The gardens of some of the most extensive Rose growers are almost destitute of Roses till July. They are too much occupied in growing great blooms for show to consider Rose growing from other points of view. A real Rose garden has yet to be made in which every type and section find a home and are planted extensively. Those who know the variety in existence can imagine how lovely such a Rose garden would be from the first days of June till the advent of severe frosts.

GROWER.

Hardy Azaleas.—Some seedlings, the result of crossing *A. occidentalis* and *A. mollis*, are now making a splendid show in the nurseries of Messrs. Isaac Davies and Sons, Brook Lane, Ormskirk. The plants are free-growing, and the beautifully scented flowers range in colour from nearly white to deep red. When better known they will form a valuable addition to our list of hardy Azaleas either for planting in the open or for forcing. These nurseries are now well worth a visit by lovers of hardy Azaleas, Rhododendrons, and such like. Amongst Rhododendrons I particularly noticed the following as being very striking: *Mrs. Isaac Davies*, carrying a very fine truss of pure white flowers with nearly black blotches; *Boule de Feu*, a rich scarlet, very fine; *Sir Henry Havelock*, a very fine scarlet with a good truss, and free-flowering; *Monarch*, a fine dark variety; *General Graham*, rich scarlet, with good bold foliage; *Model*, a large truss, the flowers very dark, and of fine form; *Cobden*, a rich dark variety with a very large truss; *Stanley Davies*, rich scarlet, and large truss; *Elaine*, white, with deep maroon blotches.—J. HATHAWAY, *Latham House, Ormskirk*.

FLOWER GARDEN.

MULLEINS.

THE Mulleins in cultivation in gardens are for the most part of only biennial duration. They are somewhat unsatisfactory plants to deal with on account of this, and also on account of their extreme susceptibility to cross-fertilisation. It is almost if not quite impossible to keep them true to name when a collection is grown; indeed, the only way if this be desired is to grow one or two species only in a garden, and these as far away from each other as possible. A great many of the species and varieties are, as a matter of fact, considerably enhanced by crossing, and groups of a mixed lot of these hybrids are at once interesting and very beautiful. The stately flower-stems and large showy yellow blooms of the species allied to *Thapsus* mark them as wild garden flowers, and where the soil is rich and stiffish no better or showier plants can be grown. In the rockery we find them quite indispensable, and encourage rather than prevent their seeding amongst the mixed shrubs, &c., in the vicinity of the rock garden. They are also good border plants, and rarely if ever fail to reproduce themselves freely from self-sown seed.

VERBASCUM CHAIXI, OR V. VERNALE, is one of the true perennial species now in cultivation. This may apply only on warm soils. It often attains to 10 feet in height, and when well grown forms a most imposing group. The leaves, very large and bright green, come up early and are very effective. The flowers are large, yellow, with purple filaments, very striking, and last a long time in good condition. For the back row of mixed borders, for isolated groups, and amongst mixed shrubs this species is very effective, and as it gives little or no trouble, is certainly one of the best for general purposes in a garden. Of this there are two hybrids, *semi-lanatum* and *Freynianum*, both showy. Native of Europe.

V. CRASSIFOLIUM.—A very distinct and charming species, with yellowish tomentose woolly leaves and robust spikes of large yellow flowers. It is a native of Portugal, and one of the few species that will do in a light sandy soil.

V. CUPREUM.—A species nearly allied to *V. phoeniceum*, quite hardy, and a true perennial. It has cordate wrinkled leaves and copper-coloured flowers, very quaint and interesting. It is perhaps a hybrid of *V. phoeniceum*, flowering May to August. South Europe.

V. OLYMPICUM.—A gigantic *V. Thapsus*, and one of the grandest of the genus. The flower-stems in strong specimens attain to from 6 feet to 10 feet in height, the flowers very large, rich yellow, the woolly leaves forming large rosettes. A biennial from the Orient.

V. PHOENICEUM.—A perennial species, and one of the very best for mixed borders in small gardens. It is very variable, there being white, violet, lilac, rose, deep violet, and purple-flowered varieties. It continues flowering from May to August, and when doing well is a very striking plant. Native of South Europe.

V. PHLOMIOIDES (the large woolly-leaved Mullein) is a biennial and very fine in groups. The flowers are large, pale yellow with purple filaments.

Robust specimens reach a height of from 6 feet to 8 feet. South Europe. *Australe* and *Sartori* are well-known and very desirable varieties.

THE PYRAMIDAL MULLEIN (*V. pyramidatum*), with its candelabrum-like branches of bright yellow flowers, is a very effective border plant. It is perennial on warm rich soils, and is very effective with its towering flower-stems and huge rosettes



Verbascum nigrum var. *album*. Engraved for THE GARDEN from a photograph sent by Miss Wolley Dod, Edge Hall, Malpas.

of crisped leaves. Native of the Caucasus and Siberia.

All the *Verbascums* are worth a place in the garden if only they could be kept true, but in the absence of this, the hybrids, which are always showy and in some few cases differ little from the types, may well be grown.

Amongst the species to be noted as worth procuring should opportunity occur are *V. macrurum*, *V. Thapsus* and hybrids, *V. longifolium*, *V. virgatum*, *V. Blattaria* and *blattarioides*, *V. niveum*, *V. Boerhavi*, *V. sinuatum*, *V. nigrum* and vars., *V. orientale*, &c. All may be readily raised from seed, and are well worth taking care of.

D. K.

PYRETHRUMS.

THESE perennials are flowering finely this summer, because the winter did them little harm, and the present fine weather enables the blooms to display their best form and colour. It is said that the double varieties are as good as they will be, in fact are nearly perfection. Naturally, very much depends upon what is esteemed to be perfection, but the ordinary florist doubtless regards exceeding density and very rotund form as being perfection in a *Pyrethrum* flower. That was the florist's estimate of a perfect *Chrysanthemum* until the Japanese forms came to be so widely grown, and now are so beautiful and so popular. May we not hope that in time it will be possible to give to the double *Pyrethrum* some of that very variable, quaint, and beautiful character which has made the Japanese *Chrysanthemum* the most popular of plants in cultivation. The break into single form is of course not new, but so long as the energies of raisers were directed to the production of improved double varieties the singles were rejected. When, however, it was found that there was a distinct form of beauty in the latter, and that the public demanded them, then were they made popular favourites, and exceptionally beautiful are they. We have plenty of white and yellow so-called *Marqueteries*, but among the single *Pyrethrums* there are such beautiful colours, that many who see them for the first time find it hard to believe that they are real flowers. Probably no firm has done so much to develop the single section as the Messrs. Kelway, and their latest introduction, *James Kelway*, colour rich vermilion, a blood-crimson, is certainly one of the most beautiful conceivable. They have also capital whites in *Princess Marie*, very broad petals, and *Princess Irene*, having three and four layers of broad petals, really a fine semi-double. *Marsilla* and *alticans*, both white, have long loose petals, as also have *Cora*, flesh; *Balericus*, mauve-pink; *Camilla*, rosy pink; *Agnes Mary*, violet-red, very beautiful; *Prince Ferdinand*, heavy shaded red; and *Sir Hugo*, rosy crimson, very rich. I rather prefer these long-petalled flowers, as being less formal than are those having broad short petals. Still, all are very pleasing. Of doubles there are some forms which bear a close resemblance to an uneven quilled *Aster*, such as *Carl Vogt*, pure white, and very fine, which seems to indicate great possibilities as to variation if followed up. This is a flower, however, that would probably please the ordinary gardener better than the florist. There is a wide distinction in colour between this fine white and *Melton*, a smaller and very compact

formed flower of a rich rosy crimson colour—indeed the deepest coloured flower in the doubles yet seen; although this is by no means comparable to *James Kelway* in vividness or richness. An even larger flower than *Carl Vogt* is *Ne Plus Ultra*, which has a white ground tinged with mauve. A very taking flower having flattish broad tips to the petals is *M. Darrell*, colour rosy carmine. This

is one of the most compact formed of all the doubles. J. N. Twerdy is of a semi-incurved form in its earlier stages, but when the centre fills later it is a very fine variety of a rich rosy red hue. Leonard Kelway is a charming reddish pink of fine form, whilst deeper still is Evelyn Kelway, flowers 4 inches over and of a soft, rosy red hue. Not so large, but a remarkably compact flower is Duchess of Teck. The best yellow so far is Pericles, the centre yellow with points of petals and guard petals flesh-tinted. This is a colour which needs great development. It is found that plants two or three years old produce the finest flowers, but clumps endure many years if annually treated to a mulching of decayed manure. A. D.

EARLY AUTUMN AND LATE SPRING VIOLETS.

So much talent and energy have been thrown into the cultivation of winter Violets, that there seems some danger of there being a dearth of Violets in their natural season—the spring. This has partly arisen from change of varieties. On the whole, perhaps, the old single and double Russian Violets were the earliest flowering, and when these were chiefly grown it was no uncommon thing to anticipate the spring in the early days of November, and to prolong the Violet season until May or later. The same thing, however, can be done with equal ease and greater success now with our best modern sorts. Not, however, that more Violets can be gathered from any given space than would be yielded by these two most prolific and very fragrant varieties. Could their stalks only be elongated to enable them to be worked up into bouquets with greater facility, these two old favourites and others might be again largely grown. With the existing popular sorts, a large extension of the Violet season at both ends may be made without encroaching on the winter season of blossoming under glass. For the earliest flowering through September and October in the open air the plants should be propagated in March. This is an easy matter where a supply of Violets under glass is grown from October to April. The suckers and offsets should be left on the earliest batches of flowering plants. These will not injure the flowers after the latter are half or more opened. And so soon as the bulk of the flowers is gathered the earliest batches of plants should be divided, and all the sturdiest converted into new plants. As to when and how this should be done depends very much on the weather and other circumstances. The frame used for forwarding the first Violets forms an excellent place in which to root and start the earliest autumnal flowering ones. If this plan is adopted, the earliest possible suitable opportunity should be chosen to place out this first crop in the mode and manner so frequently explained by different growers. Supposing this, however, to be done in March, it is well to place a few boughs among the early Violet plants to protect them from biting winds and stinging frosts. Most will prefer keeping them under the shelter of glass till April. Carefully hardened off so soon as rooted, these early Violets bear the cold of our springs better than most growers of Violets could expect. The latest propagation of Violets for late blossoming in the open air should take place not later than the end of May, and several batches should be propagated between the earliest and latest lots if Violets are to be gathered in plenty from August or September until June.

All our most popular and sweetest single and double Violets may be had in long succession in the open through this simple process of successive propagation. The concentration of as much flowering force as is practicable in youthful crowns—to be ripened and unfolded at different periods of the year—is the secret of Violets in succession in the open air for many months at a stretch, weather permitting; and when the latter proves too cold to permit of the unfolding of the hardiest Violets, few things can be easier than covering them where they grow with cloches, hand-lights, or glass frames. To facilitate

this it is good practice and is sure to prove especially useful in preventing occasional scarcities of Violets between those grown under glass in the usual way and those picked from the open to plant or grow some blocks of the latter the size of frames, so that the glass could be placed over the Violets without trouble or disturbance during storms and the existence of specially severe weather. These intermediary Violets in a sort of half-way house between the outside and the in would in no way interfere with the winter supply under glass unless to add to them, nor those gathered from the open air in the early and late autumn throughout the winter and early spring. Only those who have grown Violets in the open air in the hardest possible manner, and have packed as much fertility as possible into their well-filled crowns, can have any idea of the enormous quantity of good flowers that may be gathered from the open, or with the plants closely packed along the warm front of south or west walls.

Violets may also be retarded till midsummer or later by simply transferring well-matured plants to the cool shadow of east or north walls any time in January or February. The best variety for late-flowering batches is the Neapolitan, though the magnificent double white Comte de Brazza is almost equally useful for late work. The best for earliest autumnal flowering in the open is Marie Louise, or the old double Russian, that makes less wood and produces more bloom in less time from a given area than any other Violet in cultivation. For the same reason the old single Russian will beat all such varieties as The Czar, Queen Victoria, and odoratissima for early blooming. The odoratissima is rather the latest and the largest of the other two fine singles just named and most generally grown. The stalks of these Violets are models of length, and while the foliage is most useful for mixing with Violets in vases, baskets, bouquets, &c., one sometimes would wish them just a little smaller to be able to pack more flowering crowns into given spaces. This suggests another and very important hint as to the culture of Violets for blooming in the open air through the autumn, winter, spring, and, so far as may be possible, also the summer months. The culture and treatment from first to last must aim at compactness, solidity, maturity. These characteristics result in two things, the greatest possible hardiness, and crowns smothered with embryo blossoms, eagerly watching and waiting for the stimulus of stray sunbeams, soft dew-drops and genial air to transform them into full-fledged fragrance-filled Violets. CALEDONIAN.

Self-coloured flowers.—There are two flowers spoilt by injudicious crossing, and these are the Snapdragon and Sweet William. The former of the two is seldom grown in beds of one distinct colour, as it should be to see the full richness and beauty of the flowers. Florists have raised up a class of flowers in which the colour is laid on in patches and stripes—a mixture that is both weak and ineffective. A bed of a pure white self Snapdragon, a rich, deep crimson, or any other bright decided colour, is handsome and bold, not spotty, as beds of curiously coloured seedlings. The self varieties will have to be struck from cuttings, as they do not come true from seed, but cuttings made of the half-ripened shoots strike readily under a handglass in a shady border. The same defect is seen in the Sweet William as in the Snapdragon. There is too much mixture in the colours, and it is no exaggeration to say that there is not a strain of decided colours to be had. The white and the crimson selfs are rich and telling—far more so than the curiously coloured flowers, which look confused and weak in the garden.

Wood Hyacinths in the pleasure ground.—We have lately seen at Kew one fine effect of the common Bluebell—acres of it forming an avenue of blue bordering a drive, and in a wood quite clear and open below. Common as this beautiful plant is in our woods, it is so often concealed by the

underwood that we do not see its full effect as we could in this case. A more beautiful picture could hardly be seen, and it shows well how much we gain by developing the beauty of thoroughly hardy native things when we have the chance. This plant is so common that many will not need to take any special pains to grow it; but under large trees in garden ground we might often plant to get this charming effect of the sheets of blue. We live among hundreds of acres of the common Bluebell, yet owing to the dense undergrowth, and sometimes to the leaves appearing before this flower shows itself, we miss its beauty, except in some glimpses here and there. Among all the plants of the same genus that come from any part of the world we know of nothing quite so good as the native wood Hyacinth, and, common as it is, we should find it to our advantage to bring it into the garden landscape and the many pleasure grounds in which there are fully grown trees, leaving free view underneath their branches.—*Field*.

CARNATION NOTES.

THE busy season among Carnations has commenced, and from now until the layers are once more planted many and varied are the details in the observance and practice of which success is attained. Rarely, I think, have the plants made such rapid progress as during this last month. Frosts lingered so long, and for the time of year were of considerable severity, so that it seemed as if a fresh start would never be made, but roots were extending far and wide in genial soil, and when favourable conditions came growth was rapid, being further encouraged by the top-dressing which we now always apply in spring. A little fresh material added to the surface of the beds or borders in spring produces good results. Rank manure the Carnation detests above ground or below, but it takes a special delight in fresh loam. We may make the top-dressing to serve a double purpose, for if a suitable mixture is made it not only encourages growth and bloom, but is also a fine rooting medium upon which to layer, provided fresh stock has to be raised from the flowering plants. Loam always forms the chief part of our top-dressing mixture, and a little thoroughly decayed leaf-mould is added, but not much of this should be used in soils at all inclined to be light. If I had to do with a very heavy soil I should use it extensively. The two ingredients that do the most good and cause the grass to quickly assume a healthy colour are soot and wood ashes, which by the way are easily obtainable by the majority of Carnation growers. In the future I shall not only use these two things in the top-dressing, but previous to digging the ground in autumn at planting time they will be applied. Wireworm does not relish either, and with their aid we do not require so much of other manure which after repeated application in necessary quantity tends to unduly lighten the soil.

STAKING AND TYING

now demand attention, and take a great deal of time where Carnations are grown in quantity. Careful tying will materially enhance the effect when in bloom, especially as regards the strong erect kinds, of which it is possible to loosely tie several spikes to one stick, and in such a manner that the support is hardly seen. Staking and tying, though we regard them as an evil, must be done, and after all the mechanical appliances that have been tried we must come back to the original form of support and confess that nothing beats a stick, which should be as thin as possible consistent with affording sufficient support. Twisted wires with the spike supported in the coil look well drawn on paper, but the growing spike refuses to follow the

bends of its intended support, and any attempt to force it is usually disastrous. Spray branches were to supersede sticks, but if used to an extent sufficient to effect the desired end, there will be a great deal more wood visible than many would tolerate. We get an abundance of Hazel suckers, and wish for nothing better. Those who cannot, will find deal sticks very cheap per thousand.

SEEDLINGS.

The strongest plants are making a tremendous show for bloom, and at least some good things should be obtained, as the produce is that of own-saved seed gathered from the very best varieties. Given fair treatment, it is marvellous what great plants can be grown from seed, and the practice should be widely adopted. It gives new zest each year, for the pleasure of anticipating the blooming of the seedlings is as great as that realised in the annual blooming of the kinds we have known and grown for years. It is saying a great deal when we assert that the hardest, most vigorous, and most profuse blooming plants are those raised from seed, but it is perfectly true. So good are the results and so fine the progeny, that some have been led to advocate doing away with names, but this, I fancy, would be a decided retrograde step. Let us grant the seedlings all the merit they deserve, but it is rather too much to say we can depend upon them entirely and trust to chance to reproduce fine kinds such as we now individualise because of special excellence, and by naming ensure that all who wish for the particular kind can obtain it. Even strong seedling plants, however, cannot bear ill treatment with impunity, for those that were cropped over closely by pheasants are weak in growth with puny flower-stems that cannot possibly bear good flowers. Seedlings for next year are now planted in the open air in nursery beds. They are nothing like so numerous as in the previous year, for seed last autumn was difficult to obtain, scores of pods that had begun to swell rotting away through excess of wet. It must be a fine summer and autumn to bring any quantity of seed to perfection upon plants in the open ground.

PREPARATIONS FOR LAYERING.

This refers to stock planted in nursery quarters expressly for providing early, strong, and healthy layers. The wisdom of such a plan is again exemplified. In the flower garden there is a group of a fine red self, half of which consists of plants raised in the nursery, but as the stock was insufficient, layers were put down upon the flowering plants. The produce from these last was only moderate, as the plants flowered so profusely, and during the winter and spring many of the layers died, leaving large gaps, whilst the others are all that can be desired. Present preparations for layering merely consist in encouraging growth. Plants grown expressly for the purpose need not be allowed to spend half their energy in flower-production. But, on the other hand, care is needed, as the premature removal of the flower-spike may defeat the end the cultivator has in view, and the shoots that were to have been layers may start off vigorously and produce flowers themselves. The guiding principle must be the strength of the plant. If healthy, but rather weak, it needs all that the roots that can give it, but if of fair strength I always let the flower-spike grow almost or quite to the showing of buds, and then it can be sacrificed. Those who desire to keep up a display of any extent in the flower garden year after year will find that many advantages are derived from this

plan. It is a pity that Carnations cannot be raised freely from cuttings. By merely thinning the shoots we could even at the present time get hundreds of nice cuttings, but if a fair percentage was rooted, the plants then obtained would not be anything like so strong as those from layers to be put down a month hence.

PESTS.

Carnations, like Roses, are beset with many enemies. The most treacherous of all is the wireworm, but happily it does not trouble us much now. At the present time the spittle fly is very much in evidence. I do not know if it really does much harm. Perhaps someone who has had the misfortune to suffer can impart information as to the nature and extent of its depredations. A stray caterpillar, should one happen to appear, must be disposed of speedily. Green-fly is sometimes very troublesome with me, this doubtless coming from the Roses. I have had to dip quantities of young flower-spikes in insecticide to destroy the pest. This year happily up to the present, Carnations and Roses alike have not been troubled, the few that have appeared having succumbed to the beautiful rains that have come just when needed and done so much to make present prospects so cheerful and full of promise for the near future.

A. H.

Onosma tauricum, when grown in a suitable place in somewhat sandy and well-drained soil, forms a very beautiful object. This is a showy plant, producing in abundance large tubular bell-shaped flowers of a clear bright golden yellow colour. It grows about a foot or slightly more in height. It is apt to get lost in winter; therefore care must be taken in planting to drain the position in the most thorough manner, and not to overload the roots with soil.—W. H. G.

Spiræa Ulmaria aurea.—*Spiræas*, both of a herbaceous and shrubby character, are remarkable more for the beauty of their blossoms than for any other feature, but in this variety of our own native Meadow-sweet it is the foliage which claims notice, as in a sunny spot it is (especially in the spring) of a rich deep golden hue, and vies with the golden-leaved Valerian (*Valeriana Phu aurea*) as among the best hardy plants of a herbaceous character with foliage of that tint. In both cases the leaves are more richly coloured where fully exposed to the rays of the sun than is the case where they are wholly or partially shaded.—T.

Primula japonica.—I was pleased to see this so well spoken of in THE GARDEN on page 506. This fine Primrose has risen into a giant under "Sanguinea's" fostering care, but it is doubtful if this is all gain. Fortunately, the succulent stems like Reeds, have escaped the rather severe frosts of May. This is not always so, and a moderate growth is the safest for this as well as even hardier spring-flowering plants. I wish, however, to give a caution against its being considered perfectly hardy in England. That was once my opinion, and one season I put out two thousand seedlings, with the result of losing all with the exception of about twenty plants; hence I would strongly advise the safeguard recommended by "Sanguinea" of a slight protection to the crowns. I have lately seen this Primrose in good condition on a small floating island on a lake, where most of its roots must be under water all the year round, and little expected such strong confirmation so soon of its semi-aquatic character as that afforded by "Sanguinea" (p. 506).—D. T. F.

Androsaces from the Pyrenees.—A friend of mine who was lately in this district sends me in a well-packed tin box plants of the beautiful *A. villosa*, covered with its pale rose-coloured flowers with a yellow eye, and the leaves covered with downy hairs on the under side. He says, "It is very pretty growing on

the ledge of the limestone rocks, which it festoons with a perfect veil of beauty." At home under cultivation it should be surrounded with limestone and be planted in very stony places. The drainage should be perfect, and the staple good fibrous loam mixed with a little peat, using limestone in the soil. Another plant from the same box marked No. 2 is the exquisite *A. carnea*. The flowers are of a rosy pink, with a pale yellow centre. My friend writes, "It is a veritable gem." The plant No. 3 appears to be *A. pubescens*, but it had shrivelled; the flowers were white with a soft yellow eye. These are plants that can be easily preserved on a properly constructed rockery, and deserve the attention of everyone interested in choice hardy plants.—W. H. G.

GROWING ALPINE PLANTS IN SPHAGNUM MOSS.

LAST summer in a contemporary there was an article by M. H. Correvon recommending the growing of alpine plants in Sphagnum Moss. Later on I had an opportunity of seeing M. Correvon's trial cultures at Geneva, where alpine plants planted in Sphagnum were in a most flourishing condition exposed to the full sun on the top of a dry wall. In the article referred to *Arnica montana* was specially mentioned as succeeding well if treated in this way. Induced by these statements, I have tried a series of experiments at Messrs. Veitch's nurseries, Exeter, and the result leads me to believe that planting alpine plants in Sphagnum Moss alone is not to be generally recommended for England, or at least not for Devonshire, though it may be an excellent way for counteracting the injurious effects of the dry atmosphere prevailing in the lower parts of Switzerland and Italy, where many plants would be scorched by the action of a powerful sun unless surrounded by a protecting veil of vapour, such as would be produced by the use of Sphagnum.

Early last autumn I planted several *Arnica montana* in Sphagnum Moss only, others in a mixture of peat, loam, and small broken stones, while a third lot was planted in the same mixture, but with Sphagnum Moss added to the soil. All these plants are plunged with their pots and are growing side by side, but the difference in their appearance is most marked.

The plants growing in Sphagnum Moss only have yellow leaves and are looking sickly, while both of the other lots are most healthy and flourishing, especially in the case where Sphagnum was mixed with the soil. The same experiments tried with *Gentiana bavarica* and other moisture-loving plants have led to precisely the same results, and have strengthened my belief that growing alpine plants in Sphagnum Moss alone is not to be recommended for the moist climate of this country.

On the other hand, Sphagnum Moss cannot be too highly recommended for mixing with soil or for mulching the surface around moisture-loving plants like *Ramondia*, *Gentiana bavarica*, *Soldanella*, *Azalea procumbens*, and others which, treated in this way at Exeter, have given the most satisfactory results.

F. W. MEYER.

Exeter.

Spiræa astilboides floribunda.—This is the latest addition to the herbaceous section of *Spiræas*, for though sent out last year it is only this spring that we have seen it in a condition to compare with the others in cultivation. The *Spiræa* in question is of Belgian origin and is said to have originated as a seedling from a plant of *S. astilboides* which had presumably been fertilised with the pollen of *S. japonica*, for the newer kind is in general appearance about midway between the two. The foliage partakes largely of the characters of the two species, as the leaflets are larger and rougher than those of *S. japonica*, and at the same time they are of a much brighter green than those of *S. astilboides* and do not become bronzed with exposure. The inflorescence is more in the way of that of *Spiræa japonica* than

of that of the other, being more erect and of a whiter tint than is to be found in *S. astilboides*. It is, moreover, a larger-growing plant than *S. japonica*. This newer *Spiræa* is said in Belgium to have resisted without injury a degree of cold fatal to many of the *S. astilboides*. We have now several of these herbaceous *Spiræas* available for pot culture, as in addition to the three above mentioned there is the comparatively new *S. japonica compacta multiflora*, which differs from the ordinary kind in the inflorescence being far more dense and compact, but it is in my opinion inferior to the common form. This undoubtedly originated as a sport from the golden-veined variety (*reticulata*), which has been in cultivation some years and whose flowers are produced exactly as in *compacta multiflora*, so that it is simply a case of the leaves reverting to their normal tint. The leaves of the golden-veined variety are very pretty when they first make their appearance and for some little time afterwards, but they lose a good deal of their colour before the flowers expand.—H. P.

ORCHARD AND FRUIT GARDEN.

IMPORTED FRUITS.

It is the opinion of an experienced Covent Garden salesman that Peach forcing in this country is doomed. It cannot well be otherwise, for Peaches can be grown at the Cape with as much ease and more certainty than Apples are with us. Formerly they were of very inferior quality, but of late years orchards comprising the kinds most in favour in our markets have been established, and these are now yielding fruit almost or quite equal to that produced under glass in this country. They cost so little to grow, that very moderate returns render their culture profitable, and as they can be brought over in about a fortnight and the packing is well done, they come to hand in excellent condition. Consignments this spring have had the effect of considerably lowering the value of home-grown produce, and as the amount of fruit available for export will shortly be almost unlimited, the outlook of home growers is very gloomy. Grapes, too, we are sure to get in increasing quantity from the same source. Up to the present these have consisted of the thick-skinned kinds such as consumers have long been familiar with, and it is the opinion of some who are in a position to form a good judgment that these Cape Grapes will in time destroy the Lisbon trade, bringing prices down to such a low point, that it will not pay the Portuguese growers to export. Naturally, Grapes can be grown at less expense at the Cape than in Portugal, and as culture improves there and the capabilities of the climate are fully realised, the produce will be much finer. This kind of Grape does not hurt English growers very much, but once the ball is set rolling, who can tell where it will stop. Hamburg Grapes are too thin-skinned to bear the transit, but I fear that there will be no insurmountable barrier to the safe passage of the thicker-skinned Alicante and Gros Colman. A plentiful supply of these would seriously damage the Grape growers' trade in this country. Up to the present, the attempts that have been made to import Strawberries in really good condition have been baffled by the soft nature of this fruit. English growers also have a safeguard in the impossibility of producing Strawberries in the open air, even in more favoured climates than ours, equal in appearance to the best growths under glass. The Strawberry is so wonderfully susceptible to climatal variations, that it requires some protection to bring it to the high degree of perfection in which it is

seen in the London markets at this season of the year. We get large quantities of this fruit from France, but the quality is so inferior as not to influence the price of really well-grown English samples. Badly coloured fruit of course suffers by the foreign competition. This spring we have had Strawberries from America, but I do not think that the experiment has met with the success that was hoped for it. The fruit comes to hand in eatable condition, but in flavour it is not better than that we get from France. These Strawberries are, I believe, brought over in a temperature but a little above freezing, and it was thought that flavour and appearance would thus be preserved. This does not, however, appear to be the case, and although we shall doubtless get large supplies of these American Strawberries, I doubt if home growers have much to fear from them. As regards Apples, it is the opinion of one who has the opportunity of seeing what is being done in the way of hardy fruit culture in this country that in a few years it will hardly pay the Americans to send us their produce. Such quantities of trees have been and are being planted and with discrimination with respect to varieties, that in fair seasons we shall grow quite enough to supply our markets in abundance. In many districts where only very inferior kinds have been grown, the trees have been grafted with good market varieties. In due course the result of all this work will be apparent, and the poor, rubbishy samples that can hardly be cleared from the London markets at any price will give place to sterling kinds. With Tasmanian Apples the case is different. The season at which they arrive gives them a great command of our markets, and they will not damage the sale of home-grown fruit, except, perhaps, the latest kinds that, like the Wellington, can be kept in good condition till June. English growers of this Apple will, however, find some comfort in the fact that the Tasmanian climate takes the acidity from it. It comes to us in a more or less sweet condition, and is thus deprived of a quality that renders it so valuable late in the season for cooking. For this reason it is more than probable that Tasmanian growers will not be able to compete with us in the growth of Apples used otherwise than for eating in their natural condition.

J. C. B.

Setting Grapes.—After some years of observation, I have come to the conclusion that the stigma of all Grape flowers when in proper condition for fertilisation will appear moist as if touched with varnish, this appearance indicating that when pollen comes in contact it readily adheres; whereas, when, as is the case with the Alnwick Seedling, a glistening globule of viscous matter protrudes, unassisted fertilisation is impossible. Having here two Vines of the above variety, I have had ample opportunity to prove that such is the case. Two years ago I took charge here after all Grapes were set, and until now I have had to be content with a very meagre crop from both Vines, syringing or gentle tapping being both unavailing to produce a good set. This year each Vine has a crop of fourteen well-set bunches. To produce this result I have not hesitated to use the palm of the hand, as recommended by Mr. Iggulden (p. 341), but I attribute my success still more to the fact that I first removed the superabundance of viscous matter and then applied the pollen. My foreman went over one bunch and removed the globules with the end of his finger, afterwards shaking the bunch, and in this way secured a good set. I used conical-shaped brushes made of scraps of imitation sealskin. With one I removed the globules, and its besmeared appearance caused me to think that pollen so mixed might not be an effectual fertiliser; therefore, with the other brush I collected

pollen from the Alicante, getting it so full as to change its colour; then I gently rolled it over the sides of Alnwick Seedling, with the result above stated, and having attained success so easily, I shall always adopt the same plan. The besmeared brush when left till dry appeared as if viscous matter had evaporated, leaving no adhesiveness nor trace, but pollen was in abundance and flew in clouds when touched. Does this indicate that Mr. G. H. Engleheart is correct when he says (p. 438) "by 'removing' or 'moving' it he really does the right thing with it, i.e., rubs the pollen into it and smears the mixture well over the stigmatic surface?" I ask, would this smeared mixture fertilise and be as efficient as the Alicante pollen I applied? THOMAS REID, *Woodcote, Newport, Salop.*

RIPE MELONS IN SUCCESSION ON THE SAME PLANTS.

BEFORE totally condemning a practice a fair trial ought first to be given it, and this very reasonable condition has evidently not been observed by "Caledonian." Not only has he never given the plan I advocate a trial, but he does not even read sufficiently carefully to fully appreciate what I advanced on p. 463. Nor is this all I have to complain of. I carefully avoided exaggeration—in fact, rather understated what has been done in the way of growing heavy crops in these gardens; whereas, "Caledonian" draws a very long bow indeed. What do Melon growers generally think of the following: "Taking an average of Melon plants, they ripen six fruits each of say 6 lbs. per fruit or produce from 36 lbs. to 40 lbs. of luscious Melons per plant" (see p. 519)? Instead of this being a fair average, it is exactly the reverse. Occasionally instances are to be met with of plants producing six or more fruits weighing on an average 6 lbs., and an old foreman of mine has recalled to my memory that we once had a plant of William Tillery which ripened thirteen fruits, all of great weight, the heaviest Melon weighing 12 lbs. Such isolated cases, however, do not greatly affect the average, and which is nearer 18 lbs. per plant than double that weight. Even if it were possible for all growers to produce such extraordinary crops as my critic writes so glibly about, such heavy fruit would be most undesirable, a dozen fruit averaging 3 lbs each being of far more service and value than fewer in number and approaching the size of footballs. As it happens, the majority of growers would only be too pleased to be always certain of having an average of six fruits—large or small—per plant. Too often it is a case of one or two fruits taking the lead and the rest failing to swell, and it is that difficulty we avoid by simply treating the plants more liberally at the roots. Allowing the roots to feed principally in decaying vegetable matter in the shape of an old hotbed is undoubtedly a frequent cause of a gross, unfruitful habit and an early collapse of plant. Avoid this by adding soil freely, also taking care to dispose this so that the water and liquid manure also freely used are not wasted, and there will be no difficulty about setting abundance of fruit. In our case more are cut off than are left on the plants.

Admitting for the purposes of my argument that six fruits can easily be set and grown to their full size on one plant and dried up in the good old style, or as advocated by "Caledonian," will they not all be fit for use at much the same time? Forty pounds of Melon of the description my opponent describes as luscious and which I consider uneatable are more than most families require in a week, but when the produce of six plants, or perhaps more, has to be dealt with, there must be a fearful waste

somewhere. On paper the practice of raising and fruiting successional batches of plants reads feasible enough, but the majority of gardeners have to be content with one compartment, or even only the half of a forcing house in which to grow their Melons. Even in this case successional plants might be brought on, but it is easier to advise the practice than to carry it out, especially if "dryness of air amounting to abso-



Verbascum phlomoides. (See p. 551.)

lute aridity" is one of the chief elements of success in properly ripening the fruit. Now if my advice, as given on p. 463, is followed, it will be a comparatively easy matter to set the first pair of fruit that show on a plant, another pair nearly or quite a week later, and another pair several days later still. The necessity for drying off the plants near the ripening period I thought quite an obsolete notion; at any rate no gardener has ventured of late years to recommend it, for the simple reason that much the best fruits are cut from plants kept in good health and vigour. As a proof of this, I have only to advise a grower to cut a fruit well cracked at the foot stalk from a plant in full leaf and to keep it till the rind is soft, and then compare it with one obtained from a dried-off plant. The lusciousness will be all in favour of the fruit cut from a healthy plant, or else I have never yet tasted a good Melon. Any way, if I had a large and handsome fruit from a plant in full leaf and another equally good in appearance from a dried-off plant, it would be the former that I should show in the Melon classes at a flower show, the latter being good enough for a collection of fruit where judges do not adopt tasting tactics. Holding these views, I am fully justified in setting a good succession of fruit on each plant, and in strongly recommending others, including "Caledonian," to do the same, and if shading is avoided, there is nothing to prevent watering and feeding the plants at the roots as long as any Melons are swelling. Since I penned my first paper on this subject numerous other fruits have set on the batch of plants described, half of which were

cut off when near the size of tennis balls, so that we shall have a good succession for several weeks longer. The Cucumber analogy, therefore, holds good; in fact, we are doing better with Melons than most people can with the former, ripening fruit on Cucumber plants effectually checking their productiveness. In order to prove that I have every confidence in my practice with Melons, I shall be glad to send a Melon cut from a plant carrying a good succession of fruit for the editor of THE GARDEN to compare with one grown on the drying-off system. It will not weigh 6 lbs. nor anything like it, large fruit not being appreciated hereabouts.—W. IGGULDEN.

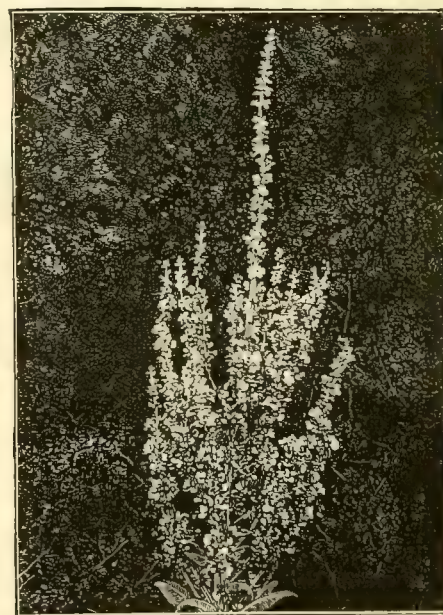
— It is nearly fifteen years since I detailed in a contemporary how to take several crops of Melons from the same plants, and I have several times during the interval recommended the adoption of the practice under certain conditions; therefore, I feel called upon to notice "Caledonian's" criticism (p. 519) of Mr. Iggulden's article which appeared in THE GARDEN for May 21 (p. 463) under the above heading. I fail to see why the securing of a second, third, fourth or fifth crop of Melons from the same plants should in any way (when details are properly attended to) endanger the quality of the preceding crop. "Caledonian" will, I am sure, admit that clean, vigorous, free-growing plants are more likely to produce high-quality Melons than plants the reverse of these conditions are. There is no reason why Melon plants cannot be kept in a vigorous, clean, and fruitful state from the end of April to the middle or end of December where proper accommodation is provided for doing so, maintaining the necessary buoyant atmosphere during the time each crop of fruit is ripening. Surely this can easily be done without in any way impairing the vigour and cleanliness of the plants. To obtain successional crops of high-class Melons from the same plants, it is absolutely necessary to maintain them in good heart—clean and vigorous—from beginning to end. This can easily be done by pricking over the surface of the soil in which the plants are growing as soon as each succeeding batch of ripe fruit is cut, then top-dressing with good sound loam and horse-droppings in the proportion of four parts of the former to one of the latter, watering the whole with tepid water and afterwards giving liberal supplies of diluted liquid manure when water is necessary at the roots until the fruit begins to colour. Surface-dressings of some reliable fertiliser immediately before giving clear water at the roots will answer the same purpose, at the same time syringing the foliage thoroughly with clean tepid water morning and afternoon at closing time until the fruits begin to colour, when the usual drier and more airy atmosphere should once more be maintained. Then it is an easy matter to "set" the necessary number of fruit for the next crop, the conditions being congenial to the special requirements of the plant in both stages of growth. Thus treated, I have cut ripe Melons from the end of April into December off the same plants, which latter appeared to be as full of vigour at the end as they were at the beginning.

I said that I have frequently advocated the adoption of the practice indicated above under certain conditions. I will simply state what those conditions are and then leave "Caledonian" to be dealt with by Mr. Iggulden. They are briefly these: Amateurs and others who may only have one house or pit in which to grow Melons, and who are at the same time anxious to obtain therefrom as many ripe Melons as they possibly can in one season, can only satisfy their wish by growing their plants in the manner described above, and by following this method of procedure a very good succession of ripe Melons may be obtained throughout the season. "Caledonian" very properly inquires, "What advantage is derived by taking several crops of Melons from the same plants?" He will find the answer to that question in the facts just stated. "Caledonian" will excuse me saying that he is not quite accurate in saying in

the last few lines of his article that "successional crops of Melons on the same plants are an impossibility, and if they were possible they are not worth the candle," as I have time after time fully demonstrated the facts, namely, that four or five crops of Melons of first-rate quality can be taken from the same plants in one season.—H. W. WARD.

THE AMATEUR'S VINERY.

AMONG the subscribers to THE GARDEN are a considerable number of amateurs who take a keen interest in gardening, but though they frequently succeed well in some departments of horticulture, only a very few seem capable of growing good Grapes. Probably this is largely due to the superior attractions of flower culture, the Vines, instead of being considered of primary importance, having to suffer various indignities in order that pot plants in the same house may have every opportunity of doing well. As it happens, there is no good reason why it should not be possible to grow a collection of greenhouse plants in a house with Vines during a greater part of the year or, say, when pot plants are most appreciated. During the summer and early autumn months there ought to be plenty of flowers outside, and instead, therefore, of crowding the house or houses at that time of the year with Fuchsias, Pelargoniums, Begonias and such like, these if in pots had far better be located in a sheltered sunny position outside, leaving Ferns, foliage Begonias and other shade-enduring plants under the Vines. In order that pot plants should not be unduly shaded, I have known amateurs and even men calling themselves professional gardeners to so denude the Vines of foliage as to actually leave nearly as many bunches of Grapes as leaves, and yet fail to understand why the quality of the crop is so poor, and why the Vines gradually become comparatively worthless. It is not possible to point out in a single paper what amateurs ought to avoid and what they must do if good Grapes are desired, but during the coming season I hope to be able to make it abundantly clear how much may be



Verbascum olympicum. (See p. 551.)

done if only a more rational system of cultivation is adopted.

It should be understood that Grapes may be successfully grown in almost any kind of house, whether span-roofed, partially so or merely lean-to. They will even do well in quite high conservatories, corridors and other structures, always provided plenty of sunshine reaches them and clear rather than opaque glass is used. Quite the smallest house as well as large structures can be utilised for Grape

culture, ample provision for admitting both front and top air being made in every case. Even fire-heat can be dispensed with in warm localities, but it is almost needless to add the Vines behave more satisfactorily in every way when they get the benefit of a little fire-heat early in the season, also during dull, wet weather during the summer, and again in the autumn for the purpose of ripening both the crops and the young wood thoroughly. I shall therefore make no attempt to describe what might be considered a model vinery, my aim being to prevail on many more to turn their houses to good account than have as yet done so. In this neighbourhood an amateur who is away from home during the greater part of the day annually cuts about three dozen excellent bunches from a Black Hamburgh Vine growing in a small lean-to house 10 feet by 6 feet, and there is nothing to prevent others from doing equally as well, but not if they constantly cram their places full of pot plants. The Black Hamburgh is the very best variety that can be planted—Gros Maroc, when once it is well established, being a fairly good black companion. The latter being somewhat gross in habit fails to ripen its wood satisfactorily without the assistance of fire-heat, but it is a very handsome Grape, colouring and keeping better than the Black Hamburgh—the quality, however, being inferior. Madresfield Court, though of good productive habit and of superior quality, is yet not suitable for amateurs to plant, unless they can feel sure of being able to ventilate freely and to apply fire-heat in dull, wet weather. These precautions must be taken, or otherwise the greater part of the berries may crack and decay in a few hours. Amateurs seem to fail most frequently with white Grapes, and they certainly ought not to plant the Muscat of Alexandria till they are getting expert in Grape culture; in fact this is not suitable for them at all. Foster's Seedling usually succeeds better than Buckland Sweetwater in the same house as the Black Hamburgh, but when badly over-cropped, the bunches are miserably thin and the berries undersized and green in colour, altogether presenting anything but a tempting appearance. Rather than plant a white variety, I should advise that room be found for a rod or two each of Alicante and Lady Downe's. These black varieties require but little fire-heat to bring them to perfection, and with good care the bunches keep well to mid-winter or later. Neither of them possess such long-suffering, hard-to-impair constitutions as the Black Hamburgh, but more advanced amateurs may well experiment with them.

Borders properly drained and formed of good materials are very desirable, but by no means indispensable, and no amateur need let the descriptions still to be met with of most elaborate preparations deter him from starting in a less expensive manner. Nor need the dimensions frequently given as being necessary be rigidly adhered to, more very often being done with comparatively small borders than with large ones. A single Vine would do well for several years with its roots confined to a border 4 feet square, or a row of Vines in a border from 4 feet to 6 feet in width, always provided good surface dressings, plenty of water, and liquid manure are given. If it is not possible to procure a sufficiency of turfy loam to form the bulk of the compost used, and amateurs as well as very many private gardeners experience considerable difficulty in this direction, then substitute the best soil procurable without much fear of ill consequences. Should turf 3 inches or rather more in depth from a pasture or even from along the road-sides be available, this, especially if of a strong loamy character, is excellent for a Vine border. It ought to be chopped up roughly, and to every three cartloads or cubic yards of soil add 1 cwt. of half-inch bones and about four barrowfuls of old mortar rubbish, charred soil and wood ashes. Turfy loam being scarce, it may yet be possible to procure enough to form half the bulk of compost, the other half being made up of the best or top spit of garden soil, adding bones, mortar rubbish, charred soil and ashes, nothing being better than the contents of a garden fire or smother, in which accumulations of rubbish, weeds, and such like are

reduced to ballast, charcoal and ashes rather more freely. Solid manure ought not to be used unless the soil is of a very poor character, and then only sparingly. What is wanted is a medium for the roots that will long keep in a porous, sweet state, and solid or farmyard and decayed stable manure are apt to militate against this desirable state of affairs. When the manure is wanted it can be best applied from the surface. Were I an amateur and unable to procure a single load of fibrous loam, or much of any of the other materials named, I would yet attempt Grape culture, using the ordinary surface soil of the garden with gravel or small pebbles freely added, but I should not long expect the Vines to thrive in this unless they were well fed from the surface. Thomson's Vine manure is specially prepared for all such contingencies as this, and if mixed with the compost or soil when the border is first made, and subsequently used as a surface dressing, much as advised by the able Grape grower who has given his name to the mixture, the result, other conditions being observed, would be most satisfactory. Why so many fail is because they crop their Vines excessively and neglect to treat them liberally at the roots, and not because the borders were not constructed on orthodox principles.

Nor is there often any great need for an elaborate system of drainage. Not unfrequently deep drains are laid at a considerable expense and bother, the whole place being upset while these are being formed, and yet not a drop of water ever passes through them, at any rate from the Vine borders. It is not many amateurs who apply enough water to require drains to carry off what the border fails to absorb; neither is it a great amount of water that the Vines require at one time, always provided the borders are not allowed to become too dry to readily absorb water when applied. It is advisable, however, to keep the bottom of the border well above the main drains, which ought to be found on every place, and if a layer 9 inches thick of clinkers, brick ends, coarse mortar rubbish, stones or any such like coarse imperishable material is placed under the compost, that will be all the drainage needed. The depth of the border may vary from 30 inches to 3 feet, and I prefer to have the greater part above rather than below the ordinary garden level. Amateurs will do well to locate their borders outside rather than inside of their houses, though, if more convenient, they may be inside, but in this case it must be remembered very much more water will have to be given.

Early in February is a capital time to plant Vines, and good planting canes can be bought from most nurseries. If they have to be brought in through the front wall or immediately under the sill of a house, rather strong canes should be planted, but if they can have a good light position inside of the house, then quite small canes answer well. According to my experience, amateurs are in too great a hurry to have bunches from their young Vines, and are sometimes induced to plant strong fruiting canes with a view to cropping them at once. Such rarely, if ever, pay for the extra outlay, as they neither yield good crops nor make satisfactory progress up the house. They do better if fruited in the pots in which they are received, their owners taking good care not to overcrop and to well feed at the roots. Nor must young Vines be heavily cropped during the second season after planting, and in order to be in a position to favour them it is the usual practice to plant other Vines between them, these being known as supernumeraries, which are cropped heavily for one or two seasons and then destroyed. As before hinted, a single Vine may be made to gradually cover the roof of a small house, while if there is a good length of rafter, or say a run of 12 feet and upwards, the permanent Vines may be planted 4 feet or more apart and confined to single rods. They are usually up the roof or from the front to the back, but in the case of span-roofed houses Vines may be planted on each side and meet at the ridge, and they also succeed well when trained across a roof, the latter plan answering best in the case of small or narrow houses. They will also fruit freely for several years against sunny back walls, though the proper place for the

fruiting portion of the Vices is about 15 inches from the glass. Dormant Vines are usually planted, but any on the move when put out will succeed equally well. In each and every case turn them out of the pots, and if the balls of soil and roots are soaked in a pail or tub of water the roots can be disentangled without suffering much injury—a very desirable precaution. In planting spread out the roots thinly and evenly to their full length and only just below the surface, surrounding them with a little of the finest and best material. Deep planting is most unwise; the roots will strike down only too quickly.

Outside borders should be mulched with leaf-soil, cocoa-nut fibre, or straw litter in the first place to protect the roots and exposed stems from severe spring frosts, and subsequently to prevent a too rapid loss of moisture. If there is a considerable length of stem exposed, this ought to be protected with straw or hay-bands, March frosts sometimes doing much harm to the exposed Vines the sap in which is rising. If pruned at this late date excessive bleeding is sure to take place, and in order to avoid this resort to di-budding. Rub out all the buds that burst beyond the point where the cane reaches the light and the back buds will then grow out strongly. What might be termed a warm greenhouse temperature, this ranging from 45° to 60°, suits newly-planted Vines well, but they will make good progress if the figures drop still lower frequently during the early part of the season, fixed temperatures being by no means imperative.

W. I.

THINNING THE BUDS OF PEACH TREES.

The arguments of "D. T. F." and "S. D." anent the thinning of the buds of Peach trees brought forward to support their theory, as to the uselessness of thinning the buds before they expand, are entirely hypothetical. Their concluding sentences prove this conclusively. They both appear to think that it is most unreasonable for anyone to recommend the thinning of the buds in a season like the present on trees on open walls. For the benefit of both "D. T. F." and "S. D." I will say that this is the most prolific season as regards the free setting of Peaches on open walls I have ever known. I should be pleased to show both of my critics 400 square yards of wall surface at one stretch literally covered with small fruits from base to summit. The majority of the triple buds were reduced to one, and smaller buds also removed, the larger and bolder flowers being only retained. I can truthfully say not one per cent. dropped without setting, and these are now thinned down to 4 inches apart. For my part, I wished they had not set so freely, on account of the time taken up in going over such an amount of surface.

As to the supposed waste of time as stated by "D. T. F.," I beg to differ both on practical and economic grounds. The waste of time comes in after the flowers are set, if wasted at all. "D. T. F." says that Peach blossoms take no strength nor growing force out of the trees until fully expanded and safely set. But for the sake of argument, even admitting such to be the case, it would be interesting to know at what stage "D. T. F." commences to thin the fruit, for directly the set takes place the drain on the strength of a tree must be very great, even if allowed to arrive at the size of Peas before being thinned. It would also be interesting to know who the authorities are he mentions when he states "that all botanists are unanimous in their testimony that Peach blossoms strengthen rather than exhaust their trees." And if Peaches, why not other subjects? It is very easy to refer to botanists and scientific men to advance a theory, but unfortunately the proof of practical experience is often very much at variance with so-called theory. With the flowers having room for free development directly they are set and the fruit safely swelling away, the best fruits and best placed are easily discernible, and the work of thinning goes on apace. Both "D. T. F." and "S. D." are even at variance with each other, and very much so, this proving the weakness of their case, and also that

one or the other, or both, are relying upon theoretical unbelief, instead of the outcome of practical experience in the thinning of Peach buds. "S. D." supports me in his opening and following sentences, although rather unwillingly, as to the flowers being better developed when thinned, as he admits if "big" flowers were the only object, nothing could be said against the process. I repeat that flowering is an exhausting process more or less according to the strength of the plant or tree, and also the quantity of flowers borne. My reference to other subjects is not so unreasonable as my critics wish to make out, and it will require something more than vague mythical references to botanists and scientists to convince me otherwise. According to "D. T. F.'s" version, the thinning would tend to weakness, for if the flowers add to the growing force like true leaves, this should be so. "S. D.'s" reference to big, fat, bloated flowers, brought about, I presume, by thinning the buds, is in direct conflict with the version of "D. T. F." That fruitfulness and vigour do not go hand in hand when the wood is well ripened and tended, is also contrary to facts. This subject was well threshed out in THE GARDEN some years ago, and ably supported by Mr. J. Simpson, of Wortley. Y. A. H.

SHARPLESS STRAWBERRY.

LIKE "J. R." in your issue of May 28, I have often wondered why this Strawberry is not more cultivated. I have grown it for several years, but am seldom asked for it, and have only once before seen it mentioned in any of the horticultural papers. One reason may be that there are several Strawberries sold as Sharpless, and all inferior to the true variety. I noticed when at the Chiswick Strawberry conference last year that the variety cultivated there under the name is totally different from the one I grow. I have had no experience of it for forcing, but the following is my experience of it outdoors: Very early, ripens with Noble, flavour fair, much superior to Noble, a better cropper, but not so strong a grower, fruit borne on very strong foot-stalks and thrown well above the foliage, in this respect very different from Noble. The fruit is very large, but rather corrugated, sometimes growing rather coarse; in this respect Noble has a decided advantage as to shape, but in colour I consider Sharpless superior to Noble. The greatest drawback to Sharpless is, I believe, that the blossoms and young fruit are extremely tender and easily injured by frost, and from American accounts of it I have seen this spring I find the experience there is the same. In 1889 it did extremely well with me, far outdistancing all other very early sorts, but in 1890 and 1891 it did not do nearly as well, as all the early blossoms and even set fruit were destroyed. This season I have it growing by the side of Noble, John Ruskin, Crescent Seedling, and many other first earlies, and Sharpless leads the way for size and crop, and I think will be ripe as soon as any. I believe Mr. Laxton thinks it was one of the parents of Noble, and some colour is lent to this supposition by the fact that it has the same deeply serrated foliage, although Noble has dark foliage and Sharpless remarkably light foliage. Take it all round, if I were selecting a very early Strawberry to grow for market, I should give the preference to Sharpless over Noble.

JOHN WATKINS.

Pomona Farm Nurseries, Withington, Hereford.

Grapes failing to swell.—I send you the enclosed bunch of Grapes to ask you if you can kindly tell me what the disease is they are suffering from. You will see the berries are covered with spots, and that the berries so covered do not swell. The Vine is a Black Hamburgh, growing in an outside border. There is another Black Hamburgh in the same border which is all right. The Vine border is on the hillside at an angle of about 30°. The bad Vine is on the lower side, which is kept up by a dry wall. It has been a very dry season, but the bed has been watered three or four times.

The foliage is clean and healthy. The bad bunches are near the stem; those at the end of the Vine seem all right. Owing to the site the Vines are trained laterally along the house, and not up it from eaves to ridge. The Vine is about eight years old, and has always borne well.—W. MATHER.

* * Why many of the berries on the bunch sent failed to swell properly is principally or solely due to faulty setting. These stoneless berries, however, in addition to failing to swell, also present the appearance of having been badly over-run by thrips, as they are of a whitish colour and thinly sprinkled with tiny scars. There is also a trace of this in the larger berries, and in all probability damage was done by insects very soon after flowering. The faulty setting just at the lower end of the house was probably due to a stagnant atmosphere at the flowering period and which fire-heat more freely turned on would have prevented. If the fault lay in the border or treatment of the roots, other parts of the Vine in question and the other Vines in the same house would also have behaved unsatisfactorily. At the same time if the border is somewhat rich and has not been limed lately, watering with lime-water occasionally, at the rate of a peck of fresh lime to thirty-six gallons of water, would greatly benefit the Vines and be a preventive of stoneless berries next season. There is not the slightest cause to doubt the wisdom in this case of training the Vines across instead of up the rafters, this plan having for many years answered extremely well in a house under my charge. From a rod of Black Hamburgh trained along the front of a Muscat house are cut the best bunches of the variety that are grown on the place.—W. I.

STOVE AND GREENHOUSE.

FUCHSIAS.

FOR general decoration few plants rival the Fuchsia, which of late years has been greatly improved, the flowers of the single ones being very elegant and beautiful with their long tubes, regularly reflexed sepals and distended corollas of such rich colours. It is a question whether the double kinds should be encouraged, and yet they have their admirers, lumpish and heavy though some of them be, which shows that the doubling has been carried too far or quite far enough in their case. As Fuchsias are so very easily crossed, the raising of new varieties has been taken up by many, and it is a most interesting and often profitable pastime, as when anything good occurs among the seedlings there is always a market for it in the trade and a demand from the public, who are ever on the look-out for plants that are new. The way to set about crossing the different sorts is to select those having the best properties, such as habit, freedom of growth, and flowering, and with the most regularly formed flowers and distinct colours, as in all Nature like begets like, and in breeding anyone may get almost what he aims at, the results of a cross being generally something intermediate between the two parents, a portion of the seedlings partaking more of the character of the one than the other, according to whether it supplied the pollen or seed.

Having determined which to breed from and made choice of plants, they should be stood in a light, airy house where they are handy and easy to get at, as every day the flowers will need watching, and those intended for seed-bearers must have their anthers snipped off directly the blossoms unfold, or the pollen will ripen and drop on the stigma, and self-fertilisation, of course, follow. The stigma will show when it is ready to receive the foreign pollen by having a glutinous or viscid substance exuding from it, to which the pollen

adheres if the part be touched with it, and that is an easy matter to perform, as the whole flower of the kind to be crossed with it may be held between the finger and thumb and the anthers rubbed gently against the stigma, which done, the work is complete. In a day or two after, if impregnation has taken place, the base of the flower where the ovary is situated will begin to swell and go on increasing till it becomes quite large; soon after which the pod will change colour, from green to plum or violet-blue, and quickly ripen. As soon as the pods reach this stage, they should be gathered and placed in a paper bag and laid in some dry, warm position, when in a week or so they will be fit for sowing or storing till the following spring. Fuchsia seed can also be purchased of any of the chief nurserymen, and where one does not particularly desire to possess named kinds it is a good plan to raise Fuchsias by obtaining seed, especially where many are wanted for bedding or planting-out, a purpose for which Fuchsias are not half as much used as their merits deserve. The way to raise them is to prepare a pot or pan by draining and then filling nearly full with fine sandy soil, on which the seed should be sown and then covered to the depth of a quarter of an inch, gently watered, and after that a pane of glass laid over the top. To get the seed to germinate freely, a warm house or frame is necessary, and when the plants are up and large enough to handle, they should be pricked off in light rich soil and moved on in a warm pit or frame where they are not exposed to the sun, as the direct solar rays cause the shoots to become hard and woody. If Fuchsias are to be grown from cuttings and good big plants are required, the propagation should be effected early in the autumn by taking any nice soft young shoots as free from flower as they can be obtained, inserting them in sharp sandy soil and keeping them close and moist under a handlight. If attended to and gently syringed or bedewed daily they will soon strike, and when rooted should be potted singly into small pots, and then stood in a frame where they can be shut up early in the afternoon to give them a start. During the winter they must be kept gently moving by standing them in a temperature of between 40° and 50°, and in spring should have an increase of 5° or 10°, or be stood in some vinery or Peach house at work. As soon as the plants begin to grow freely it will be necessary to decide in what form they are to be trained, whether as bushes, pyramids or standards, as in the last case they must have side shoots stopped close and be run up to the desired height with clean stems; but in stopping, the main leaves should not be taken off, as the loss of so much foliage weakens the plants. To get nice symmetrical heads, all the shoots when they attain a length of 6 inches or so should have the points pinched out, and the same again till the plants get properly furnished. In starting with pyramids all side branches must be encouraged, and the leading shoot tied loosely and trained up a stake, but it is necessary to nip the head out after a plant gets from a foot to 18 inches high, or side shoots will not form. These will need stopping occasionally, and a fresh leader must be run up and again stopped and any requisite thinning done, so as to have the plant perfectly balanced and regular all round, and the same from base to summit, this forming a handsome specimen when the plant gets into bloom, and that without stakes or sticks, except just in the centres, as they are quite unnecessary in the training of Fuchsias. Bush plants are easy enough to grow and form, but they are not very de-

sirable, as they do not show off their flowers so well as those of the shapes referred to unless they are elevated and brought more on a level with the eye by standing them on pedestals or suspending them in baskets. In cases where there are lofty conservatories or greenhouses to furnish, the latter is a good way of using Fuchsias, as in baskets they are very telling, especially those of a drooping or pendulous habit, of which there are many varieties, and they make a capital show. Others, again, are well adapted for growing as climbers up pillars or under rafters, and when so used they produce a most striking effect in a house.

Of late years Fuchsias have been employed for bedding or planting out, and the wonder is that their great merits for that purpose have not been discovered before, as they make grand ornaments either alone or in groups, and have been much admired in the parks and private gardens during the last season or two. When required for outdoor decoration it is necessary to keep the old plants from year to year, which is a very easy matter, as they may be wintered in any shed or cellar that frost does not reach, but as they are woody they must not be kept too dry at the root, the proper thing being to have the soil just moist, and then the main stems and branches will keep plump and live. Specimens for exhibition or other purposes must be kept in the same way if wanted early, as there is not time to grow them to a large size and flower them before the autumn, but by saving old plants they may be had in full beauty by June or July. The way to manage them is to start them soon after the turn of the year by standing them in some vinery at work or other house where there is a little heat, to which they soon respond and break if kept moist by syringing, but little or no water should be given till they get into leaf. As soon as the young shoots can be seen or the buds burst, any thinning-out that is requisite should be done and the side shoots shortened back to about half their length, after which the plants, if to be grown in pots, will need to have the balls reduced and then be potted again in fresh soil. That most suitable for Fuchsias is a good friable loam, rather new than not, and mixed with a little leaf-mould and well-rotted manure, to which a dash of sand should be added to keep the whole porous. After being potted in this mixture the plants will have to be kept close and warm for a time to give them a start, and only watered very sparingly till growth is quite free. Shade favours this, but shading must not be carried too far, or the shoots will be long, pointed and drawn. As soon as the pots have become well filled with roots, liquid manure, if applied weak, may be given whenever the plants need water, and daily syringings are a great help in keeping them healthy and clean. The only insects that are at all troublesome to Fuchsias are green fly, and the safest remedy is to fumigate with tobacco, giving a mild dose overnight, repeating the same again in the morning.

S. D.

Rhynchospermum jasminoides as a specimen plant.—I was glad to read the descriptions and see the woodcut of this in THE GARDEN of June 4. It vividly recalls old times and old favourites in exhibition days when a huge plant on a semi-spherical trellis used to form a telling feature. I have nothing to add to "H. A.'s" estimate of its merits or useful notes on its culture. I very much prefer his more free and easy style of training to our more formal method, which we allowed our plants to grow out of as much as possible. Any pruning needful

should also be given immediately after blooming, as the plant quickly responds to a little extra warmth and moisture while it is making its young wood. It also favours alike its freedom of flowering and cleanliness. I place it in the open air through the two months of August and September. Might I respectfully inquire of "H. A." whether he had any special means of propagating this *Rhynchospermum*, and whether it bloomed freely as an edging to his Rose beds under glass?—D. T. F.

Sarracenias at the United States Nurseries of Messrs. Pitcher and Manda are now very fine; they have been imported in large quantities from their native home in the bogs and swamps of North America. These are plants which cannot fail to please those readers of THE GARDEN having nothing but a cold house to grow them in, or a cold frame where they may be grown exposed to the full sun. Well-coloured forms of *S. Drummondii*, *S. flava* in many varieties, *S. rubra*, *S. variolaris*, and *S. purpurea* were in great numbers. With these were also grown many plants of *Darlingtonia californica*. One *Sarracenia* in particular arrested my attention. It appears to be a natural hybrid between a fine form of *S. flava* and *S. Drummondii*, the pitcher having the size and shape of that of *S. flava*, the lid and top of it resembling those of *S. Drummondii*. Some of the plants have pitchers nearly equal to those on the plants which were shown by Mr. Baines a few years ago. W. H. G.

GARDEN FLORA.

PLATE 862.

CALLISTEMON RIGIDUS.

(WITH A COLOURED PLATE.*)

THIS is one of those beautiful New Holland plants which one seldom meets with outside of botanic gardens. It belongs to the family of Myrtles, although it might not be recognised by many as belonging to that beautiful class of plants. It is a good conservatory plant where no excessive amount of shading is applied. It rather delights in a good amount of sunshine, as in the case of nearly all flowering plants from the same region. Given this essential condition in its culture, with no excessive degree of moisture either in the atmosphere or at the root so as to sour the soil, it is not a difficult plant to cultivate. Being evergreen, the plant is always ornamental, even when not in flower, and with care in the way of moderate pruning or pinching of the young shoots so as to form a compact plant whilst in a young state, it may be kept well within bounds. It flowers upon the old wood, so care must be exercised not to prune when the growth is completed, but rather immediately after the flowering period is passed. This will vary from March to July and August, according to the variety grown. Whether grown in pots or planted out, the soil should be made quite firm. Good fibrous peat, turfy loam and coarse silver sand will suit well. Using too much soil is not a good practice to adopt, as this is apt to cause excessive growth rather than flower. Propagation is best effected by means of cuttings taken when the wood is in a half-ripened condition; these should be placed in very sandy soil, but not in a close pit or frame and be carefully attended to until root-action has commenced. Potting off singly ought to be seen to before much growth has been made, the young plants being afterwards kept near to the glass, but not in a temperature beyond that of an ordinary greenhouse. Besides the variety now illustrated there are a few others that are well worthy of being cultivated

* Drawn for THE GARDEN by Gertrude Hamilton, in the Royal Gardens, Kew, January 19, 1892. Lithographed and printed by Guillaume Severeys.

in our cool houses. In the more favoured localities in the south and west of England it is quite possible that *Callistemons* may be grown successfully out of doors. I have not, however, noted that such attempts have been made. *Callistemon rigidus* (and others), with the flowering *Grevilleas*, are well worth more attention than is usually afforded them. Possibly if they were plants that are when in flower one mass of bloom, we should see them oftener.

H.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

ASPARAGUS.—The cutting of *Asparagus* should now cease, even from the strongest plantations. If cutting is kept up any longer, the crowns will suffer considerably and the following season's produce will be weakened accordingly. It is from this cause alone that so many beds are prematurely ruined. It is from the treatment accorded to the plants during the summer that we must look for the following season's supply. If *Asparagus* had less attention during the dormant season and extra accorded whilst in growth, it would be better than it is in the generality of gardens. Growth being rapid directly after cutting ceases, the staking or supporting of the tops must have immediate attention. I practise it every season and consider it time well spent.

APPLYING FERTILISERS TO ASPARAGUS.—*Asparagus* also suffers from lack of support, and it must be remembered that it is whilst the roots are in active growth that they are in condition to receive aliment for the support of the plant. If the beds are raised they are also apt to suffer from lack of moisture during a dry season, and this must be anticipated by mulching the bed at the same time cutting ceases. For beds that were top-dressed in the early spring as I advised with rotten manure well broken up and burnt refuse combined, mulching at this season will not be needed. Liquid manure or diluted sewage may also be applied with advantage, and, failing this, artificial fertilisers must be resorted to. Fish potash guano, in conjunction with soot and salt, is a capital stimulant. The best time to apply these artificial fertilisers is during a showery time, but failing this and should it set in dry, the manure should be washed in. A dressing given directly cutting ceases is generally sufficient, that is, for beds in a fair state of fertility; but if the growth is poor, an extra dressing may be given when the tops are about half-grown. Weeds must also be promptly removed, also any young seedlings which are appearing, for if these are allowed to grow, the roots are apt to become crowded.

PLANTING CELERY.—The earliest raised plants are now fit for putting out into the trenches, but it must be remembered that what plants are put out now are for early use, as another three weeks or a month will be quite soon enough for the main winter crop. If the plants were pricked out into good holding soil over a layer of rotten manure on a firm and level surface, they will lift readily and may be planted without the least check. See that the soil is in a well-moistened condition previous to lifting. Whilst the plants are being lifted advantage must be taken to remove all small leaves and suckers clustering about the base, for if this should be neglected there would be endless trouble afterwards. Plant firmly, setting the plants 8 inches or 9 inches apart. If the Celery fly is likely to prove troublesome, dusting the foliage over lightly with soot in the early morning whilst wet with dew is a capital preventive. Any leaves which are affected should be picked off and burned. By following up the soot remedy Celery fly is not likely to be troublesome. Directly it is washed off by rain, dust again immediately.

CELERIAC.—The planting of *Celeriac* must also be proceeded with as the plants become ready. The site for their reception must be in a fertile

2007
N 10



condition and well charged with manure, as this plant, like Celery, requires something substantial to root in, but, unlike that crop, the planting must take place on the level. Deep planting must also be guarded against, this favouring sucker growth, or divided stems, whilst what is needed is one central growth like Celery. When taking up the plants every vestige of sucker growth must be removed, and in planting see that the base of the plant rests upon the surface of the soil and not under it, as this latter oversight often leads to suckering. After planting water thoroughly, and if a dry time should ensue, this must be applied copiously. After growth has fairly started, it is a good plan to go over the plants and level the soil about the base, this simple precaution often being the means of preventing sucker growth. If any should appear they must be promptly removed.

ENDIVE.—While good Lettuces are to be had, early Endive is not likely to be much in request, but still in the majority of gardens a June sowing is advisable in forwarding a stock so as to be ready to hand when wanted. The seeds are best sown in drills about 15 inches apart in an open position, for if the soil is in good heart this distance will not be any too far apart. If the weather should be dry, soak the drills over-night, and by sowing early the following morning, sufficient moisture will be conserved to germinate the seeds. When the plants are large enough they must be thinned out, leaving sufficient in the rows to form a crop, the remainder or what are required being duly pricked off. By the time the plants are ready for thinning there is generally space at liberty on a south border recently cleared of Potatoes. The Round-leaved Batavian is the best substitute for Lettuce, the cut-leaved coming in well for garnishing. A. YOUNG.

FRUIT HOUSES.

EARLIEST MELONS.—When Melons are nearly ripe they are apt to crack badly at the footstalk, this being especially the case with the Cashmere, Long-leat Perfection, Eastnor Castle, William Tillery, and Victory of Bath. Less moisture at the roots and a drier atmosphere prevent to a certain extent this unfortunate occurrence, and if these conditions cannot be accorded owing to successional crops on the same plants or near at hand, the plan of half cutting through the footstalk may be tried. Even this is not sufficient in the case of plants in robust health, and the only way out of the difficulty is to cut the Melons directly they are coloured or before cracking has become serious. If these early-cut fruits are kept on a warm, dry shelf for two or three days, but not exposed to full sunshine, and then placed in a cool fruit room till the rind is soft, the quality will prove first-rate, or much better than is often the case when the plants are dried off during the period of ripening. Pot plants are more under control, but even these should not be wholly dried off, enough water being given to keep the foliage from flagging badly. The latter are of no further service, but strong healthy plants in borders or ridges of soil may be freely cut back and a good second crop be had from the young growths resulting. If somewhat over-run by red spider, work a handful of flour of sulphur through a muslin bag into a 3-gallon can of soft water and well syringe the foliage with this. Two or three applications may be necessary before the leaves become well coated with sulphur, after which overhead syringing should cease for a time. Old plants restarted ought to have after the wounds are healed a soaking of liquid manure, this being followed by a top-dressing of strong loamy compost.

SUCCESSIONAL MELONS.—These require a brisk heat by night and day, and plenty of moisture at the roots and in the atmosphere. Top-dressing or an extension of the ridge of the soil ought always to be given before the roots either strike downwards or are destroyed by undue exposure to sunshine and dry heat. Let them have a good square bed of solid loam or loamy soil to root into the collars of the plants only being raised

slightly above the level, plenty of water at all times, liquid manure frequently, varied by a surfacing of either bone-meal, superphosphate, native guano, or other special manures, and they will crop heavily. Attend closely to the stopping and training, a few days' or even hours' neglect frequently ending badly. If planted wide apart, lay in a leading shoot wherever there is good room for it, whether this be up, down, or across the roof, but if the plants are not more than 2 feet apart, train straight up or down the roof as the case may be. All leading growths should be stopped when near their limit, and the side shoots from these ought to show abundance of fruit, there being two on most of the laterals from healthy growths of The Countess. Early thin out and tie up side shoots or laterals and stop at the first leaf beyond the fruit. Also stop sub-laterals at the first leaf. Wounds on quite young shoots heal quickly; whereas if the superfluous growth is left till it has to be cut away wholesale, trouble may be experienced. If many fruits set, and they are setting very freely this season, thin out freely, or otherwise all may be small. Before the fruits become very heavy make the joint from which they spring secure to the trellis or a cross stake, a stout piece of raffia being used, but do not encumber the Melons with any of the various contrivances used for supporting them many days before ripening commences. The stems are quite capable of bearing the heaviest of Melons and supports are apt to disfigure the fruit. All that is needed at any time is a noose a little less in circumference than the thickest part of the fruit of either strong raffia or string, three strings being attached to this for fastening to the trellis overhead.

LATE MELONS.—If a late crop is needed sow seed now, giving the preference to Hero of Lockinge, Blenheim Orange, Golden Gem, or any other variety known to keep well after it is ripe. Sow the seed singly in 3-inch pots, using nothing but strong loam—Melon plants growing very feebly when rooting in a light compost, and start them where they can be kept free of red spider, thrips, and such like. On no account permit young Melon plants to become badly root-bound before they are shifted into their fruiting quarters, as they do not readily recover from such a check, especially when the weather is hot and dry.

CUCUMBERS AND MELONS IN FRAMES.—Frames and pits ought to be opened early on clear mornings, and a little air should also be given during dull mornings, or otherwise a sudden outburst of sunshine may do much damage to the foliage. Cucumbers ought to be shaded during the hottest part of the day only, permanent shadings being objectionable, and the shading material should not be very heavy. Mats will not do, but scrim canvas and coarse cotton netting will. Melons must not be shaded at any rate after they are once well established, and both these and Cucumbers should be ventilated freely from the back of the frames or pits during the hottest part of the day, gradually closing and finally shutting up about 4 p.m. At that time also attend closely to the watering, the soil in the case of Cucumbers never being allowed to become quite dry, while Melons should not be kept on the moist side till the fruit is ripening, when very little water ought to be given. Always use tepid water varied with liquid manure, and syringe freely at closing time. Stop the plants early, and also the breaks resulting till enough leading growths are formed to extend over and thinly fill the bed. If preferred, the Cucumbers can be kept from spreading so quickly, but Melons are required to set nearly all at one time; therefore run out the main growths and stop when near the confines of bed. Plenty of fruit will show on the side shoots resulting, and if there are no bees about, attend closely to the fertilising of the flowers, towards 12 o'clock being the best time to do this. Early thin out these side shoots and stop at the first joint beyond the fruit. When the fruits are near the size of Plums, lay them on pieces of slate, glass, or tiles, and eventually raise them up among the leaves with the aid of small inverted flower-pots. When only ridges of soil are placed for the plants to start in, continue to add more

loam in advance of the haulm, a layer 6 inches or more in depth eventually covering the bed. In the case of Melons, keep the original central mound of soil slightly higher than the rest, and the soil about the collars of well-established plants as dry as possible by way of a preventive of canker. Should we have a spell of dull, cold weather, a gentle lining for the beds is desirable, but be careful not to overdo this. PRACTICAL.

PLANT HOUSES.

PALMS.—More harm in all probability is done to Palms in general during the summer months through an insufficient supply of water than from any other cause. Particular attention should be paid to the watering of Palms at all times, but during hot weather they dry up rapidly, particularly those which are confined to comparatively small pots or tubs even when the specimens are of large size. Two or three times during the day will be none too much or often for watering plants that are pot-bound. It is quite possible for them to be dry, and suffering even when the soil upon the surface looks moist from syringing, thus being in a manner deceiving unless examined thoroughly. In other cases the plants may be fairly moist at the upper part of the ball, but dry below where most of the roots will be found, Palms always having an inclination to descend in their root-action rather than percolate the surface soil, as in the case of some other plants. Palms may be suffering from want of water for some considerable time without being detected through the fact of their not showing signs of distress, as in the case of Tree Ferns and other plants, yet they suffer nevertheless, and the results will be apparent later on in fading foliage or a general sickly appearance. If well attended to, the majority of kinds that are grown in gardens will retain their leaves in good condition for a great length of time. When the plants are known to be well rooted and the drainage all right, the amount of water they will take is somewhat astonishing. If there is not sufficient surface room for a thorough soaking, it should be repeated two or three times according to the case. Once or twice a week such plants should have a sprinkling given them over the surface soil of a well-proven artificial manure; this may be changed with clear liquid manure from the farmyard at times with advantage, but for general use the former is, I consider, the best of all. I have never found anything in this way to surpass Standen's "Gardeners' and Amateurs' Friend," which, being reduced to a fine powder, is easily assimilated by the plants; sufficient of this should be given just to give a dusting over the entire surface. If any Palms are excessively pot-bound it would be advisable to repot them if they are young growing plants. Specimen plants in large pots and tubs can be kept in good condition for a length of time if carefully attended to in the way previously advised, with the proper amount of warmth to suit each genus and frequent syringings to refresh the plants and keep down such insect pests as thrips and red spider, sponging with a strong insecticide being necessary in the case of white scale, an enemy not to be trifled with wherever it is found.

TREE FERNS AND OTHER FINE-FOLIAGED plants of vigorous growth should also have close attention now for watering. The former are quickly spoiled for months to come if allowed to get sufficiently dry to cause the fronds to curl. Keep the plants in good health at the roots and supply them liberally with water, occasionally giving them a stimulant when, for instance, they are throwing up a number of young fronds. Weak guano water is well suited to them, not being so likely to sour the soil. Phormiums, Dracenas (chiefly Cordylines), Ficus elastica, Aspidistras, Aralias, and other fine-foliaged plants of the conservatory should also be now well looked after for water supply. If allowed to get dry occasionally the foliage will in most of these cases fade all too soon. See to it also that they are kept clean and as free as possible from all insect pests. Coleuses of the

fancy kinds which have thus far been growing in a brisk temperature should be now gradually inured to a more buoyant atmosphere, so as to prepare them to stand well when required in the conservatory a little later on as flowering plants get a little scarcer. It is never advisable to over-pot these plants; this practice is altogether a mistake, unless large specimens are required for special purposes, and even then it is never advisable to go to any excess. Plants of these Coleuses I think look infinitely better when allowed to make a more natural growth, chiefly assuming a pyramidal shape. When the pots are well filled with roots these plants will take a liberal supply of water.

CYCADS AND YUCCAS will require more water than in the cooler season of the year, but no excessive supply is needed in either case—in fact it is injurious to these slow-growing plants. Any Cycads that are throwing up young growths should be carefully attended to. The leaves whilst still in a tender state are easily injured, and during the time that they are lengthening they should be watched closely to see that they do not get entangled with anything else so as to cripple them, otherwise any harm that is done will be permanent. Until well-hardened, it is safer to shade Cycads rather more freely during bright sunshine, but not so much as to elongate their new growth. Other plants, as *Panicum variegatum* and the *Tradescantias*, which are likely to be wanted in quantity should be struck in small pots, the cuttings being inserted thickly so as to obtain a good potful of fresh growth as soon as possible. When these are propagated in a brisk heat, they should be removed to more airy quarters as soon as they are well rooted. As soon as they will bear exposure to the sunshine, the colours will be all the brighter, whilst they will also be of a more enduring nature.

J. HUDSON.

ORCHIDS.

THE houses which have up till now been well furnished with flowers, especially of the showy Cattleyas and *Laelias*, are much less brilliant, but some few species are still at their best, and we are sure to have a succession of Cattleyas for the remainder of the season. *Cattleya Warneri*, one of the most handsome of the *C. labiata* section, is at the heyday of its beauty. This species requires rather different treatment from the early summer-flowering forms such as *C. Mossii* and *C. Mendeli*, and is more impatient of water at the roots when resting. Water must now be withheld to a very great extent; enough only ought to be given to prevent the potting material becoming dust-dry. At this season of the year Cattleyas or any other Orchids are apt to shrink up too much if allowed to become over-dry, and as a consequence of this some of the back leaves become yellow and die off. Of course, while they are in flower they must not suffer from want of water. *Cattleya superba* is quite a different type of the genus, but is like to *C. Warneri* in this respect that it produces its flowers with the current year's growth. I well remember taking charge of half-a-dozen plants of this species without any knowledge as to how they ought to be cultivated, and found they dwindled away on the side stages of the house planted in pots. After fixing them to short lengths of Tree Ferns firmly with copper wire, and suspending them near the roof glass in the warmest house, they soon became established and flowered freely every year. It requires a light position in the house and to be kept moderately dry when maturing its growth after flowering. The flowers do not usually open until late in June. *Cypripedium caudatum* I flower very well year after year; the last blooms have faded, and from some years of experience I believe now is the time to repot the plants. This species is not often seen with its leaves quite healthy and green to the tips. One of our best Orchid growers stated some time ago that it did remarkably well in the cool house. That it did so in this instance I have no doubt, but it does not do well in our cool house. I have tried it in various ways and in many different

positions, and now recommend for it the shady side of the Cattleya house. Our plants grow well and strongly there, flowering freely every year; but this season the tips of the leaves have died back very much; in fact they have not been free from this objectionable trait in any season. I tried a loamy soil, and I believe this is more suitable than peat. All classes of plants in a growing condition must be fairly well supplied with water at the roots; we very seldom syringe Orchids overhead, although in some cases it is desirable to do so. The *Calanthes* of the *C. vestita* section are well worth careful attention at this season of the year. When they are potted in the spring, we place the flower-pots containing the plants close together, but as the plants grow and the broad leaves spread out, they must have more space. The flower-pots seem to be now quite filled with roots, and when the plants have arrived at this stage manure-water well diluted with rain water must be given to them about twice in a week. During the recent hot dry weather the plants have required water daily, owing to their being placed near the roof glass.

Thunia Bensoniæ and *T. Marshalli* have made their growths in this warm house, and they produce their flowers at this time on the ends of the long slender stems. The freer flowering of the two is *T. Bensoniæ*, which seldom fails when well grown to produce a number of its beautiful purplish rose flowers upon each stem; whereas the lovely white-flowered *T. Marshalli* is quite the reverse; more often no flowers are produced, consequently the stems run out to a most inordinate length. The plants in either case must not suffer from want of water as long as the leaves remain green. They must be gradually allowed to pass into the resting period, and when the leaves decay no water is needed; they may be placed in the Cattleya house to rest. In the hurry of other work the *Pleiones* must not be forgotten; these are charming little things to brighten the dull, dark November days, but unless the plants have exactly the treatment they need, flowers may be scarce. I have found they do best suspended near the glass roof of the Cattleya house. We plant a dozen bulbs or so in a 6-inch pot or pan. The pans have usually holes in the rim, but the flower-pots are set in teak baskets. The tops of the leaves are almost touching the glass; in this position the bulbs ripen well and always give us plenty of flowers. *P. humilis* does not do well with this treatment and positively dies out. This and *P. Hookeri* should be grown in the cool house. *P. lagenaria*, *P. maculata* and *P. Wallichiana* will do best in the Cattleya house, as detailed above.

In writing these seasonable cultural details my mind is constantly reverting to the beginner in Orchid culture who may be expected to turn to these columns for guidance in his every-day duties. The young aspirant for cultural knowledge will learn a good deal from his own experience; no one could possibly write a calendar that would meet the numerous details of every cultivator's work. Much disappointment is caused owing to amateurs purchasing Orchids as cheaply as they can get them; but plants may be purchased for little money and still not be cheap; in fact the higher priced article may be the cheaper. I recommend beginners to purchase plants that have been imported long enough to become well established; they may cost a little more, but the danger from loss is diminished to the vanishing point. Even then the amateur will find some species do well with but little trouble, while others refuse to grow however anxious he may be. A very good Orchid cultivator said to me the other day that he wished he could grow *Epidendrum vitellinum majus*. I found he had been growing it in a house that was too warm and the plants too far removed from the glass, and advised the cool Orchid house for it on a shelf near the glass. It will succeed in the Cattleya house for a time, but in time it begins to decline and does so rapidly. I had about a dozen plants which did well in the Cattleya house for a few years, but they had to be removed to the cool house, where they have really increased in vigour and are

healthier. A great factor in success is to ascertain the right treatment as to watering, when to apply it freely and when to withhold it, and how much sunlight or how little should be given at the various stages of the plant's growth. J. DOUGLAS.

TREES AND SHRUBS.

BIOTA ORIENTALIS PENDULA.

THE Chinese *Arbor-vitæ* (*Biota orientalis*) is very prolific in varieties, there being now quite a long list of names showing a greater or less divergence from the normal form. One of the most pronounced is *pendula*, which cannot possibly be confounded with any other variety; in fact, it was for a long time regarded as a distinct species under the name of *B. pendula*. Gordon was of this latter opinion, but Messrs. Veitch, in their "Manual of Coniferæ," include it among the varieties of *Biota orientalis*, and that is the place now generally assigned it. The pendulous *Arbor-vitæ* has, instead of the flat, much-divided branchlets common to the other varieties, long whipcord-like shoots, which have but few bifurcations. It is usually dense in growth and assumes a bluntly columnar shape, which is relieved of any suspicion of stiffness by the somewhat irregular arrangement and varying lengths of the cord-like branchlets. In poor soils or where at all crowded up, it is very liable to lose the bottom branches, but even when this happens, the long shoots from the upper part of the plant tend to a great extent to take off any appearance of bareness. One form of the Chinese *Arbor-vitæ* particularly attractive at this season is *elegantissima*, a compact upright-habited form, which is throughout the summer of a rich golden hue, which in winter changes to a beautiful reddish bronze tint, at which time it stands out as one of the very best of all bronzed conifers. This variety was raised in Messrs. Rollisson's nursery at Tooting, and distributed from that establishment. Another golden form, better known than the last, is *aurea*, very generally met with under the name of *Thuja aurea*. This is a globose-growing shrub, not so deep in colour as *elegantissima*; but still the hue acquired by both of them depends to a very great extent upon their position, as if shaded or crowded up in any way they are not seen to the best advantage.

The variegated forms of *Biota orientalis* cannot for one moment be compared with any of the preceding, as they present at best a patchy appearance. In mentioning the pendulous variety of the Chinese *Arbor-vitæ*, two other conifers, a good deal in the same way, may be referred to. These are *Retinospora filifera* and a form of *Lawson's Cypress*, also known as *filifera*. The former of these, the *Retinospora*, forms when young a globular bushy plant, but as it grows up the outline of the specimen becomes more irregular. Of this *Retinospora* there is a golden form, which is one of the latest additions to this class of plants. *Cupressus Lawsoniana filifera* is so much like the *Retinospora*, that in some specimens close observation is necessary in order to detect the difference.

T.

Ribes sanguineum fl. pleno.—It is at least an open question whether the beauty of the Flowering Currant is increased by the blossoms being double, but certainly at a little distance this peculiarity is not noticeable, yet close inspection reveals the fact that they are both curious and pretty. The most notable feature, however, in connection with the double form of the Flowering Currant is that it is a good deal later in blooming than any of the others, and consequently lengthens the season during which we have those beautiful shrubs at their best. It has been grown in this country for many years, but is at the present time comparatively scarce. The colour of the blossoms is a good deep red—an effective tint. There are numerous varieties now in cultivation, among the best of which besides the above may be mentioned *atro-rubens*, the blooms of which are rather smaller

than most of the others, but it is the richest tinted of all of them and a most desirable variety. Then we have albidum, with blooms of a whitish tint; glutinosum, pinkish lilac; Gordonianum, supposed to be a hybrid between *Ribes sanguineum* and the golden-flowered Currant (*aureum*). The blooms of this are of a peculiar shade of orange-red. If to these are added a good form of *Ribes aureum* itself, the result is half-a-dozen distinct and beautiful Flowering Currants.—T.

Cytisus scoparius pendulus.—The prostrate form of the common Broom was very noticeable at the Temple show, as some specimens of it were grafted standard high, and in this manner the shoots become strictly pendulous. They were at the same time thickly clothed with their large golden-coloured blossoms, which for richness of tint are not equalled by many shrubs. The variety Andreanus was also shown in standard form, and undoubtedly the great popularity so quickly achieved by this last has done a good deal to direct renewed attention to the merits as flowering shrubs possessed by the various hardy Brooms. The fact that they are less susceptible to drought than many things is also another point in their favour in sandy and gravelly soils.—T.

Cratægus oxyacantha semperflorens.—This is quite a miniature Hawthorn, which, when not more than a couple of feet high, forms a tiny tree-like specimen, as heavily laden with bloom as a large tree of the ordinary species. The continuous blooming quality of this Thorn from whence its varietal name is derived is a very notable feature, for after the first flush of bloom, a scattered succession will, under favourable conditions, be kept up throughout the greater part of the summer. From this circumstance it is often possible to find ripe fruit and flowers on one little plant at the same time, the ripe fruit being the product of the earliest blossoms. For gardens of limited extent, or to the lover of miniature shrubs, this little Thorn has much to commend it. This very distinct variety of our native Hawthorn was first observed in France by M. Bruant, of Poitiers, about ten years ago, and was distributed some years later. In a position fully exposed to the sun the blooms become slightly suffused with pink before they drop.—H. P.

Cratægus tanacetifolia.—This Thorn is at its best when nearly all the others are past, and consequently it attracts a greater share of attention than would be the case if it bloomed at about the same time as the majority of them. It is in all stages a very distinct species, forming when not more than a dozen feet high a sturdy, rather upright-growing specimen of tree-like habit, clothed with large deeply-cut leaves, which are so covered with greyish hairs as to give to the entire foliage quite a hoary appearance. The flowers, which are borne in flattened corymbs, as in most of the Thorns, are pure white, against which the dark-coloured anthers stand out very noticeable. The fruit is very large and of a yellowish-green when ripe, but it is usually borne in very limited numbers. The Tansy-leaved Thorn was illustrated by a coloured plate in THE GARDEN, Volume XXVIII.—T.

Ribes speciosum.—Though a most beautiful flowering shrub, it must be assigned a place among the neglected ones, for it is seldom one sees a good specimen of this *Ribes*, and that not from any difficulty in its culture, for it will both grow and flower well in any fairly good soil that is not too hot and dry. It does not belong to the Flowering Currants, but rather to the Gooseberry section of *Ribes*, and forms a stout, free-growing, much-branched bush, whose shoots are thickly clothed with spines, and furnished with lobed leaves of a bright shining green tint. The rich crimson Fuchsia-like blossoms are borne in great profusion, and render the plant when in that stage not only very distinct, but most handsome. This *Ribes* is a native of the north-western districts of America, from whence it was introduced about sixty years ago. It is sometimes treated as a wall plant, and in this way will mostly flower in great profusion early in the sea-

son. When in the open ground some of the blossoms are liable to be injured by late spring frosts, and in the case of a specimen under my observation the first blossoms were severely cut, but the plant flowered later on as well as ever.—T.

Asimina triloba.—Can any reader of THE GARDEN at once a botanist and entomologist tell me if attention has been already drawn to the deadly properties of the flower of the above tree-like shrub to insect life? Always attracting attention from its strange flowers, in colour and general appearance so different from anything else in outdoor shrubs, it possesses a peculiar interest, fascinating, if repulsive, from the fact that the expanded blossoms are, as a rule, studded over with dead flies and gnats. Is the poison in the petals of the flower or at the base of the pistil? I thought at first the flower was scentless, but with a strong sun on it there is a faint disagreeable odour. Sometimes as many as a score of dead gnats can be counted on the six petals of individual flowers.—E. BURRELL, *Claremont*.

ORCHIDS.

BRASSIAS.

DURING the fifty years or more which have passed since the majority of the Brassias mentioned in the following notes were first introduced to the gardens of this country, not only have the methods of Orchid culture been revolutionised, but the number of beautiful species available to the cultivator has been very largely increased. Compared with the best Orchids discovered in later years, even the finest of the Brassias must be described as only second-rate so far as beauty of colour is concerned. Yet they possess qualities which have given them a persistency in collections which many of their showier allies have not shown. No doubt the "survival of the fittest" theory to some extent accounts for this, for no Orchids have accommodated themselves more thoroughly to the artificial conditions of glass house cultivation than Brassias have. More largely is their continued presence due, however, to the quaint and curious form of their flowers and to the pleasant fragrance which most of them possess. The genus is well worth representing in all except the very smallest collections, and even in these the taste of the owner frequently leads him to prefer them to more brilliantly coloured kinds. About a score species have been described, scarcely half of which exist in sufficient numbers to admit of their wide cultivation, but the species mentioned below may be taken as representing the genus in all its most desirable forms.

The position of the genus in the natural order is between *Miltonia* and *Oncidium*, from both of which, notwithstanding the close affinity of some outlying species, it is abundantly distinct. The most conspicuous feature of the Brassias is the length of the sepals, which, especially with regard to the lower pair, are so attenuated as to frequently give them a tail-like appearance. The genus is exclusively a tropical American one, the majority of the species being found in the West Indies and on the adjacent mainland. Several, however, occur north of the Isthmus of Panama, in Costa Rica and Guatemala, whilst others reach as far south as Peru and Brazil.

B. MACULATA.—This species is mainly interesting as being the first Brassia introduced to England. It was sent to Sir Joseph Banks from Jamaica about 1807, and flowered for the first time seven years after at Kew. It has one-leaved pseudo-bulbs about 4 inches high, the leaf being twice as long. The spikes bear numerous flowers, the

sepals and petals of which are yellowish green spotted with brown towards the centre of the flower, and from 2 inches to 3 inches long. The lip is 1 inch broad by 2 inches in length, creamy white dotted with brown-purple, the crest being orange-yellow. The vertical diameter of the flower is between 5 inches and 6 inches, but transversely not more than one-third as much.

B. CAUDATA.—It was not until 1823—sixteen years after the introduction of *B. maculata*—that a second species was added to the genus. This was *B. caudata*, also a native of the West Indian Islands. It has long pseudo-bulbs 3 inches to 4 inches high and leaves 7 inches to 9 inches long. The sepals are so long and narrow as to be quite tail-like, they and the shorter petals being of a light greenish yellow with dark brown spots at the base. The lip is oblong, but has a long fine point; it is yellow spotted with reddish brown near the centre; the crest is white spotted with orange. From seven to ten flowers are produced on a spike, each one being about 9 inches in depth. This species was introduced by Mr. Lee, of the Hammersmith Nursery.

B. LANCEANA is another old species having been known in gardens for nearly sixty years. It is a plant of robust growth, having dark green pseudo-bulbs and leaves. The sepals and petals are of a pale, but bright yellow, the former being upwards of 3 inches long, the latter about half as much, both being spotted with brown at the base. The lip is oblong and of a creamy white spotted with brown and prettily undulated. The flowers are amongst the most fragrant of Brassias. It is a native of British Guiana.

B. VERRUCOSA.—This was one of the many introductions of Messrs. Rollisson, and its flowers were first seen in their nursery in 1840. It has flattened pseudo-bulbs 3 inches to 4 inches high, bearing a pair of leaves which measure upwards of a foot in length. The flowers are borne twelve or fifteen together on a long raceme, the main stem of which is green blotched with dull crimson. The sepals are between 3 inches and 4 inches long, and of a pale greenish yellow with dull purple at the base; the petals are similar in colour and about half as long. The lip is cordate, pointed, and white, ornamented on the lower half with numerous dark green warts. This species is a native of Guatemala. The only other Brassia which is characterised by warts on the lip is *B. brachiata*, which in everything except size resembles *B. verrucosa*. It is, however, a much more valuable plant in a horticultural sense, its flowers being twice as large and the sepals 6 inches long. It is also a native of Guatemala, and was discovered by Hartweg. Like *B. verrucosa*, it was first flowered by Messrs. Rollisson, but three years later than that species—in 1843.

B. LAWRENCEANA.—Some confusion exists between this species and *B. lanceana*, and descriptions of them in some works are practically alike. The true *B. Lawrenceana*, however, is a distinct and superior plant, as might have been judged by a specimen shown at the Drill Hall in the March of this year by Mr. Measures, of Cambridge Lodge. The plant bore a spike of seven flowers, each of which was 10 inches in depth, the sepals being only half an inch in diameter at the broadest part. The petals are of the same colour, but not so long. The lip is tongue-shaped, and of a pale creamy yellow tinged with green. The species is said to be a native of Brazil, but that appears to be uncertain; it is more likely from regions farther north, especially as a magnificent variety of it called *longissima* with flowers measuring 15 inches in vertical diameter was introduced from Costa Rica in 1866.

B. ANTHEROTES.—In form the flowers of this species are very similar to several of those previously mentioned, but in colour they are amongst the brightest and most striking. The plant has oblong pseudo-bulbs bearing either one or two leaves 8 inches to 9 inches long. In depth the flowers measure about 6 inches, in width about one-third as much. The sepals and petals are of a deep, but bright yellow blotched with dark brown-purple, the petals being half the length of the

sepals. The lip is oblong with a long pointed apex; it is also bright yellow spotted with dark brown-purple. This is a rare species, and usually flowers during the present month. It is a native of the Andes of Columbia, and was first flowered thirteen years ago.

B. GIRCOUDIANA.—This species was first introduced to Germany, having been discovered about forty years ago by Warscewicz in Costa Rica. The scapes carry seven to ten flowers, the sepals being yellowish-green spotted with brown near the base; the lower pair are 5 inches long, the upper one $3\frac{1}{2}$ inches. The petals are of the same colour as the sepals, but the whole of the base is brown, whilst the apical part is wholly yellow-green. The lip is of a light yellow and is also spotted with brown.

As stated at the commencement of these notes, the Brassias are amongst the most easily cultivated of all Orchids. The Cattleya house is the one best suited to the whole of the species, although it is not unusual to see plants grown both in cooler and in warmer temperatures. When at rest or in flower a cool house will suit them, but at other times a temperature not lower than that of the intermediate house is advisable. All the species may be grown in pots or pans, using as a compost fibrous peat and Sphagnum, which will be improved by the addition of finely broken crocks. Water is needed in abundance during summer, but in winter only sufficient to prevent the pseudobulbs from shrinkings should be given. Although requiring conditions as to moisture and temperature similar to what the Cattleyas need, they differ in preferring more shade. They should, therefore, occupy that portion of the house where Lycastes, Miltonias, &c., are usually grown. This does not imply, however, more than protection from the direct rays of the strongest sun; provided this is given, the nearer the roof-glass they are the better. W. J. B.

ORCHIDS AT HEXTABLE.

On a recent visit to Messrs. Pitcher & Manda's nurseries at Hextable I noted some very fine forms of Cattleya Mossiae blooming profusely. Amongst Cypripediums, which are largely grown, was a nice lot of the North American C. pubescens. Just showing flower was a fine lot of C. spectabile. These and many others from the same country, which Messrs. Pitcher and Manda import largely, will form splendid cold house plants. Amongst the Cypripediums in flower there was a very pretty form of C. intermedium, which is in the way of C. selligerum, but larger and finer. It has for its parents C. Stonei and C. barbatum, whilst C. selligerum has for its parents C. barbatum and C. philippinense. Another variety is C. orphanum, a supposed cross between C. barbatum and C. Druryi. The first named parent is visible in its foliage, and the last named in the shape and markings of the flower; the dorsal sepal is broadly ovate, with a broad deep purple band in the centre tinged with light green in the centre, and flushed with soft purple on the outer edges; the lower sepal white, veined with green; the petals broad, white, suffused with rosy purple; along the centre is a deep band of purple and several minor ones of pale green; the pouch-like lip is round and full, of a dark purple suffused with a deep rich vinous purple. C. Harrisonianum superbum is also flowering, and it is one of the best in that section, the colours being so rich and massive. C. pavonium inversum, a cross between C. venustum and C. Boxalli, did not appear so beautiful as pavonium when I first saw it, although abundantly distinct. C. euryale grandiflorum is another

fine cross between C. Lawrenceanum and C. superbiens. Broughtonia sanguinea is now blooming very freely. This is growing upon blocks hung up in good sunlight. Fine varieties of Cattleya Warneri are to be seen, and likewise fine forms of C. Mendeli and C. intermedia. Amongst the whole collection now flowering is a curiosity in the form of a Lælia, which Mr. Manda called L. elegans, but to my mind it had nothing in common with that plant. Its growth is like that of L. Boothiana; the flower is large and pure white in the sepals and petals, the lip in shape like that of L. purpurata, white, streaked faintly on the front part with mauve; throat pale yellow, streaked near the base with rosy mauve. W. H. G.

ORCHIDS FROM SEFTON PARK, LIVERPOOL.

FROM Mr. R. Young comes a box of flowers, amongst which is a very fine form of Cattleya Warscewiczii. It has broad sepals and petals, which are nearly 10 inches across and of a deep bright rose veined with rosy purple; the lip is 4 inches in length, the side lobes being crimson-purple, the large front lobe prettily frilled and of a deep crimson-magenta, having two somewhat small yellowish white eye-like spots at the sides of the throat. Cypripedium Stonei is sent as having the sepals very finely striped. It is certainly better than some, but I have seen the flowers equally strongly marked. The first plant that was named and figured had no bands upon the sepals. Lælia grandis tenebrosa is represented by a rich dark flower. It is the second best form which I have seen; the best form which has come under my notice came from Mr. Hardy, of Pickering Lodge, Timperley. There are also two forms of Lælia purpurata. No. 10 I look upon as a somewhat poor form, having narrow sepals and petals and a small lip, and this not well marked. No. 8 is very fine, having large and broad sepals and petals, white flushed with rosy lilac, the lip large, of an intense deep maroon-purple with darker veins, the apical part being rich purplish lilac. Of Odontoglossums there are some grand forms, one of the very best being O. crispum Youngianum from a spike carrying eleven blooms, which are each 3 inches across, with broad white sepals and petals, the latter toothed at the edges and prettily spotted with cinnamon; the sepals are plain at the edges, with two large transverse blotches of cinnamon. It is a very pleasing and handsome flower. The flower marked 4 is very handsome; a name is asked for, Mr. Young very accurately pointing out plate 85 of the "Orchid Album" as what he took it for. I have no doubt but this is right, but the flower sent is much superior to the one figured. I should call this a very fine variety of lineoligerum. No. 5 is from a plant bearing twenty-seven blooms, and I am asked if it is not O. crispum Andersonianum. I should think it is one of the many forms of this variety, and although it must look fine upon the plant, I cannot call the individual flower a very good and taking variety, the spotting on the sepals and petals not being so profuse or rich as I have seen in forms of this plant. W. H. G.

Pruning Orchids.—The note in THE GARDEN of May 28, to the effect that the question of the advantages of pruning Dendrobiums has to a great extent been set at rest by the grand plants at the late Temple show, is interesting reading to me, as I was, I believe, the first to publish in THE GARDEN the opinion, from experiments made here, that pruning was a safe and good practice, not only with Dendrobiums, but several other Orchids, probably all; and by pruning, I mean the removal of the old and still living, but useless back bulbs or limbs. Readers of THE GARDEN cannot have forgotten how the "most experienced" growers predicted nothing but disaster to those who followed my advice, as it turns out now quite a delusion on their part. I have seen many pruned specimens in

recent years at shows, and the contrast between them and unpruned plants with their forest of old withered stems was marked. I see a contemporary telling a correspondent that when pruned, Dendrobiums must be treated differently during the flowering season which is another error. The plants described by me in these pages years ago, several species seen by many were all grown side by side under equal conditions.—J. S. W.

The Tonquin Lady's Slipper.—I quite agree with the statement of "F. W. B." (p. 152) as to the beneficial properties of limestone in the cultivation of the niveum group of Slipper Orchids. Three or four years since a few small pieces came into my hands, and being potted in peat and Moss they looked anything but happy, in fact, they became smaller by degrees. Upon using limestone for drainage in place of ordinary crocks, also using small pieces in the potting material, the plants commenced to improve at once, and the roots, which are now strong and healthy, cling very tenaciously to the stone. Certainly the plants are only small, but as far as being in a satisfactory condition they are perfectly happy. When it is considered that this group of Slipper Orchids baffled cultivators to no small extent, any hint which is likely to prove of value cannot be over-estimated. It is quite evident that by imitating the natural growing conditions of this alluring class of Orchids, we are more likely to obtain success in their cultivation. The limestone which we use is commonly called coral rag, of which we have plenty hereabouts.—A. YOUNG, *Alberley Hall, Stourport.*

EPIDENDRUM VITELLINUM MAJUS.

A LITTLE more than a year ago I visited Fringilla, Sefton Park, Liverpool, the residence of Mr. Reginald Young, where I noted Orchids were extremely well done and were growing and blooming very freely. In a letter recently received from that gentleman he says the four plants of E. vitellinum majus which I noted last year are again blooming profusely and carrying fifty-four spikes of flowers. One plant has sixteen trusses of bloom and the three others twelve and thirteen each; thus, in spite of what Dr. Lindley says of this plant in the "Folia Orchidacea," "a magnificent species very difficult of cultivation," we have this species doing exceedingly well and flowering annually in a most profuse manner. E. vitellinum was first found in Mexico a little over sixty years ago, and first flowered in the celebrated collection of Mr. Barker, of Birmingham, some ten years afterwards. The plant continued both scarce and difficult to grow. In the year 1864 a considerable number of the variety majus was sent home, and since that time the typical plant has become scarcer, and at the present moment could hardly be found in any collection, the variety majus having completely eclipsed it both in the brilliancy of colour and in the size and density of its flowers. Herr Roezl, in speaking of this plant, says it is found in quite a cool temperature in the growing season; the heat seldom exceeds 68° or 70°, but it rains nearly every day for about two hours, and in the cold season fogs are frequent and at night frosts are of common occurrence. When treated in a natural manner and well shaded from the sun, as at Mr. Young's, this Epidendrum will flower year after year regularly. The colour of the flowers, which is a very rich vermilion orange-scarlet, contrasts well with the white shades so predominant amongst the Odontoglossums, and with which this plant grows well. If kept in a shady position its flowers will last quite three months in perfection, but I do not advocate them being retained such a long time upon the plants, as the plants have not sufficient time or strength left to make flowering bulbs

for another season. The variety majus usually flowers through the summer months, but the typical plant's time of flowering is through the late autumn and winter. W. H. GOWER.

ORCHIDS AT BATH.

THERE are several admirable collections of Orchids grown in the neighbourhood of Bath, and foremost among these must be placed that formed by Mr. R. B. Cater, who has been an Orchid enthusiast for a long time, but it is only of late years that his success with them has become most marked. Cattleyas are quite a speciality. When I saw them a fortnight since there were enough in full bloom to fill a good-sized house, and out of the lot not a poor form was to be seen. There were several very superior forms of *C. Mendeli*, one of the best having extra fine richly coloured flowers the size of which I had the curiosity to ascertain. The lip was from 2½ inches to 3 inches across and beautifully coloured, while the petals were 2½ inches wide, 4 inches long, of great substance, and nearly pure white. In *C. Mendeli Morganii*, commonly called The Bride, Mr. Cater has a variety of still greater value, this being of excellent form and substance and nearly pure white. A small piece imported in 1891 was bearing two lovely flowers. I was also in time to see the best of the *C. Mossii* section, and of which Mr. Cater has numerous forms. A piece of *C. M. Hardyana*, imported in 1888, was bearing four grand spikes, and near at hand was another vigorous plant of *C. M. gigantea*, this having extra fine richly coloured flowers, the lip beautifully margined and fimbriated. It was imported in 1879, and *C. M. Mooreana* imported about the same time was worthy of special mention. With the Cattleyas are grouped quite a valuable collection of *Laelia purpurata*, the plants being remarkably well grown and the forms very superior. One form provisionally named *L. p. Cateri* has a fine bold flower with a more richly coloured lip than any of the rest, and is thought even superior to *L. p. Handleyana*, which also flowered first at Bath. One grand piece of *L. purpurata* (not made up) imported in 1879 will shortly have eighty fine flowers open, and would be very hard to surpass as a single specimen, while a plant of *L. p. Russelliana*, which has been in Mr. Cater's possession about six years, was carrying eight grand flower-scapes. *Cypripediums* are not grown very extensively, but I noticed a very good form of *C. Lawrenceanum*, and Mr. Cater is also the fortunate possessor of a healthy plant with several strong breaks of what is known as the Westfield variety of *C. insigne*. *Dendrobiums* are particularly well grown, a large batch of *D. Wardianum* being in the best of health and vigour, and no one flowers them better than I have seen Mr. Cater show them at Bath. Cutting out the old pseudo-bulbs is being given a fair trial, and in all probability will prove a successful experiment. A house in two divisions has been built for cool Orchids, where they are shaded by deciduous trees during the hottest part of the day, and this appears to suit *Odontoglossums* admirably, as they are rooting strongly and forming extra strong growths. In this house there are several very fine forms of *Odontoglossum crispum*. M. H.

Cattleya Warneri.—J. Jessop sends me a flower of a good form of this beautiful variety; the sepals and petals are soft rosy purple, the large lip beautifully frilled, deep rich purple with a lighter border, and yellow in the throat. In the sixties, I used to find some very fine forms about Manchester in the various collections; why do we not see them now-a-days? *C. Warneri* is said to come the nearest to the original labiata, but it flowers at the opposite season to that plant. It is a magnificent and gorgeous Cattleya. —W. H. G.

Phalænopsis Mariæ.—"G. T. M." sends me a bloom of this beautiful species from a spike bearing eleven flowers. It was discovered by Mr. F. W.

Burbidge when travelling for the Messrs. Veitch and Sons. It was found in the isle of Sulu. At first only four plants were found, but it was afterwards discovered by Boxall in the adjacent island of Mindanao and sent home in good condition. The blooms are about 2 inches across, thick and fleshy in texture, creamy-white, transversely barred with chestnut; the lip is rich rosy purple, and destitute of a brush on the front lobe.—G.

FERNS.

HARDY FERNERIES.

WHILE flowers are indispensable for the ornamentation of a villa residence, a collection of hardy Ferns forms an equally important addition, and when properly and tastefully arranged



Ferns on an old wall. From a photograph sent by Miss Harrison, Waterhouse, Bath.

they may be made to assume as natural an appearance as they do in a wild state; the rustic appearance, too, of a hardy fernery forms an agreeable contrast to the more dressy portions of the grounds. It is difficult to lay down definite rules for the construction of a fernery, so much depending upon the position which it is to occupy and the space at command. In fixing on the site, the first thing to be aimed at should be a shady secluded nook—not one that can be seen from the windows of the mansion or cottage, nor yet from the flower garden, but a part that is unexpectedly come upon when walking through the grounds. The situation should also be one that is sheltered from boisterous winds. Moisture, too, is essential to the well-being of hardy Ferns, but this cannot always be given in sufficient quantity to carry them safely through hot summers. Anything like straight lines must be avoided. If the space to be occupied be long rather

than broad, it should be broken up here and there so as to form miniature dells, recesses, and projections, but all should have as rustic an appearance as possible. The plants in all cases should be allowed sufficient space in which to develop themselves. Where outdoor Ferns have failed to do well, the ferneries have generally been cramped for room. What is wanted is breadth and length, height being of secondary importance. If the fernery be so arranged that it could be traversed by a narrow path from which the plants could be examined, all the better. The stones employed should be placed in as natural a manner as possible, and yet they should possess a certain amount of artistic arrangement. Anyone who has searched for Ferns in their native haunts cannot have failed to observe that they luxuriate in a light, sandy soil, and this must form, if possible, the main bulk of the fernery. I have, however, many times used cocoa-nut fibre mixed with turfy loam, and it has always appeared to answer admirably. For very delicate sorts a compost may be formed of peat, leaf-mould, and loam, with a sprinkling of silver sand to keep all open and porous, but the stronger sorts, as has been stated, will succeed best in loam without the addition of peat. When I use cocoa-nut fibre I find that it retains the moisture without becoming sodden. Fern roots being generally of a wiry nature will grow in almost any soil that is of ordinary texture, but it ought not to be heavy. Ferns dislike manure both in a solid and liquid form. In arranging the plants I would not separate the evergreen from the deciduous kinds, but so dispose of them that when the foliage of the latter dies down in the beginning of winter, there would still remain plants enough to interest the cultivator. I would, therefore, plant plenty of sorts that would retain their verdure throughout the winter, such, for instance, as the *Blechnums*, *Scolopendriums*, *Polystichums*, and *Polypodiums*. In planting, an error of too common occurrence must be avoided, viz., that of planting too deeply. Generally speaking, the crowns must be kept well above the soil, but they should be made firm, and the stronger-growing sorts should be planted first. Dwarf-growing varieties with fine fronds should have the most sheltered nooks assigned to them.

If water exists in the fernery, a place must be afforded for the Royal Fern (*Osmunda regalis*). A list of hardy Ferns would be out of place, inasmuch as cultivators have their own particular favourites. I may, however, just add that a small fernery (as in the illustration) may be constructed in any shady corner where flowering plants will not succeed, and if arranged according to good taste and judgment, it will always be a source of enjoyment to the cultivator. T. P. W.

Platynerium Willincki.—This very handsome species, which was, I think, introduced to cultivation some few years ago from the island of Java by the Messrs. Veitch and Sons, is now much less frequently seen, but I nevertheless was very pleased to meet with it in Mr. Thos. Gabriel's garden at Streatham, although under the name of *P. grande*, from which species it is abundantly distinct. In the first place, its sterile fronds live only

one year, and are succeeded by fresh ones, and the long-branched, pendent fertile ones bear the sori near the points.—W. H. G.

Odontosoria tenuifolia (*James Carter*).—If I am not mistaken, you sent me last year a similar lot of specimens, but I could do nothing with them. Young fronds of *Lastrea*, *Polystichum* and other genera are very misleading, and if one ventures to name them, it is only by a mere chance that the names given are correct; so in future I will not name forms that do not exhibit the organs in a perfect state. No. 5 of your specimens cannot be mistaken; it is the species named above. The best form of this variable plant is better known as *Davallia Veitchiana*, and it makes a most pleasing object for a hanging basket.—W. H. G.

KITCHEN GARDEN.

WATERING AND MULCHING VEGETABLES.

UNTIL within the last few days it looked as if we were to have a spell of dry weather. It will be as well then to consider what will be the best plan to prevent the vegetable crops suffering in the event of a dry season. Dry weather very quickly finds out the weakest points of soil cultivation, and so exposes whatever defects there may be present as regards badly worked soil, and also where wanting in fertility. I have often thought, when watching the continuous watering going on, and which in many gardens is a very frequent, and consequently laborious, proceeding, that if a little of the time was taken up in a less busy season in the better preparation of the soil, there would be far less watering necessary during a dry time. There are, however, some crops, such as Peas, runner Beans, French Beans, Vegetable Marrows, and such like, which must have frequent attention as regards watering if they are to succeed in a dry time. Celery, of course, always takes a fair supply whatever the season, excepting, of course, during a very wet time. Whatever preparation as regards soil such crops may have had, they are very apt to collapse without some assistance, unless of course on heavy soils. The question which we have to consider is, what plan we can adopt so as to lessen the labour of heavy watering. During a dry time on light soils watering is a very serious item, as it is on such as these that it is more of a necessity. The dribbles of water which are frequently applied to growing crops in the open vegetable quarters often do them serious harm, and the grower is at a loss to understand why the crops should not thrive better, considering the amount of water that has been given them. The quantity of water itself may not have been large, and if it had been given in larger quantities at longer intervals it would have been much better. The evaporation which goes on in a dry time is enormous, and, incredible as it may appear, the crops are almost starved through cold. The constant application of small quantities of water leaves the soil in a very cold state, consequent upon the rapid evaporation which immediately follows, and the temperature is so lowered as to be very inimical to growth. Whatever water it is found necessary to apply should be given either in the early morning or evening, but for preference the latter. A thorough soaking should then be given, to be followed by a mulch if practicable, or even stirring the surface with a hoe, which even in itself is a capital conservator of moisture. Many people are under the impression that the hoe is only necessary for the destruction of weeds, but there could not be a more erroneous opinion. Water with me

is very scarce, and I have to rely upon the free use of the hoe and also mulching to conserve the natural moisture in the ground. Summer Cauliflowers must have close attention as regards watering if they are to attain anything like their standard, but it is surprising how well the late summer and autumnal kinds will thrive—that is where other good culture prevails—with a minimum amount of water. All kinds of winter greens, of course, must have sufficient water to establish them if a dry time should prevail, but afterwards this is quite unnecessary. It is surprising the amount of drought such plants will withstand when only well-prepared plants are put out.

The value of mulching is very apparent in dry seasons. The best mulch to use will of course depend upon the material at disposal, but where at hand, half-decayed manure is the best, this both preventing the evaporation and benefiting the plants. Any material likely to be of use should be employed, drawing the line at coarse herbage containing obnoxious weeds or the seeds of such. Do not wait until the crops commence to suffer before mulching, but do this whilst the soil contains some amount of natural moisture so as to conserve it as much as possible. In the application of liquid manure if the soil should be at all dry, clear water should first be given. It is by attending to such apparently small matters that we are likely to be successful in the production of good crops in a dry season. A. Y. A.

A Pea with many names. That fine old variety usually catalogued as *British Queen* is also known under various other names. It was raised in the neighbourhood of Bath and grown under the name of *Pon's Seedling*, but is now better known in the same locality as *Ward's Incomparable*. In some districts it is called *Oxford Tom*, while in the north of England it is sold under the name of *Comqueror*. Some go as far as to say that *Ne Plus Ultra* is only a selection from *British Queen*, and there is certainly a marked family likeness. Both are comparatively late sorts, attaining a height of 6 feet and upwards, being also good mildew-resisters. They form short thick pods which are closely filled with fine peas of the best quality. It is also worthy of note that both are sweet and tender when cooked, even when to all appearance far too old for the purpose, in this respect proving far superior to any other varieties that I am acquainted with. It is not yet too late to try *British Queen* alongside *Ne Plus Ultra*, late autumn crops being very desirable in most places.—I.

Transplanting Lettuces.—This is a practice that may be warranted by circumstances, but in many cases I consider it labour-misapplied. When Lettuces are transplanted in a dry hot time they are sure to wilt badly, and although they recover, the unavoidable check induces them under trying conditions to bolt prematurely. My culture of this esculent is conducted on a limited scale, but I always have, no matter what the weather may be, a constant supply through the summer and autumn of crisp Lettuces which very rarely show a tendency to run away before their natural season. From May onward I never transplant, but, devoting a piece of ground to them, I make a sowing at intervals of about three weeks until July. A shallow trench is drawn to the width of the hoe, and if the ground is dry it is filled with water, the seed being immediately sown. The moisture arising from this soaking will generally suffice to bring up the seeds without further attention, but a sprinkling now and then will ensure a very quick germination. The seed is sown thinly, but sufficiently thick to avoid blanks in the row. It is better to have too thin a little than to have blank places. One advantage of this way of growing Lettuces is that in dry weather watering is an easy matter. The moisture given

goes direct to the roots, and when liquid manure is applied the effect of it is more forcibly felt by the plants. I feel sure that if plants are put out and seed sown the same day, there will be little or no difference in the time that the two crops take to come to maturity. The rate of progress of plants generally sown in place is much more rapid than when the seedlings are transplanted. The above remarks are applicable to summer and autumn Lettuces only.—J. C. B.

Cucumber Rollisson's Telegraph.—On page 483 Mr. T. Fletcher asks if the old *Rollisson's Telegraph* is in existence, and complains of being unable to procure it true to name, though plenty of seed-men profess to be able to supply it. If ever he is in the neighbourhood of Bath during the summer I would strongly advise him to pay a visit to Messrs. Cooling's nursery, and judge for himself whether or not they grow the right variety there. Twenty-five years ago Mr. Cooling procured the true stock from *Rollisson's*, and has gone on carefully isolating, selecting, and seed-saving ever since. At the present time there is a wide span-roofed house 60 feet long, and also three ranges of heated pits of the same length devoted solely to the growth of *Rollisson's Telegraph* for seed. As yet the plants are not far advanced in growth, but all are remarkably vigorous. It frequently happens that as many as five fruits are produced at a single joint, and I can vouch for the length, good form, and quality of the variety being most satisfactory. From what I have previously seen and known of the stock held by Messrs. Cooling, I have no doubt about its being the true old *Rollisson's Telegraph*. Others, too, are evidently of the same opinion, as it is scarcely possible for the crop of seed to exceed the demand for it every season. That it is still, all things considered, one of the very best Cucumbers in cultivation there is no disputing.—W. I.

INTERMEDIATE CARROTS.

OF late years there have been great improvements effected in these, the *New Intermediate* being undoubtedly much superior in every way to the old form known as *James' Intermediate*. The latter varies greatly, and on some soils, notably those of a strong or clayey nature, it is scarcely possible to lift more than a very small percentage of roots well coloured and of good form; whereas in the case of the improved strain coarseness does not prevail to any very marked extent, and the bulk of the roots are of good form, rich red in colour and tender and sweet when cooked. For exhibition purposes during August and later months the *New Intermediate* is simply invaluable. In *Carter's Scarlet Perfection* we have another form of a distinct character and suitable alike for home consumption or for exhibition. This is about the size and shape of the *Long Surrey* at the shoulder, and tapers down to a sharp point, but is not nearly so long as the *Altringham* and *Long Surrey*, the clearness of skin, colour and good quality also somewhat resembling those of the latter. I am not acquainted with the history of either the *New Intermediate* or *Scarlet Perfection*, but the former bears a suspicious resemblance to a Continental variety that I have grown.

Early sowing in the case of intermediate Carrots is a great mistake, especially where the soil tends to promote coarseness. I consider the best time to sow them is about the middle of April, and they ought to have a good open site, this to be well prepared by being early laid up roughly to the pulverising influences of frosts, winds, sunshine and rain. There ought to be no strong manure dug in, but if a light surfacing of soot and wood-ashes is stirred in prior to sowing the seed, this will act most beneficially. It is of the greatest importance that the seed-bed be thoroughly reduced to a fine state to a considerable depth, lumpy soil never

yet producing good crops of well-formed roots. Heavy lands are liable to bind and crack badly, and these ought to be specially prepared for Carrots, plenty of one or more of such materials as common sand, well-decayed leaf-soil, common peat, and decayed spent tan being freely mixed with the top spit. A free use of the Dutch hoe is to a certain extent preventive of cracking, besides being otherwise of benefit to the crops, but this is not enough for heavy land, and a mulching of any of the substances named for mixing with the soil, or failing these short grass from the mowing machine ought to be given. The crops pay well for this attention, especially during a dry season, and keeping the ground moist is one of the principal factors in the production of well-formed roots. The thinning-out and hand-weeding in the rows ought always to be done directly the plants are large enough to draw readily, and they may be left 6 inches apart or even more thickly if the rows are a foot asunder. October is the month in which to lift and store the roots in sand or fine dry soil, some additional protection being also needed.

I. M. H.

Early Peas.—We have very dwarf early Peas, such as Little Gem, American Wonder, &c. which, although so early, are yet so dwarf, that at the best they produce very poor crops. Then of ordinary first earlies we have Sangster's No. 1, William I., Kentish Invicta, Eclipse, &c., which have the fault of being all rather too tall. The best intermediate form I have seen so far is Chelsea Gem, which is both very early and prolific, but it hardly exceeds 20 inches in height. What we want is a variety that has all the characters of the latter and about 12 inches taller. Our earliest Peas should range from 2 feet to 2½ feet, and bear sowing in rows at 3 feet apart. They should be very hardy, for only good hard seed can be trusted in the ground in January and February, even on warm south borders. Sowings in March are hardly to be regarded as early, but they are soon enough for marrow or wrinkled Peas. The practice of raising Peas under glass for later turning out into the open ground is very good where birds are specially destructive; but on the whole no plan excels that of sowing in the open ground on well-worked soil and protecting the young plants with wire guards, as in that way the birds are kept at bay, and the rows may easily be protected by covering the guards with some coarse material at night if the weather be severe. I do not suppose that any gardener cares one atom about new late Peas, especially tall ones. The varieties introduced of late do not show any great improvement on older ones, because older ones were so good. It is in relation to very early, hardy, prolific, dwarf sorts that most interest is shown, and although we have still many sorts, there is much room for improvement. Raisers of edible Peas should be encouraged to work in that direction, for an ideal early Pea does not yet exist. Even now with all our early varieties it is difficult for the gardener who has warm sheltered borders to gather outdoors before the first week in June, whilst the market grower cannot get a decent sample for sale until a fortnight later.—A. D.

Cucumbers and woodlice.—Few insect pests, if any, play greater havoc to freshly planted Cucumbers than woodlice, particularly if the plants are the least weakly when planted out. In old houses, especially those having decaying wood in them, woodlice generally exist in overwhelming numbers. The most practical way of dealing with woodlice where they are known to exist is to trap them prior to putting out the plants, for then you can deal with them in a wholesale sort of way without injury to aught else. The best method that I know for their rapid extinction is a small pot with a little hay or moss at the bottom, in which they secrete themselves in considerable numbers. These pots should be examined daily, the best time I have found being early in the

evening, when, with the assistance of a bucket of boiling water, the woodlice may be easily killed by shaking the contents of each pot into the water. Another way and one which has given even better results than that just named is laying down thin slices of Potatoes, about which they swarm in great numbers. By selecting some large-sized Potatoes and cutting into thin slices longitudinally a good catch may be secured in one spot; a little boiling water and the syringe complete their destruction. For walls and such places the syringe is the best and easiest way of despatching them, boiling water being necessary. The Potato slices also attract any slugs that may be about, while a pinch of salt sprinkled over them makes short work of them. Both are very undesirable and do a good deal of mischief, but if the above methods are put into use and persisted in, a great reduction in their numbers may be secured. The existence of the Potato slices in any case attracts them from the plants, and soon these latter will be too strong to be much harmed.—E. J.

Rhubarb.—Mr. Barron brought up from Chiswick for the edification of the fruit committee at its last meeting at the Drill Hall samples of Ryder's Giant and Victoria Rhubarb, both very large, just to show identity. Stott's Monarch, if it be really distinct, is another of these large-stemmed varieties, the usefulness of which it is difficult to comprehend. It is hard to understand why judges at cottagers' shows of garden produce should always select the largest stems if they be straight and clean for the prizes, as every gardener knows that such stems have exceedingly coarse flesh, are very flavourless, and would never be grown by them for ordinary use. It is quite right that judges should favour handsome straight stems, but they should have good colour, be quite young, and so far as possible have flavour. These are not features found in the huge stemmed varieties. Somehow judges have got to think in relation to cottagers' produce that bulk or bigness is all that need be regarded. I hold that just the same principles which govern awards of the best class garden produce should also govern judgments at cottagers' exhibitions. The Victoria, grown in ground of moderate quality, is not excessively large. It is only when in strong well-manured soil that the stems are unduly large. Then it is far wiser to depend upon such varieties as Hawke's Champagne, Linneus or Johnstone's St. Martin's, assuming that these are really distinct, for they start growth early, are of rich colour, throw up numerous stalks all through the season and are by far the best for all ordinary purposes. The cottager is usually invited to compete for prizes with Rhubarb stalks in the autumn, which, with plenty of fruit in season, is hardly a good time to look for the best Rhubarb.—A. D.

The maggot in Cabbage plants.—I should feel much obliged to any reader of THE GARDEN for any information respecting maggots in the stem and roots of Cabbage plants. The plants I send were raised in the spring, and were doing very well till about a week ago. I have found as many as seven maggots eating at one stem. The ground was dressed with cow manure, and I am inclined to think that this creates more insect life than other manures. What is the experience of others?—A. B.

* * The maggots which are infesting and causing such destruction to "A. B.'s" Cabbage plants are the larvæ of the Cabbage fly (Anthomyia brassicæ), being a near ally of the Onion fly. Unfortunately, this appears very prevalent this season, the past dry weather apparently being in its favour. This must not be confounded with what is termed "club," although one is almost as destructive as the other when the insects gain a firm foot-hold. Like "A. B.," I am under the impression that cow manure favours their presence, as out of the same sowing I have had plants badly affected when pricked out over a layer of manure underneath, whilst others growing in the open and not pricked out were quite free. Where such attacks are apt to be prevalent, protective measures should be taken in the

autumn by bastard trenching, afterwards just colouring the surface over with gas-lime, lightly pointing it in. This would destroy the pupæ which lie in the soil throughout the winter. The noxious fumes would pass off before cropping time, and instead of the remedy being as bad as the evil, as some people aver, it is just the opposite. You must not stop short at this, but in the spring previous to cropping apply a dressing of charred refuse, also soot and salt, the latter being applied to the surface at the rate of 1 oz. to the square yard. Previous to planting dip the roots in a puddle formed of soot, lime, and soil. The plants should also be lightly dusted over with soot, taking this precaution whilst they are in the seed bed. This prevents the female from depositing her eggs. All that "A. B." can do now is to dig up carefully all affected plants and burn them, picking out any grubs which are left behind. The remainder should be watered with lime water, applying it direct to the roots, also dusting the soil over with soot, hoeing it in. I should burn all old Cabbage or Cauliflower stumps and any other rubbish, returning the ashes to the soil. This is much better than digging it in as manure.—A. Y. A.

CELERY FOR EXHIBITION.

I AM not at all sure that gardeners really cultivate Celery as they might. Those who grow this—certainly one of the most popular of our edible leaved plants—for exhibition do produce stalks of wonderful size and finish, and much better adapted for general table purposes than their size would appear to warrant. But some who grow for exhibition, and devote great attention to its culture have at times to deplore, when taking up the plants, that they have either begun to run to seed, or else have gone hollow in the centre. These conditions are sometimes attributed to a bad stock being grown, but that does not meet all the case; and light Celery may be produced by other causes than a bad stock. I think it not unlikely that in nine cases out of ten the evils above-mentioned arise from sowing the seeds too early, for the plants are necessarily kept for a longer time in a warm atmosphere than is necessary, and before the time arrives for putting them out, the plants have become drawn and weakly; they thus receive a check, which proves detrimental to a vigorous development.

Celery is grown very finely indeed in Lancashire both for exhibition and market, and some of the finest strains in cultivation have been selected in that county. One of the most successful cultivators I am acquainted with adopts the following method of growing for exhibition. He sows his seeds about the middle of March on a gentle hot-bed, first covering the bed with about 2 inches of light soil, with which is mixed a portion of clean sharp sand. The seeds are then scattered thinly over the soil, and pressed into it by means of a smooth flat board, not covering them. When the seeds germinate, and there is outside a heavy damp atmosphere, which prevents air being admitted, the little plants are liable to damp off. To prevent this as much as possible, the raiser sprinkles some very fine dry silver sand over the surface of the bed among the plants, which is found a good preventive, and at the same time the plants are stimulated into growth. The next step is to prepare a compost made up of a mixture of rich loam, leaf soil, and rotten manure from an old hotbed. This is spread over a well-dug and pulverised border in a warm position, and then it is flattened down with the back of a spade. As soon as the seedling plants show their first rough leaves, they are carefully taken up and transplanted to this prepared bed, pressing the soil firmly about the roots, but taking care not to bruise them. A dull day is generally selected for transplanting, but if the weather be hot and drying, as soon as the bed is planted it is watered through a fine-rosed watering-pot and shaded, and, with necessary care, scarcely a plant fails to grow.

In early winter the trenches in which the plants are to be grown through the season are thrown out to a width of from 2 feet to 3 feet and a foot in depth, and into the trench is placed a mixture of night soil thoroughly mixed with fine ashes, loam, road scrapings or sand to the depth of about 9 inches, and frequently turned over during the winter and spring. Transplanting to the trenches is done when the plants in the beds are from 2 inches to 3 inches in height, as thick as one's finger, and rooted in the form of a miniature mop. Just previous to transplanting, the trenches are surfaced with some 2 inches of a nice loamy compost, and the plants are then placed in a single row about 8 inches apart. A good soaking of water is given at the roots and no shading is needed, as when lifted from the bed to the trenches care is taken that a good ball of soil is attached to the roots of each plant. It is considered most essential there be no check to their growth, and the custom is to water the plants with clear soft water directly the surface appears to be dry. So far from the soil being trodden firmly about the roots of the plants in the trench, it is occasionally loosened with a fork, care being taken not to disturb the roots.

The process of development is watched with the greatest care. All side shoots thrown up from near the roots are removed, and when the plants have reached a foot in height, the leaves are gathered up, and soft matting tied loosely about them to prevent the wind from breaking the outside stems; and as the plants grow and the leaves widen, the bands are loosened and earthing up commences until the ground level is reached, and then a square top is kept for some distance from the plants in order to form a foundation for the subsequent earthings. In order to procure exceptionally fine heads, a narrow drain-pipe is inserted obliquely on each side of every plant, and each pipe filled once in three days with weak guano water. This is said to be the best thing in the way of liquid manure which can be supplied to Celery plants to encourage quick growth and ensure fine quality. The last blanching is secured by earthing up about a fortnight before the exhibition takes place. R. D.

The bolting of Cabbages.—I was not aware that the bolting of Cabbages was so general as "Caledonian" states. Very fortunately, we are not in the same plight, and I know many others are the same. Excepting one kind, the Nonpareil, which I grow principally for affording secondary sprouts, I have no complaint to make. The loss of the early Cabbage crop is serious at any time, especially so in a season like the present when there appears to be such a dearth of green vegetables. If "Caledonian" had not qualified his statement by saying that "all varieties are affected the same," an answer to the problem could be more easily forthcoming. If "Caledonian" could have mentioned the names, it would have been much better. Wherever I have heard of a case of the loss of the crop through bolting, it has been more a matter of variety than anything else. Our first Cabbage, Ellam's Early, was cut on the 5th of May, the other kind which ran it hard being Men's No. 1, two excellent varieties for the earliest cutting. Considering that this was from a very cold soil and exposed position, it speaks volumes in praise of the kinds named. The seeds were sown on the 12th of July thinly on good soil, in fact on a border cleared of early Potatoes, and were good plants for putting out during the early part of September. October is too late, as the plants do not have time to become established before cold weather sets in. At one time, the date for sowing was quite a month or five weeks later. This date was quite early enough for the older kinds. Earlier than this, they generally bolted. When I first came into this district and made my first sowing in the middle of July, some of the "old hands" shook their heads and predicted failure. Sowing the old kinds at that date, failure might have followed, as witness the Nonpareil this season in my case. I was taken to

task early in the year for saying that Cabbages were cut earlier than formerly, a statement I still adhere to—at least the kinds are more reliable if the best are sown. If the older kinds are so prone to "bolt," the latter-day varieties must be the best if they escape the evil. Selections might be known at that time in a few individual cases which were considered good in every way, but until they are made public and are in general use they are a dead letter.—A. Y. A.

A new forcing Lettuce, Harbinger.—This Lettuce was shown at the Temple show, and stated to be one of the quickest Lettuces to come in. I find it remarkably quick to turn in, and being a



Verbascum phoeniceum. From a photograph sent by Mr. McWalters, Armagh. (See p. 551.)

curled variety, it resembles Endive very much, thus making it a valuable kind for cutting up into salads. It is very good for sowing in boxes and cutting in a young state; indeed, I think its best qualities will be found in its use in a very young state, as it does not heart so freely as ordinary Cabbage kinds, so that it is advisable to use it for early work, and being a nice looking Lettuce with fringed leaves and crisp will bring it into favour as a forcing variety. I have in previous notes advocated the use of the earlier kinds of Lettuce when salads are difficult to get in the early part of the year by sowing in frames, in pans, and boxes and cutting in a young state, and the above is one most suitable for that purpose, as it grows so rapidly and is of good quality in a young state. It

will also prove a welcome addition to those who require novelty, as it is very effective when sent whole, the colour and leaves adding to its appearance.—G. W.

BROCCOLI AND CAULIFLOWERS IN SUCCESSION.

THE Cauliflower is not valued much whilst the Pea crop is in. A good breadth of Cauliflowers at this date (the first week in June) is valuable where the gardener has to provide vegetables in quantity. Some good growers advise Early London. I do not like it, as it is no earlier than some other and better kinds, and rather large for small gardens. My greatest objection is that it is a very bad one for opening or getting loose, the heads do not keep long, and they all come in together. I prefer Walcheren for sowing in the autumn and Veitch's Early Forcing or Snowball for sowing in heat. The flavour of the Walcheren is superior to any when the head is about the size of a cricket ball. I cut the first Cauliflowers this year on June 2, the variety being Walcheren, thus showing it to be equally as early as Early London and I believe of better quality. These plants had been put out under hand-glasses on a south border. Those who cannot find protection for plants under hand-glasses may resort to sowing the small early kinds such as Snowball, as these take about twelve to fifteen weeks to come to maturity. Early Forcing or Snowball is less subject to button than some kinds. I have grown this variety in frames from the time of sowing till it was ready to cut. It turns in quickly and may be planted closely together. It is also good grown in pots and boxes. This last system of culture is not often practised, as if Model Broccoli is grown for the late crop, there is no gap between the last cutting of Model and the early Cauliflowers. In an excellent note on "Late Broccoli" at p. 522, "A. Y. A." recommends Model very strongly, and I thoroughly agree with him, as it was the only kind that stood the severe weather of the past two winters. I had it in quantity till the first week in June, thus leaving no interval between the Cauliflower and Broccoli. It seems to behave equally well on diverse soils. I have grown Cattell's Eclipse for the past twelve years to precede the late kinds, and so far it has always given general satisfaction. In some seasons the weather has been too much for it. I always heel it over at the end of November; this checks luxuriant growth and hardens the stems to resist frost. Some object to this variety on account of its sulphur colour, but it is very hardy and the colour not much noticed when other vegetables are scarce.

For summer use I do not think there is any variety equal to the Walcheren. I use this to follow the autumn-sown Cauliflowers, or those sown in heat, and I have never found it fail in the driest seasons. At one time, having to provide Cauliflowers or Broccoli in quantity, I found this variety valuable, as it resists drought better than Cauliflowers, caterpillars are less troublesome, and the heads do not open so quickly, are not too large, and of a beautiful white colour. I make a point of sowing three lots of this variety during the year, the first on a warm bed of leaves and litter with early sprouts, another as soon as weather permits, and another in May. These two early sowings form a succession till the Autumn Giant and Protecting Broccoli come in. The May sowing, which is made in the middle of the month, never fails to give a good return after Christmas, and if lifted with a good ball will keep in good condition for several weeks, when Snow's Winter White comes in. This last is a grand variety if it can be secured true, as the ample leaves protect the heads in severe weather. I heel all our plants over, and though I lose in size I often save a crop. It is also advisable to plant this crop in different parts of the garden, as all places are not alike, and if one lot succumbs, another may be safe. Close planting is also bad. I cannot say too much in favour of pricking out the plants, especially those to stand over the winter, as they are dwarfed by the check they receive and are better able to resist frost;

indeed late Broccoli should never be drawn out of the seed beds and planted in permanent quarters. Another plan of growing Broccoli is to plant in deep drills or trenches. I have found this answer, as the soil can be drawn well up into the leaves in the autumn, the stem being thus protected and lifting or heeling over less necessary. The earthing up should be deferred as late as possible to get the stem thoroughly hard. In light soils the ground is firmer and cooler when trenches are used, but in heavy land I would not advise it.

G. WYTHES.

Perfect Gem Lettuce.—I cannot agree with "J. R.'s" note (p. 482) when he puts Golden Queen and Paris Market Lettuces before Perfect Gem. I admit Golden Queen to be the best for sowing in heat for early use, but for cutting at this date early in June so far as my experience goes Perfect Gem is far superior and one of the good things sent out of late years that will become as well known as All the Year Round. Having grown a great quantity of Lettuces last season, I marked the above as the variety for summer use, and I have this dry season reaped the benefit, as it is a perfect Lettuce, very compact, forms a close, solid heart, and turns in quickly; indeed, to show its quick growing qualities, I have just cleared a piece of ground sown early in March. It is, I consider, superior in quality to Golden Queen or All the Year Round, as it resists drought better than other Cabbage varieties. I have grown Paris Market in the same way as Perfect Gem; it was a good early Lettuce, excellent for sowing in heat, but not so good for summer use, as it was less compact. New York I have not given a trial.—S. H.

Tomatoes—Manure v. moisture.—I have seen so many failures in small houses by giving manure at the time of planting, that I would certainly advise its being applied in other forms than mixed with the soil at planting time. We see fewer failures now than formerly, when it was thought Tomatoes could not be fed too much or treated too liberally, but even now there is too much top-growth, too little fruit, and often disease caused by excess of feeding material at the start. The way Tomatoes are grown at Chiswick will show how much may be done with limited manure at planting time and the amount of water applied. The value of feeding is clearly demonstrated when applied at the proper moment—that is, when a strain is put upon the plants—as soon they commence to swell their fruit. The greatest quantity of fruit is secured from plants checked—that is, by the cordon system of growth, and due attention paid to stopping. If planted in a rich compost with a large root-run, it is very difficult to keep them in bounds in a warm, moist house. Of course, in poor soils it may be necessary to give some help to the roots, but I would prefer giving good loam to using animal manures. As a top mulch the latter is excellent, and in a restricted root-run assistance is soon required; this may be given in a liquid form or applied on the surface and washed down to the roots. Many large growers to get early fruit grow in pots plunged in the soil, thus getting sturdy growth with plenty of fruit. I prefer growing in this way; heavy crops are secured with the least trouble.—S. H.

Early Turnips.—To get Turnips fit for table in May is not an easy matter in such seasons as we have had this year, as owing to the ground being in a cold, wet state early in the spring it was useless to sow too early. I read with interest the notes in THE GARDEN earlier in the year on early Turnips, and though I had little doubt which was the best Turnip for early sowing, I thought it best to give the matter a fair trial, so on March 30 I sowed several lots, such as Snowball, Early White Stone or Six-weeks, Early Munich, Early Milan, and White Dutch on the same quarter, giving all the same treatment. Extra Early Milan was fit for use on May 29, whilst the others are from ten days to a fortnight later; indeed, two of them will not be ready then, so that I strongly advise the sowing

of Early Milan where early Turnips are required, sowing others at the same time to form a succession. The Turnips are much appreciated as early as they can be obtained, as there is some difficulty in keeping up the supply of good solid bulbs as spring advances, as they become soft and useless, no matter how carefully stored. For late keeping to eke out the supply till the earlier kinds come in there is none better than the yellow-fleshed varieties, Golden Ball being a fine winter kind. Those of the round or globe section keep much better than the flat or strap-leaved kinds. The value of Extra Early Milan is its earliness and its freedom from bolting, which are so characteristic in other early kinds. Scarcely a plant bolts on our light soil, while on heavy land it is equally good. I would draw attention to the value of plenty of moisture on light soils, as then there is no trouble in securing an early crop. For keeping I do not advise Early Milan. Those who have movable frames at liberty in the early part of the year would do well to give this variety a trial.—G. WYTHES.

NOTES OF THE WEEK.

A fine Ramondia.—I bring you a stem of *Ramondia pyrenaica* with seven flowers; it was taken from a plant in a rock bed in full shade.—G. F. WILSON.

Anemones from Ireland.—I send you some June Anemones from my new garden on the hill of Killarney. They are small in comparison with the April blooms, many of which measured 6 inches across, but the plants are now in full seed pod.—ST. BRIGID.

Farnham Rose Show.—We are asked to state that at the show of the Farnham Amateur Rose and Horticultural Association, to be held on July 6, prizes of £5, £2 and 10s. are given for the best box of twenty-four Roses, open to all comers, amateur and professional.

Frost in June.—I enclose Potatoes and runner Beans that were cut with frost last night, the 13th, in a garden about a quarter of a mile from here. I thought you would be interested in them as showing that we never seem safe from frost in this country (we escaped).—J. REYNOLDS, Hawley, Blackwater, Hants.

Hardy flowers from Forest Hill.—Messrs. J. Laing and Sons send us a gathering of hardy flowers consisting chiefly of forms of the German Iris. Among the flowers sent are *Aquilegia chrysantha*, one of the best of the Columbines. In the cultivation of *Aquilegia chrysantha*, has any reader of THE GARDEN found that by growing it in a moist spot it will always succeed best?

Disporum sessile variegatum and **D. Leschenaultianum** are both valuable plants for the American garden. Both are natives of the Himalayas, perfectly hardy in the open, and the latter especially one of the prettiest berried plants we possess. They thrive well in a partially shaded peaty bed, not over-moist in winter, but easily supplied with water in early summer. *D. sessile variegatum* is a most remarkable plant, its underground creeping stems enabling it to fill a large bed in a short time. For this reason, if grown in a mixed collection, it should be confined in a square formed of deep slates or tiles. It is, however, such a handsome plant, that one cannot very well have too much of it if space permits.

Gardeners' Royal Benevolent Institution.—The committee of the Gardeners' Royal Benevolent Institution regret to announce that, in consequence of the lamented death of Lady Goldsmid, the fifty-third anniversary festival dinner, at which Sir Julian Goldsmid had kindly consented to preside on the 29th inst., is unavoidably postponed to a date which will be duly notified. Meanwhile the committee earnestly trust that the many friends who have supported the institution in the past will not relax their efforts, but rather increase them, on behalf of its funds, and thus endeavour to make this year's annual collection worthy of the cause for which it was promoted. A sum of nearly £700 is required on July 1 to meet the quarterly payments now due for pensions alone, and the committee therefore sincerely hope that the institution will not be allowed to suffer from any diminution in the amounts collected on ac-

count of the unforeseen and regrettable circumstances which have led to the postponement of the festival for a short time. All moneys should be remitted to the secretary, George J. Ingram, 50, Parliament Street, London, S.W., who will be pleased to send collecting cards to any who may desire them, and also to reply to any communications that may be addressed to him.

Royal Horticultural Society.—The next meeting of the Royal Horticultural Society in the Drill Hall, James Street, Victoria Street, Westminster, will be held on Tuesday, June 21, and promises to be of more than ordinary interest. In addition to the plants and flowers usually to be seen there will be competitions among amateur growers of Peonies, Delphiniums and Pinks. The National Rose Society will also hold its first show of 1892 in connection with the R.H.S., and if previous years may be regarded as a criterion, the display of Roses will be a fine one. At 3 o'clock Mr. W. T. Thiselton Dyer, C.M.G., Director of the Royal Gardens, Kew, has kindly consented to deliver a lecture on "The Management of Trees in Parks and Gardens."

Cassiope fastigiata.—In the alpine house at Kew a vigorous specimen of this is nicely in flower. It is a very beautiful dwarf alpine shrub, and does not seem at all difficult to manage. *C. hypnoides*, another species rare in cultivation, is a good companion to the above, and though smaller, equally beautiful and interesting. Near allies of the above are *Diapensia lapponica*, *Shortia galacifolia*, *Schizocodon soldanelloides*, and *Galax aphylla*, all easily grown in a peaty border on the north side of a wall. The Cassiope suffers most from the cold spring winds, and a slight protection during February and March is all they require. The *Diapensia* in peat and chopped sphagnum is strong and healthy and flowers well.—K.

The Edelweiss.—An impression seems to be very prevalent that the Edelweiss is not only a scarce plant, but a most difficult one to grow. This, however, is by no means the case—at any rate in some parts of England. The question at Leonards-lee, Horsham, is how not to grow it. Here it is certainly delightful, the tufts large, the heads large and well formed. This, we are told, is the result of good cultivation, a pure air, and a total absence of London fogs. The latter, wherever they occur, are fatal to the Edelweiss, giving the plant an unhealthy look, and thinning, if not wholly clearing out, the whole stock. The Himalayan and Transylvanian forms are neither so showy nor so useful as the Swiss plant, both being taller, with smaller and thinner heads and less compact habit.

The blue Rocky Mountain Columbine.—Messrs. Cocker, of Aberdeen, have sent us a beautiful box of this in perfect condition, and it is quite refreshing to see it after the many washy hybrids in our gardens. Beautiful as they are, they give us a feeble idea of the beauty of the wild kinds but that grow in California and the Rocky Mountains. Messrs. Cocker call it an improved variety, but to us improvements on the beautiful Columbine of the Rocky Mountains are impossible, as nothing, we think, can surpass the beauty of the wild flowers. It is far greater than that of the Columbine as generally seen in cultivation. Messrs. Cocker could not do better service for our gardens than keep a good stock of the seed and young plants of the true *Aquilegia coerulea* from native seed which abounds over vast regions.

Disa tripetaloides.—Judging by several healthy and well-flowered panfals of this Orchid which may now be seen in the Orchid house at Kew, it appears most probable that it will eventually become a widely-grown species. When it was first introduced by Mr. O'Brien about three years ago and flowered by him its freedom of growth and abundant flowers were immediately recognised. It has, however, much improved since then, the spikes at Kew being 18 inches high and carrying thirty flowers. It is an evergreen species, the leaves being 6 inches long, narrow, and spreading close to the soil in the shape of a rosette. The spike is perfectly erect, bearing the flowers on the upper third of its length. Each flower is nearly an inch across, the upper sepal being hooded and fur-

nished with a spur, the lower ones oblong. In colour they are a pinkish-white, dotted with pale purple, but there is a form with unspotted and almost pure white blossoms. Like all the *Disas* in cultivation, it is a native of South Africa. It requires little more heat in winter than will keep out the frost, and in summer should be kept as cool and moist as possible.

Dianthus callizonus, now in flower in the rock garden at Kew, is by far the best of the alpine Pinks in cultivation at the present time. It is a native of Transylvania, and may be briefly described as having the habit of growth of *D. plumarius*, with the flowers of *D. alpinus*, but larger. It is certainly a valuable addition to our summer alpine. The plant at Kew is about a foot in diameter, bearing about fifty flowers of a bright rosy purple. It strikes readily from cuttings, and may also be raised from seed, which it, however, ripens but sparingly. The Kew plant is on a western exposure, which suits it admirably, if the health of the plant means anything. A coloured plate of this was given in *THE GARDEN* for October 10, 1891.

Saponaria cæspitosa* and *S. lutea are two very interesting alpine. Both are in cultivation now, and both are densely tufted plants, suitable for the drier spots on the rockery where they may be fully exposed to the sun. *S. lutea*, from the very high Savoy and Piedmont Mountains, has yellow flowers and woolly calyx. The leaves are narrow, and not unlike those of the alpine Catchfly. *S. cæspitosa* has much larger pink flowers, is more free, and with longer linear leaves; it is a native of high barren spots in the Pyrenees. *S. cœymoides* even in its ordinary forms is not to be despised as a rock plant, but when one gets the intense bright rosy pink form now in gardens, it makes a delightful rock plant of a type by no means too plentiful in cultivation. It has a trailing or hanging habit of growth, and on broad ledges is very effective.

Pæonia tenuifolia plena.—What a wonderful contrast there is in the rich crimson flowers of this plant and its singularly neat elegant foliage. It is undoubtedly one of the very handsomest of all border plants, acting by its foliage before flowering and also when this is completed. This variety has always been somewhat scarce, and large specimens of it in gardens are rare. As in the case of all the *Pæonies*, it is of very slow growth, and unless good plants are obtainable to start with, from three to five years must elapse before a good flowering plant is obtained. In all cases a position where it may remain undisturbed for years and a good depth of rich soil should be given it. The single kind appears to grow more freely, making quite a show with its fine blood-crimson flowers, which, however, in common with those of most single *Pæonies*, are too short lived.—E. J.

A charming mixture.—For the past three weeks or a month I have been charmed with a simple long border on each side of a long, broad straight walk in one of our kitchen gardens, and I think no harm will be done in sending a note of the same to *THE GARDEN*. The plant next the rough burr stone edging of the walk is *Antennaria tomentosa*—a broad band—and allowed to break out here and there among the stones on to the walk. About a yard from this is a line, also wide, of the old Pansy Cliveden Purple in full bloom. Between this line and the edging are inserted promiscuously, and not thickly, clumps of *Columbines* of all shades and forms, single and double—a really good strain. Amongst these are also clumps of Iceland Poppies in their various colours, the whole forming a simple, but lovely mixture, and viewed from either end the effect is really beautiful. The plants in such a border possess the advantage of blooming before the tender bedders have filled their allotted spaces. They also need but little labour, and can be got at a cost of a few shillings; indeed, I may say a few pence. Yet they make a bold show and a delightful change. Of course, among the above-mentioned plants various other hardy

ones are inserted to carry out the flowering season until late in the year. It must not be concluded from the above that I disparage *Geraniums* and other tender bedding plants—far from it, for I plant them very extensively, and they here prove showy, effective and useful. Still, plant as one may, there are a certain formality and sameness about them which one happily gets rid of with such as I have noted above. I am gradually extending this system of planting, even apart from the herbaceous borders proper.—J. R., *Tan y-bwlch*.

The Bermuda Lily.—At a meeting of the Botanic Society, held last Saturday, Mr. John Birkett in the chair, the donations reported included a series of photographs, taken by Surgeon Hadlow in Bermuda, of an extraordinary example of the large white-flowered Lily of Bermuda, bearing on its stem 181 blooms. The usual number of flowers on a stem of this Lily cultivated in Europe varies from three or four to seven or eight, but in the gardens in Bermuda they often produce twenty-five or more. They are there grown in fields, and both the flowers and bulbs are exported to New York and other cities.

—Herewith we send what we think an exceptionally fine form of *Lilium longiflorum* (Japan). It is quite distinct from *L. Harrisii* or any *L. longiflorum*, of which we have 3000 now in bloom at our nurseries at Hampton.—COLLINS BROS. & GABRIEL.

* * A remarkably handsome form of *Lilium longiflorum*, the tube measuring 7 inches in length and 7 inches across the mouth.—ED.

The Guelder Rose.—Although my gardening books have been got together chiefly from a *Chrysanthemum* grower's standpoint, there are among them several that deal extensively with other plants and flowers. In one of them entitled "The Compleat Florist," published in the year 1740, is to be found a figure of the Guelder Rose. The plan adopted in the book is to give the season of flowering at the top of each plate and the cultural directions at the bottom, there being no letterpress. Plate 19 in vol. i. of the "Compleat Florist" is as follows: "Flowers in May. The Gelder Rose makes a good shew among other flowering shrubs and is increased by suckers from the root, and also you may raise it by laying down some young shoots in September." Mr. Ellacombe will probably be interested in this information because it shows the Guelder Rose has been figured, although not mentioned by Pritzel. Nobody with whom I am acquainted knows anything of "The Compleat Florist," which consists of two volumes about the same size as the *Botanical Magazine*, each containing fifty coloured plates of florists' flowers, so that I cannot learn whether there ought to be any text or not. There are Tulips, Anemones, Lilies, Carnations, Auriculas, Irises, Roses, Hyacinths, Picotees, and many other flowers figured in this curious and I think rare old gardening book.—C. HERMAN PAYNE.

The College Gardens, Dublin.—Some of the old walls and rock borders in this garden are now very prettily draped with *Erinus alpinus*, *Silenes*, *Saxifrages*, and *Dianthus* of many kinds. Edelweiss and purple *Ramondia* also grow there in profusion, and *Parayer alpinum*, *Dianthus alpinus*, and *Linaria alpina* are all quite at home; so also are *Androsace foliosa* and *lanuginosa* and *Onosma tauricum*. Beside a small pond rich in *Nymphæas* is a luxuriant plant of the great-leaved *Gunnera manicata*, which is remarkable for its enormous leaves, several feet in diameter, while its ruddy inflorescences are also very peculiar. There is also a large group of *G. scabra*, but its leaves are not nearly so large. *Ixias* and *Gladiolus Colvillei* albus are very pretty, as also is the dainty *Calochortus pulchellus*. *Mutisia decurrens* is also strong and healthy, and bears many flower-buds. *Abutilon vitifolium* bears its *Meconopsis*-like lilac blossoms, and the borders are gay with *Pæonies* and Irises, Lilies and *Asphodels*, and *Eremurus robustus* has a rosy wand 8 feet in height. In one of the greenhouses *Hypericum triflorum* was flowering freely. Amongst its fresh green leaves was

a nest full of young thrushes. On another pillar was *Carpenteria californica*, with its large pure white flowers. *Doranthus excelsa* has just flowered here, and a very fine plant of *Euryangium Sumbul* has flower-spikes 6 feet in height and as thick as one's wrist.—VISITOR.

Books.

KIKKWA MEIJI-SEN.*

DURING the time that I have devoted to the collecting of literary matter relating to the *Chrysanthemum*, I have on numerous occasions met with Japanese books in which that flower has been dealt with pictorially and otherwise, and have become possessed of several. Although it is often stated that there exist in Japan many works specially devoted to the popular favourite, I knew of no work that pretends to deal exclusively with it until the receipt of a volume a few days ago bearing the above title. "Kikkwa Meiji-Sen" is a modern work executed in thoroughly Eastern style, purporting to be a catalogue of select new *Chrysanthemums* raised by Mr. Seibi Mizumoto, an eminent native grower, and a Mr. K. Imai, the editor. Fortunately, the publisher makes no pretence to imitate a European style beyond giving the Japanese names of the flowers in English, which decidedly adds a literary value to the book not possessed by the majority of Japanese horticultural works, and a leaflet enclosed in the book explains in our tongue the descriptions that appear in the Japanese vernacular text. The binding, or perhaps it would be more proper to say the covers, are of a delicate shade of old gold figured silk, and the plates appear to be produced by a lithographic process and neatly coloured by hand.

The label bearing the English title indicates that my copy is Volume I, but does not say how many more we may expect. It is to be hoped that several more are to follow, for the one to hand portrays only varieties of purely Japanese form, without including any others like incurved, Anemone, reflexed or pompon types, all of which are, beyond doubt, cultivated in some way or other in the Land of the Rising Sun. The *Chrysanthemums* selected for representation are probably natural size, for they do not exhibit evidence of extremely high cultivation. They measure from 5 inches to 6 inches across and are principally of the loose, long, tubular-petalled varieties in which the colours of the interior are brighter than those of the exterior. As is the custom with Oriental artists, more of the stem and foliage is depicted than we find in western figures of the *Chrysanthemum*. In all, there are twenty-five varieties represented, comprising several shades of white, yellow, bronze, pink, rose and purple. The flowers are, without exception, such as may be met with in many a collection of Continental novelties, and do not appear to possess any distinctive characteristics with which we are unfamiliar. But the Japanese artist handles his subject with a skill and quaintness of touch that require some little acquaintance with Eastern art to appreciate, and the pictures in "Kikkwa Meiji-Sen" are no departure from this rule.

The poetic and imaginative mind of this interesting and ingenious people is easily recognisable in reading the descriptions of the seedlings of Mr. Mizumoto and Mr. Imai. For instance, the following are selected as being the most striking: *Rokkuno-nemuri*, a yellow variety with red spots; the name compares it to an old tiger sleeping in a mountain valley. *Gekka-no-hana*, a pale pink variety; the colour of this is said to resemble that of Cherry blossoms seen by moonlight. *Ori-takishiba*, colour dark purple; the name compared to that of a fire kindled on a mountain. *Goko-no-yaki*; the flowers of this variety are likened to snow floating on clear water. *San-shin-no-takara*; this is named after the three precious minerals, gold, silver and jewels. *Furiwake-ikwan*, a dappled magenta colour, with twisted petals, the name in-

* "Kikkwa Meiji-Sen" (a Catalogue of Select *Chrysanthemums*). Vol. I.

dicating the fine hair of a lovely maiden. Shin-ban, named after the finely oxydised leaves of autumn, the colour being a splendid reddish orange.

I have seen a good many pictures of Chrysanthemums by Japanese artists in books, in kakemonos, on screens and ceramic ware, and with the exception of some on silk, which were sent me a few years ago, I have not often come across any that can be compared artistically with those in the recently published "Kikkwa Meiji-Sen."

C. HARMAN PAYNE.

WHY PAINT A GREENHOUSE WHITE?

CAN any reader kindly tell me the why and the wherefore of garden structures being nearly universally painted white? In some cases the effect is very ghastly. Any scenic painter will tell you that a greenhouse is an object absolutely unpaintable in many a garden landscape, one of the main reasons of this being its skeleton, or rib-like whiteness. Is there any logical reason why a greenhouse should not be painted some other colour or tint. Why not red, or brown, or chocolate, or green, or blue—I mean the soft pale blue or bluish-green so often seen on cottage doors and front palings in Southern England, a tint every painter from Cox to Birket Foster, and from Marcus Stone to Alfred Parsons, has delighted to reproduce in his pictures again and again? Of course, I do not wish to be dogmatic, and I should welcome other views on this question, but a good garden can, I believe, be more easily spoiled by white-painted greenhouses and conservatories than by any other erection, and we all know something of the "summer-house" excrescences; and even the days of the white-washed rockery are not yet over.

All greenhouses and vineries, and conservatories especially, are not painted white, and it would be instructive to know the views of those who have already decided against white as a suitable colour either outside or inside such structures. I say inside, for as a background for green foliage nothing can artistically be much worse than white. A dull red or terra-cotta brown is far better, and sets off the foliage of Palms or Ferns to greater advantage. White is so easily discoloured both outside and inside a plant-house, that even for that reason alone one would think other tints preferable.

Another point is the greenhouse gable, which often juts out in a very obtrusive and objectionable way. I do not mean those fancy structures that are all gable, and so over-ornamented that they look more like big fancy lanterns than structures intended to shelter plants. Even the best built and sensible of greenhouses often have very ugly ends to them, and a friend who had also remarked this lately suggested to me that such gables might be often—even if not always—prettily masked by training some good strong growing climbing plant or shrub over them. This could be done by fixing a strong wire or two over the gable end at a foot or more above the roof and sides, to which could be tied any graceful plants such as Wistaria, white or blue, Clematis of both spring and summer flowering varieties, or even Hops, Traveller's Joy, or evergreen plants such as Crataegus Pyracantha or Ivy. Even a prettily-designed greenhouse would be none the worse for a few climbing or Tea Roses here and there on its ends or sides in positions where they did not interfere too much with the light or with the shading apparatus on the roof. I will not ask that all greenhouse gables be draped with Wistaria or embowered in Roses, but I do ask the reason why the majority of these structures are painted white? F. W. B.

Garden enemies.—The Rose fly has this year been numerically strong, and the maggot is proportionately active and destructive. Looking the other day over a large plantation of Starworts in variety that, being in a rather remote part of the

pleasure ground, had escaped constant notice, I found them suffering from the attacks of what is apparently the same maggot. Some of the maggots had eaten their way down into the heart of the buds, and the visitation necessitated the outlay of considerable time in freeing the plants from the pests. I fear our display of bloom will suffer in consequence of the attack; many of the best and most prominent buds are eaten through. Has any effectual preventive (I will not say cure, for that would seem well-nigh an impossibility) been found for the ravages of the leaf-boring insect that is such an enemy to the yellow Marguerite? I made a clean start twelve months last spring with plants from the south of France, but the stock is again badly affected, and I am planting all of them out of doors to get a good strong growth and some clean shoot tips. I have heard a solution of paraffin in water recommended as a preventive, and that the fly would hesitate under these conditions about depositing its eggs, but our plants now so badly affected had two or three dressings before there was any sign of spot on them. I hear the Onion maggot is again terribly in evidence, and, indeed, in looking through a few cottage gardens the other day, I found the crops in many cases practically destroyed. It is a serious loss and a great disappointment to many, for the autumn and spring Onion beds are becoming quite a feature in most cottage gardens, and their tenants are liberally catered for at most local shows.—E. BURRELL, *Claremont*.

PUBLIC GARDENS.

The Paddington Recreation Ground.—An effort is being made to secure this for the people. With the £25,000 voted by the local vestry, £5000 by the Vestry of Marylebone, £11,000 by private subscriptions, and a further sum of £500 each conditionally, offered by Mr. Guedalla and Mr. Harben, there remains only a sum of some £8000 to acquire one of the finest and most needed playing-grounds in London. The money must be obtained within the next nine months, or the land will be irrevocably leased to the builder.

The Alexandra Palace.—A deputation of Metropolitan Conservative Members waited upon the Chancellor of the Exchequer, with a view of inducing him to consent to the appropriation of the surplus fund of the Middlesex Land Registry towards the purchase of the Alexandra Palace and grounds as a public open space. It was stated that the surplus fund in question amounted to between £7000 and £8000 a year, and that the purchase-money required was about £275,000. Towards this sum the Middlesex County Council had promised to contribute, and the London County Council would, it was thought probable, be willing to do likewise. The Chancellor of the Exchequer, in his reply, pointed out that in course of time it was very likely that a general system of land registry would be created, and, therefore, the appropriation of this sum towards the object asked for would create a difficulty. He was, therefore, at present unable to hold out any hope of devoting it to the purpose proposed.

Hackney Marshes.—The Parks and Open Spaces Committee brought up a report stating that the offer made by the Council some time since to purchase Hackney Marshes for a sum of £50,000 had been declined by the vendors. Since then negotiations had been entered into with the local bodies, and as the result the lord of the manor, the commoners, and other owners of rights who had combined for the purpose of selling the Marshes were now prepared to accept £75,000, which sum could be raised as follows: The Council, £50,000; The Hackney District Board, £15,000; contribution by the lord of the manor, £5000; local and other contributions to be obtained, £5000. The question of the acquirement of Hackney Marshes was one for all London, and not for the East End only, as, apart from the local use

which could be made of it for games, it formed a splendid open space at the eastern boundary of the county. The committee, therefore, recommended that, subject to the contributions above mentioned, the Marshes be purchased for £75,000. The recommendation, after discussion, was agreed to.

EXAMINATION IN GARDENING.

THE Technical Education Committee of the Surrey County Council, instituted (amongst other things) during last autumn and winter, lectures on gardening in various centres in Surrey, and, in compliance with the request of the County Council, our society undertook to examine all who had attended the lectures regularly, and were desirous of sitting for such examination. Special interest attaches to this examination, as it is the first of the kind that has been made after any County Council technical lectures on gardening; and I, therefore, hope you may be able to find space for the publication of the following class lists.—W. WILKS, *Secretary, R.H.S.*

CLASS LIST.

Examination in gardening, conducted by the Royal Horticultural Society, after lectures given under the direction of the Technical Education Committee of the Surrey County Council.

(Maximum number of marks obtainable 500.)

HIGHER GRADE—28 CANDIDATES.

First Class:—		
1.*	Stephen Morrill, Catshalton	225 marks.
Second Class:—		
2.	William Thorpe, Betchworth	170 "
3.	Joseph Parry, Reigate	160 "
4.	Francis Bradbeer, Betchingley	155 "
5.	W. Green, Horley	150 "
	J. P. Owen, Brockham, Betchworth	150 "
Third Class:—		
7.	John Harrison, Capel	135 "
8.	T. Painter, Redhill	130 "
	W. White, Sutton	130 "
10.	Felix Crawford, Horley	125 "
	Walter Waller, Reigate	125 "
	R. A. Stone, Horley	115 "
12.	J. A. Smith, Wallington	115 "
	Rose Jarman, Sutton	115 "
15.	John Langdon, Sutton	115 "
	W. A. Strong, Sutton	115 "
17.	C. F. F. Hutchings, Catshalton	100 "

LOWER GRADE—14 CANDIDATES.

First Class:—		
1.*	Walter Smith, Kenley	235 "
2.	Eli Caesar, Farnham	200 "
Second Class:—		
3.	G. Miller, Ashstead	160 "
	W. H. Galsworthy, Farnham	150 "
4.	W. H. Woodgate, Kenley	150 "
	Geo. King, Egham Hill	100 "
Third Class:—		
7.	F. Fermor, Englefield Green	125 "
8.	Jesse Morris, Ashstead	120 "
9.	W. Goody, Kenley	107 "
10.	A. Everard, Kenley	105 "
	Eleanor Partridge, Ashstead	100 "
11.	J. Hauchet, Aldershot	100 "

Candidates obtaining less than 100 out of the 300 marks not classed.

* Wins the Royal Horticultural Society's medal.

Generally speaking, and taking into consideration the novelty of the scheme, the candidates showed as good an average acquaintance with the subjects upon which they were examined as could have been expected. We cannot doubt but that such practical teaching as has been given in the county of Surrey, and such testing of results will be of great service by calling attention to the points of greatest practical importance in cultural matters, and by showing how and why these points are important. Information of the highest practical value has thus been conveyed to a class of persons whom daily experience teaches us are not likely to be reached by the medium of the horticultural press.

M. T. MASTERS, M.D., F.R.S., } Examiners.
JAMES DOUGLAS, F.R.H.S., }

Names of plants.—T. B. Harpham.—Impossible to name from such a scrap.—G. Shirley.—Sanguinaria canadensis.—T. Lipscombe.—Ferraria undulata.—L. M. P.—Cattleya Mendeli.—J. P. M.—It appears to be a form of Epidendrum Godseffianum.

WOODS AND FORESTS.

THE HOME TIMBER TRADE.

SINCE writing on the prices of home-grown timber a year ago the market has somewhat improved, prices being higher and more steadily maintained, while the output is slowly on the increase. The faggot market a most important one hitherto in Southern England at least—cannot, however, be spoken very favourably of, the prices getting lower and lower annually, a fact due in the main to split batten ends being largely used instead of the once well-received faggot. In Kent at least and the London district, on the whole, I am quite sure that not one-third of the pimps and faggots that found a ready market five years ago, and at nearly one-fourth higher price than at present, could now be disposed of, an evil brought about by the ever-increasing cargoes of foreign wood that are sent to this country. But how does the foreign timber trade affect the price of home faggots? is a query that will naturally be put, and which I can readily answer by saying that the refuse ends of the great ship-loads of planks and battens meet the demand in the little split bundles of ever dry firewood for lighting purposes that are now sold by almost every shopkeeper. "Half a century of forest produce" would, I was only thinking the other day, make a most readable paper, and if forestry, too, was added, the information would be welcomed by many. We have only to look back, say, less than the half century in London when Oak bark sold at £20 per ton, coppice wood at £18 per acre, Oak timber at 5s. or 6s. per foot, hop poles at fully 30s. per 100, and large faggots at 25s. and small at about 10s. per 100.

With foreign importations all is now changed, the best Oak bark fetching rarely higher than £4 10s. per ton as against £20 fifty years ago; coppice wood is a drug in the market at £6 per acre, as against £18 and £20; Oak timber if sold at 2s. is considered well paid for; hop poles, faggots, and pimps are lying about unsold in almost every coppice wood in the Southern English counties. Keen home competition to strive and keep pace with the foreign influx has reduced the price of pimps for lighting purposes to 2s. 6d. per 100, a price that does not much more than pay for the wood. Look, again, at the Osier industry, how it has dwindled down to almost extermination, for, as Mr. Scaling, our great Willow authority, says, the cultivation of Osiers in this country cannot now be made to pay, Continental Willows, where labour is cheap, being conveyed for hundreds of miles by land and water, and then sold in our great metropolis at a far lower figure than those sent in from the fens of Cambridge-shire. But these are only a few of the many cases that might be brought forward of how the import of foreign forest products has sounded the death-knell of those at home. For the best class of Oak timber the average price throughout Britain is about 1s. 8d. per foot, exceptionally fine and clean trees and local circumstances altering the price to a few pence higher. This season's Oak bark can be bought at £4 10s. per ton, and Oak trees with the bark off fetch a little higher price than usual. Sycamore still remains steady, and is easily enough disposed of, if of fair size and quality, the largest logs bringing nearly 2s. 6d. per foot, but the average is a little over 1s. 8d. per foot, or nearly the same as that for Oak wood. Spanish Chestnut sold at 1s. 6d. or 1s. 8d. per foot is considered well disposed of, but unusually large

clean trees, and such as are free from ring-shakes bring a little more.

In Southern England, Elm timber, whether Scotch or English, is hard to sell at more than 8d. per foot, a price that in my opinion, taking into account the important uses to which the wood is applied, is far too low. In Wales for shipbuilding purposes I have always got about double the price here quoted, and a fairly ready market for good timber. Beech, Birch and Alder hold good at 8d. per foot, but for the two latter when of fairly superior quality, 10d. per foot has been ungrudgingly given. For special purposes, Lime and some others of our less common woods can be sold at 1s. per foot, but the trade and demand for these are not reliable. Ash timber always sells freely, the demand for local purposes keeping up the usual price of 1s. 8d. per foot. In the making of many farm implements and tools, Ash timber is greatly in demand; indeed, probably no other home-grown wood is so generally useful. Amongst the coniferous trees the Larch is still at the head of the list, good timber of fair size bringing as much as 1s. 6d. per foot, but the average throughout these isles is a fraction over 1s. 2d. per foot. There is always a good demand for Larch wood, so that it never remains long on hand or goes to waste in the woodland. Scotch and Spruce Firs do not sell readily, though the demand within the last year has certainly increased. From 6d. to 10d. per foot is the usual price for this timber. Silver Fir, Austrian and Corsican Pines and the Douglas Fir are not often put in the market, but realise about the same price as Scotch and Spruce.

For large faggots in the wood I usually get about 15s.; whereas small faggots (pimps) bring not much more than 2s. 6d. per hundred. Cordwood (firewood) sells fairly readily at 18s. per cord, or 5s. per cartload. Formerly there was a great demand for Hop poles (in those counties where Hops are grown), but with the great falling off in the crop and substituting of other substances for brewing, the prices of the poles have become unusually low, and there is any amount almost for the dying-out demand. Creosoting the poles has likewise, by lengthening the life of these, had some effect in lessening the demand. Coppice wood of the usual quality is now selling at from £5 to £6 per acre, and the demand, even at these low prices, is far from satisfactory. The above average prices of forest produce are compiled from statistics collected for a number of years back throughout the whole of Great Britain and Ireland, and may be taken as fairly approximate.

A. D. W.

THE WOOD OF THE BEECH.

THE Beech is one of the most useful British timber trees, although others are much more costly. It is well adapted for indoor work, but is less suited for use out of doors. In its natural state it is largely used for cogs and where hardness is required, and when properly treated in felling, drying, and preparing, it is not superseded by any other kind of English wood. The Holly, the Hornbeam, the Thorn, the Crab, &c., are often substituted for the Beech, but if treated in the following manner it maintains a decided superiority over these: When the Beech is to be used as mentioned, it should be felled during the months of December and January, but a few weeks prior to felling, several gaps should be chopped in the tree near the roots, in order to allow it to get rid of the sap freely. As soon as possible after felling it should be cut up as required, and put under cover in a perpendicular position. Often it is utterly spoilt by being laid aside horizontally, in which position it cannot dispose of its sap; consequently its hardest properties are destroyed,

and it is thereby rendered practically useless for the best purposes for which it is required. The growth of the Beech is very rapid, and it attains its prime in about from sixty to eighty years. Up to this age it is seldom deceptive when grown in plantations. If, however, it is permitted to grow much older than this, it often becomes black-hearted, and this condition is followed by rottenness and shake. In this state the wood is worthless for manufacturing purposes.

The Beech is generally deceptive when hedge-grown, the reason being that its early growth requires great tenderness and protection. Grown thus, it is exposed to blemishes of various kinds, and these turn black, the stain remaining in the wood ever afterwards. When stains occur the wood is valueless for steaming. About three-fourths of the Beech wood is now steamed, as this process improves its colour. The more sap it contains the better it will steam, and a skilful person can give the wood a very bright hue by careful steaming. If it is allowed to lie several months after being felled it can seldom be used for the best purposes to which steamed Beech is put. Steaming does not improve its strength as it improves its appearance; it rather reduces this quality, though strength is seldom required where steamed Beech is used. We may here mention that joiners, when buying planes, frequently ask for red, or, as they call it, "male" Beech, in preference to the white or "female" Beech; but if they were better acquainted with the process of steaming they might possibly reverse their preference, for it is by this process that the red hue is produced.

The Beech develops a great quantity of sap, and feeds itself very much from its leaves. During a dry spring it will scarcely move a bud, but after a shower of rain it is soon in full leaf. Its growth always ceases early in the autumn. When required for steaming it should not be felled when in full leaf, but in the months of October and November, and again in April and May, when it contains most sap.

The best qualities of Beech are grown on red or light land, and when protected by other stronger kinds of timber trees. It seldom attains to a large size in the open, and on account of the smallness of its roots it is more liable to be blown down in open situations than most other trees would be. In cutting up Beech timber when fresh and full, half an inch to 1 inch should always be allowed for shrinkage. There is only one other English tree, the Lime, which shrinks so much in drying. There are two kinds of Beech; one kind bears fruit and the other does not, and in the opinion of some the fruit-bearing tree is the softer of the two.

Mosses on trees.—Conifers and other trees growing in damp shaded situations are often attacked by different kinds of Mosses, such as the Screw Moss (*Tortula muralis*) and the Hair Moss (*Polytrichum commune*), &c. The leaves of Moss-clothed trees are smaller than such as are found upon trees in health, present a dull, rusty appearance, and are to a great extent wanting in that clean glossy polish which distinguishes such as are in perfect health. On pulling a branch of the Silver Fir through the shut hand it leaves a mark as it soiled with green paint.

"The Garden" Monthly Parts.—This journal is published in neatly bound Monthly Parts. In this form the coloured plates are best preserved, and it is most suitable for reference previous to the issue of the half-yearly volumes. Price 1s. 6d.; post free, 1s. 9d. Complete set of volumes of THE GARDEN from its commencement to end of 1891, forty vols., price, cloth, £29 8s.

"Gardening Illustrated" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Farm and Home" Monthly Parts.—This journal is published in neatly bound Monthly Parts, in which form it is most suitable for reference previous to the issue of the yearly volumes. Price 5d.; post free, 8d.

"Hardy Flowers."—Giving descriptions of upwards of thirteen hundred of the most ornamental species, with directions for their arrangement, culture, &c. Fourth and Popular Edition, 1s.; post free, 1s. 3d.

No. 1075. SATURDAY, June 25, 1892. Vol. XLI.

"This is an Art
Which does mend Nature: change it rather; but
THE ART ITSELF IS NATURE."—Shakespeare.

STOVE AND GREENHOUSE.

BOTTLE-BRUSH TREES.

THE Bottle-brush trees of Australia were favourite plants in English gardens half a century ago, the one represented in the plate in last week's GARDEN being one of the most popular. It forms a large irregular shrub, the specimen from which the plate was prepared, and which is in the large temperate house at Kew, being 8 feet high and through. When in flower it is very handsome, the brilliant—almost dazzling—scarlet of the "brushes," which are borne on the younger straggling shoots, being particularly showy.

Callistemon is a genus of about a dozen species. They all form tall shrubs or small trees in the temperate regions of Australia, and all produce their flowers in axillary clusters near the ends of the younger branches, the attractive parts being the stamens, which are long, very numerous, silky and tipped with bright golden anthers. In some species the flowers are white, in others yellow, and in others less brilliant and than in *C. rigidum*. I am unable to find the date of the introduction of *C. rigidum*, unless the plant figured in Loddiges' "Cabinet," t. 1238, under the name of *C. scaber*, is the same plant, in which case, according to Loddiges, it was introduced in 1814. Unfortunately, the names under which these Australian Myrtaceæ are known in gardens are in a state of confusion. Thus, what is known here and in Continental gardens as *Metrosideros floribunda* is really *Callistemon speciosum*, *Beaufortia splendens* of gardens is, according to Sir Joseph Hooker, *B. sparsa*, *Metrosideros lanceolata* is a *Callistemon*, and so on.

In Holland, especially in the neighbourhood of Utrecht, these plants are popular with exhibitors, who grow them into large compact bushes and get them to flower very freely. Such plants as are there known as *Metrosideros floribunda* and *M. floribunda alba*, besides this *Callistemon*, are magnificent objects as exhibited at their summer shows. In Cornwall, too, they are grown well in the open air; for instance, in a garden at Menabilly there were large plants a few years ago of *C. speciosum*, *C. lanceolatum* and *C. salignum* all growing in the open air near the sea, where they flowered magnificently in August. Planted in the borders in the temperate house at Kew, they flower fairly well, but a great deal depends upon the amount of sunshine they get whilst ripening their growth.

Some of these plants, such as for instance *C. speciosum* (*Metrosideros floribunda*), flower well when small if grown in a sunny greenhouse and kept in rather small pots. I have seen plants in the Clapton Nurseries in 5-inch pots with about half-a-dozen branches, each bearing a good brush in the summer. *C. rigidum* I have never seen in flower except as a large bush. For sunny conservatories or winter gardens, or even for the open air in the more favoured parts of this country, these *Callistemons* are first-rate plants, flowering freely at frequent intervals in summer and lasting several weeks. Some have succeeded with them by treating them in the same way as Oranges are grown, that is, placing them in a sunny place in the

open air all summer and wintering them in a dry light shed or greenhouse. In pots they must be kept moderately moist during summer and they thrive in a very sandy mixture of peat and loam. W. W.

Crassula jasminæa.—Succulent plants, as a rule, are by no means popular in this country at the present time, and out of the great numbers that there are in cultivation very few commend themselves to the market grower. This is, however, one of the few, and it may be met with in considerable numbers during the months of April, May, and June. They are in the shape of neat bushy little specimens, not more than a foot high, every shoot of which is terminated by a cluster of Jasmine-like blossoms, white for some time after expansion, but becoming tinged with red before they drop. It is a native of South Africa, and was first introduced in 1815, but it is only within the last few years that it has been grown to any extent. This *Crassula* is of easy culture; the principal point to be observed is, that owing to its succulent nature it does not receive an excess of moisture at any time, but more particularly during the winter months. A near ally of this last, viz., the old *Crassula* or *Kalosanthes coccinea*, is, with the winter-flowering *Echeveria retusa* and some *Epiphyllums*, almost the only succulents that are brought into market in the shape of flowering plants.—H. P.

Burchellia capensis.—This evergreen shrub, which was introduced from the Cape over seventy years ago, is now very uncommon, but at the same time it is far more worthy of extended cultivation and the protection of a warm greenhouse than many plants which are met with far more frequently. It is a freely-branched shrub, clothed with ovate leaves of a deep green tint and about 4 inches long, while the flowers are borne in clusters on the points of the shoots. The individual blooms are each about an inch in length, tubular, and of a rich orange-scarlet colour. They are somewhat thick and fleshy and remain in beauty a considerable time. Under favourable conditions the plant will flower freely, and in this stage the rich green foliage serves as an admirable setting to the bright-tinted blossoms. It belongs to the order Rubiaceæ, which contains many other beautiful flowering plants, some of which, such as the different members of the genus *Rondeletia*, *Bouvardia*, and *Gardenia*, are now very popular in gardens. This *Burchellia* can be readily increased by cuttings, and it will thrive in a mixture of loam, peat and sand, but these last two items should only be in sufficient quantity to keep the compost open. From the hardness of its wood, it is known in South Africa as the Buffalo-horn.—H. P.

Toxicophlæa spectabilis.—The flowering season of this is by no means limited to any particular period of the year, for, as implied by its popular name of the Winter Sweet, it flowers freely during the winter months, while it is also at the present time in many places beautifully in bloom. It is a native of South Africa and forms an open growing shrub, which to be kept as bushy as possible must be freely stopped during its earlier stages and shortened back after flowering. From its somewhat rambling character it may if required be employed for furnishing the end or roof of a glass structure, and in such a position it will as a rule flower very freely. The blossoms, which are borne in closely-packed corymbs from the axils of the leaves, are white and somewhat suggest a small-flowered *Ixora*; they are also very sweetly scented. These clusters of blossoms are borne from every joint for some distance along the shoots, so that in the case of a vigorous specimen wreaths a couple of feet long or more are produced. There is a second species (*T. Thunbergi*) with thick leathery leaves of a bronzy hue and a profusion of sweet-scented blossoms, but the former is the better of the two. The genus *Toxicophlæa* is now discarded by the latest authorities, the two plants in question being known under the generic

name of *Acokanthera*. Both are easily propagated by means of cuttings, and plants increased in this way will flower freely when quite small.—T.

CAMELLIAS.

It is often matter for wonder and surprise how and why some plants should flourish under what are apparently opposite modes of treatment. In the article on Camellias on page 520 the writer advises, and has doubtless practised successfully, an almost daily syringing; consequently an atmosphere that is often rather heavily charged with moisture is maintained. As opposed to such treatment, our plants have not been syringed for some years. I was in the habit of giving them a thorough wetting, say, once or twice during the week with a fine spray, but our difficulty (not employing shade in any shape or form) was to get the top foliage dry before the sun struck the house, and, despite liberal supplies of air, leaves here and there got rather badly blistered. I discontinued the practice in 1888, and have never resumed it except on one or two occasions when the plants had a washing after a slight attack of black fly necessitated fumigation. During the height of summer if the weather prove very hot and dry we throw a few cans of water on the floor to cool the house, but this is all the atmospheric moisture artificially employed. Nor is the situation or character of the house at all favourable to anything approaching a level reading of the wet and dry bulb. On the contrary, it is in a high, dry, airy spot, and there are few days in the year when there is not a fair amount of air on side lights. As an instance that the plants flourish under these conditions, I may mention that we have a flowering season from the beginning of December until the end of May with plenty of bloom throughout this time. Some nine years ago there appeared a little weakness in some plants, and the soil was removed and replaced by a similar compost to that recommended by "Plantsman," well and carefully packed and rammed round and about the roots. The operation gave the "miffy" trees a new lease of life, and for them and the other inmates of the house I have not found any stimulant necessary except a slight dusting with some artificial manure if the crop of buds is more than usually heavy, and an annual mulching of partially decomposed litter to prevent a rapid drying out of the beds where they are much exposed to the sun's influence.

Claremont.

E. BURRELL.

IVY-LEAVED PELARGONIUMS.

WHEN I am asked to name some plant which is easily grown, blooms profusely, and for the longest season, I usually select the Ivy-leaved Pelargoniums. Perhaps many of the ordinary zonal varieties would be as worthy of recommendation, but these do not give the pleasing hues of colour in the flowers or that easy form of growth which the Ivy-leaved kinds do. I do not know of any plant which is so productive of bloom through the winter if grown in warmth and near the light, as well as amenable to all sorts of training, as the Ivy-leaved Pelargonium is. When I was looking over Mr. Denning's houses at Hampton just prior to last Christmas, I was particularly struck with the abundant bloom produced on plants of a pink double Ivy-leaved Pelargonium, trained out on flat trellises, on the roofs, and just above the doors of several houses. These may be said to have formed canopies just within the doors, and were growing and blooming admirably. If they did so well in this case, I do not see why it should not pay to grow good double varieties in pots or long narrow boxes trained up under the glass of low span houses all through the winter, as they would certainly give a wealth of bloom so treated. It would be a mistake to put out very young plants for such purpose; indeed, much better would it be to have in pots strong well-established plants some 4 feet in height ready to furnish the house when put inside towards the end of September, or else to have them

established in wooden boxes, say, half a dozen plants in one 4 feet long, about 10 inches wide and of the same depth. Then these Ivy-leaved forms will do admirably planted out against the back wall of a house, or run along horizontal bars or chains, or other any similar support. It is, however, desirable that they be not too far from the glass or be too freely watered or fed. Another excellent way is to stand a large number of plants in 8-inch pots on a stage facing the sun, so that so far from being trained in any way, all the growth is naturally flat or creeping; hence in a few weeks the entire surface of the stage could be covered with growth and bloom. That, if only the least artistic method of cultivation, would be one of the more picturesque forms; indeed every part of such a house might well be covered with the plants trained wheresoever it was found possible to attach them. Outdoors the plants usually flower profusely in the summer, yet they never bloom better than when trained up against walls in an open position. Panels of the pink, rose and red forms of Ivy-leaved Pelargoniums, alternated with other panels of various hued Heliotropes, produce a charming effect, especially when bordering kept pleasure grounds. These I have seen in some gardens about Coombe Wood, Kingston, and were very attractive. Then Ivy-leaved Pelargoniums make capital screen plants if trained up to trellis or lattice-work. They do as well thus treated for the back of window-boxes as they will if loosely trained down over the fronts of such boxes. Then they also make capital pyramids; certainly if so trained, they should not be too rigidly tied, but should be allowed somewhat free play. In some gardens they are grown effectually as standards, but raised in that way from cuttings they have rather weak stems; still they will in time carry large handsome heads. I once worked grafts of good varieties on to stems of strong seedling zonal forms, perhaps 20 inches in height, and obtained some very fine heads in that way. That method of producing standards is not at all difficult. It is rather a question of time and patience; perhaps inarching would answer better; in any case it is certain that the Ivy-leaved Pelargonium will do finely upon stocks of zonals, and seed of any strong-growing variety will in one season give plenty of stout stems to work on. As to varieties, there is no need to name any when all are so good.

A. D.

CHRYSANTHEMUMS.

SEASONABLE CULTURAL NOTES.

THE main part of the plants grown for the production of large blooms will by this time be in their flowering pots. No time should be lost if this is not so in completing the work, or the plants will suffer through having their roots cramped in the small pots. Should there be any danger of this, all such plants should be freely supplied with stimulants until a favourable opportunity occurs to complete the work. As a rule, after the plants are potted they are stood in some convenient place where they can receive protection for a week or two from the drying east winds until the roots commence to run into the new soil. It is surprising what a small quantity of water the plants require at the roots the first three or four weeks after potting. Much harm may be, and is done by keeping the soil too wet; the roots do not run freely into it when in that state. To obtain blooms of the highest quality, especially in the incurred section, it is absolutely necessary that the wood be thoroughly matured, and without firm potting this cannot be. This, then, is one of the principal reasons why the roots do not run into the new soil so fast, and hence the fact that a much less water supply is needed. Plants which are subjected to too much

moisture in the early stages of growth are very often of a sickly pale colour, caused by the roots being checked. Syringe the plants overhead twice daily, early in the morning and again in the evening.

The preparation of the summer quarters is the next consideration. To obtain success, the plants must stand where they will receive the full benefit from exposure to sun and light and be free from overhanging trees, but at the same time sheltered from south-westerly winds, which often do much damage to the tender buds and leaves at the end of August and the early part of September. In the absence of sufficient space to arrange the plants in rows in a mass, a single row may be stood on each side of the kitchen garden paths, especially where they run north and south; here the plants obtain an equal share of light and sun, and they can be easily attended to as regards watering and regulating their growth during the summer. If possible, it is better to stand the pots just within the border or quarter clear of the path, as the continual watering with liquid manure is apt to disfigure the gravel. The pots ought to be stood on boards, bricks, slates, or tiles to check the ingress of worms and to prevent the roots running through the bottom of the pot, as they do when standing on ashes. When the plants are removed inside, these roots are destroyed, thus causing a considerable check to the plants. I have seen such roots run a distance of 18 inches away from the pots when standing on ashes. Some growers plunge the pots in ashes, but, except in the case of plants grown as specimens or bush plants for decoration where good foliage is especially desirable, I do not approve of the system, for the reason that in continuous wet weather, which very often occurs towards the end of September, it is difficult to know when the plants require water. Excess of moisture at the roots is quite as bad as too little, and is very often the cause of plants looking sickly. Provision must be made for securing the plants from winds. No other way that I know answers so well as erecting some kind of a trellis-work. If this is arranged in three heights, say, 4 feet, 6 feet, and 8 feet, all kinds can be accommodated; the first will be suitable for such sorts as Avalanche, the second will secure the Queen family, and the tallest such as Prince Alfred and the high growing Japanese. Local circumstances must guide the cultivator in the method of arranging such support. The easiest and neatest form is that of driving a stout post into the ground at each end, from these straining wires, and supporting them between the ends with lighter stakes at 20 feet apart; one wire will be sufficient for the dwarf plants, two for the medium, and three for the tallest. Stakes of the required height will be necessary for each plant. Bamboo canes are largely employed now for this purpose. The stake ought to be thrust into the pot near the side, and will then escape more roots than if it were in the middle of the pot. The stake should then be tied to the cross-rails, which will render all secure. The branches produced at the first break are then spread out, having been reduced to three in number, the centre one tied to the tall stake; those on each side are made fast to temporary upright small stakes secured to the wires. By this means more space is allowed for all the shoots, which not only grow robust, but the wood and leaves are matured as growth progresses. This is an important point to study, by placing the pots 1 foot 6 inches apart ample space is allowed between them for the training of the branches in the manner suggested. The rows should run east and west,

and be at such a distance apart that the shade caused by one row of plants does not fall upon the row behind. To effect this, a distance of 5 feet between the rows should be allowed.

The plants this year are forming premature flower-buds, the cause of which is most difficult to account for. No doubt plants which do this receive many checks, and cannot be looked upon as certain to produce fine flowers later on as compared with others which are not troubled with premature bud-formation. Some persons advocate cutting the plants down to the ground line, in the hope of obtaining a better class of growth from the base, but I have seen but little good come from such treatment, as very often the suckers which spring from the base form flower-buds when they reach but a few inches in height. The best plan is to persistently pinch off all the offending buds directly they appear, and to keep the plants in a healthy state to induce them to push forth vigorous shoots that they may grow out of the evil. Any plants not in their flowering pots should go into them at once. If they are to be grown on and still exhibit signs of abortive bud-formation, the releasing of the roots may give an impetus to freer growth. Concentrate the energies of the plant into the three shoots selected by removing all side growths as fast as they appear.

Insect pests are very troublesome, I find, owing to the sharp spell of hot, dry weather. Black-fly is the worst enemy to deal with, but this is easily got rid of by persistently dusting the points of the shoots with tobacco powder upon the slightest appearance of the pest. We are now busy placing the pompons and single varieties into their flowering pots. These having been propagated later than the large-flowered sorts allow us more time to deal with all properly in the matter of potting. Pots 8 inches in diameter are large enough for these sections, although they perhaps require more attention in the way of supplying them with water, but the smaller pots are more amenable to our method of arrangement when in flower. Instead of continually topping the shoots, as some do with these sections, to obtain a greater number of flowers, I only top them once—some not at all, and allow the plants to break naturally, which they do again during the month of August. The best shoots are selected at both times, say, three at the first break early in May, and double that number the next time. Each long branch produces numerous side shoots which flower profusely; in this way we are enabled to cut spikes of bloom fully 2 feet long. The compost employed for the small-flowered varieties is three parts of loam with one of leaf-mould, wood ashes and horse manure combined. To this are added 2 lbs. of dissolved bones to every bushel of the compost. Extra firm potting is practised, as owing to the smallness of the pots we do not wish the roots to rush at once to the sides of the pots, but meet with obstruction, which induces them to form numerous fibrous roots.

E. M'CLYNEUX.

Chrysanthemum Mrs. Alpheus Hardy.

Many of your correspondents seem to find a difficulty in growing this beautiful Chrysanthemum. After the first season I adopted a plan which has given me fine flowers and a good stock of healthy plants, and I send it to you for the benefit of your readers. It is simply this: I grow it with the others until it becomes time to house it, and then, instead of putting it into a cool house, I locate it in a warm greenhouse close to the glass. This gives me good flowers in November and December when they are valuable. My only difficulty is to keep the aphids from spoiling the hairy blooms.—J. WHITWORTH SHAW.

ROSE GARDEN.

ROSE-COVERED PORCHES.

How is it that plants are often seen flourishing in cottage gardens with a luxuriance which seems unattainable in those where all conditions appear to be so much more favourable? The great masses of Hepaticas, for instance, in the cottagers' gardens in some of the western shires are unsurpassed, while the clumps (sometimes almost forests) of Madonna Lilies are the envy of passers-by, and the climbers by which the cottage is often half hidden seem to grow with more freedom than anywhere else. Perhaps the reason may not be further to seek than in the employment of materials well suited to the

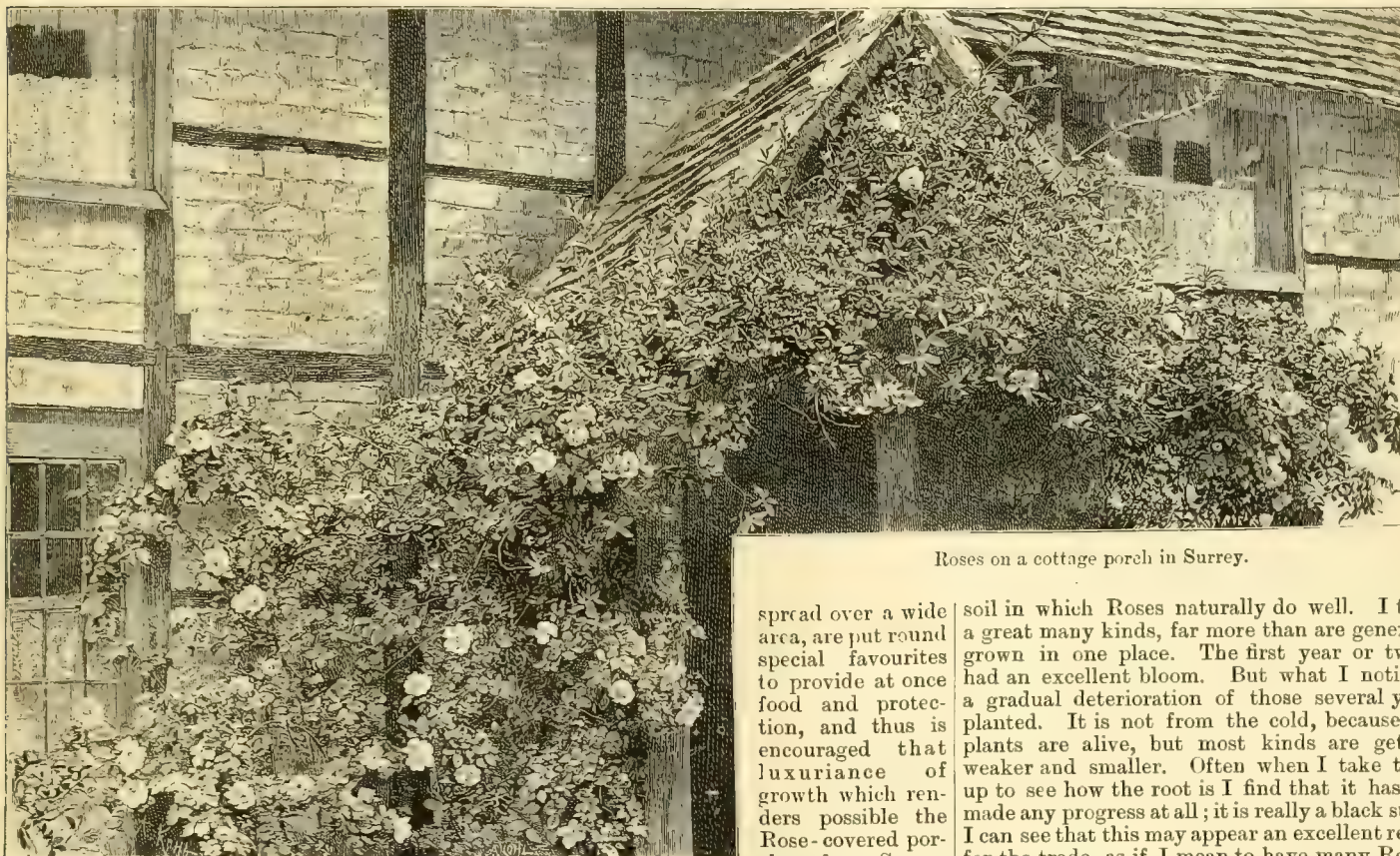
to-be-flowered, Noisette Cloth of Gold, which so rarely gets sun enough to ripen its shoots in this climate, and even more rarely succeeds in preserving them uninjured until the flowering time. I myself have experienced the pangs of jealousy when passing a house masked with a Climbing Devonensis in full bloom, the cultural attention to which consisted in its being occasionally gone over with a long-handled bill-hook, such as is used in trimming hedges, "just to keep the shoots from rattlin' on the windows."

In spite of these seemingly anomalous instances, however, the real reason of the presence of striking specimens in cottage gardens will probably be found in the fact that, not being too numerous, each plant is tended and looked after with the greatest care; the precious and carefully collected road-scrapings, not having to be

plants in this district are simply one mass of pure yellow blossoms. Grown as standards and upon the right lines, there are few more pleasing Roses than the three or four best varieties of Austrian Briers. They make long rods of growth, and these when properly ripened bear flowers throughout their whole length, while the weight of blossoms causes the plant to weep in a way that suits this class of Rose excellently.—R. *Sussex*.

ROOTS OR STOCKS.

Will those gentlemen who write in THE GARDEN and say that only one or two Roses will do on their own roots tell me this? I planted a very large collection of the finest Tea Roses in the best possible form, not one plant of each, but from ten to twenty-five, all worked low on the seedling Brier, and I put them in



Roses on a cottage porch in Surrey.

spread over a wide area, are put round special favourites to provide at once food and protection, and thus is encouraged that luxuriance of growth which renders possible the Rose-covered porches of our Surrey cottages, whereby

a pleasant feast of brightness is afforded to weary travellers passing by.—T. W.

— It is remarkable how seldom the white Rose (double or garden variety of *Rosa alba*) is to be seen in any but cottage gardens, and the same may be said of its near relation, the Maiden's Blush. Such good Roses, capable as they are of highly ornamental treatment and so individually charming, certainly deserve more general culture than they receive. The white Rose does equally well as a bush 5 feet or 6 feet high, or as a low climber. The cottage porch we engrave shows it in the latter form, trained to meet a Honeysuckle in the front, the training not overdone, but with that happy knack of supporting and guiding without apparently constraining, that best shows the natural beauty of climbing plants.

The Austrian Brier.—At the present time these are among the most showy of all Roses. Many

soil in which Roses naturally do well. I tried a great many kinds, far more than are generally grown in one place. The first year or two I had an excellent bloom. But what I notice is a gradual deterioration of those several years planted. It is not from the cold, because the plants are alive, but most kinds are getting weaker and smaller. Often when I take them up to see how the root is I find that it has not made any progress at all; it is really a black stick. I can see that this may appear an excellent result for the trade, as if I mean to have many Roses, I must give a large order next time; but how about the unfortunate grower? I do not find the same deterioration with Roses on their own roots, although it is very hard to get good plants, and I have not made a fair trial. In such trial as I have made, however, I noticed that the plants got stronger instead of weaker. These remarks do not apply to the larger or climbing Teas like Gloire de Dijon. Mr. Cranston says the Hybrid Perpetual will not do well on the seedling Brier—an excellent thing for the trade, if the enormous number of perpetual Roses on the seedling Brier are not going to do; but what, again, about the unfortunate gentleman grower? If any of your wiser Rose growers can help me a little I shall be glad. I saw that last week Mr. Tallack said that Roses did not do on their own roots, but I think I have seen statements from Mr. Hobday and other trustworthy people in THE GARDEN that they did very well with them. I fancy some of the failures with Tea Roses are due to the miserably small plants

climate and conditions, for there is no doubt that common plants well grown are more decorative than half-starved specimens of more brilliant things, for whose proper cultivation the requisite means are not attainable; and a cottage porch smothered with Honeysuckles and some old-fashioned Rose is about as pleasant a sight as can be seen, in spite of the climbers being neither rare nor costly. But the supposition that the denizens of cottage gardens are so fine because they are indigenous or exceptionally hardy plants is not sufficient to account for the handsome subjects there so often met with; the finest Catherine Mermet I ever saw was climbing on the chimney of a cottage by the roadside in Surrey, and in a similar position in another part of the same county I have seen blooms of Gloire de Dijon such as I have never seen elsewhere, even in celebrated Rose gardens. Every reader will doubtless recall Dean Reynolds Hole's description of the noble specimens upon the walls of a cottage of the glorious, but hardly-

sold. Many of these I got from France could be put into a small ink-bottle. There is, too, a lot of grafting in heat. It seems to me that if we had strong layers we should be able to make a better trial of Teas than with the wretched little pot plants we get from France and the weak glass-struck Teas we get in England. Of course, I am quite willing to distinguish between death from frost and death from other causes.

A PUZZLED AMATEUR.

OWN-ROOT ROSES.

MUCH has frequently been urged in favour of fruit and other trees, shrubs and Roses on their own roots, and it is satisfactory to discover that an intelligent attempt, as far as the last named are concerned, has been made to meet the demand for own-root plants. Particularly is it desirable that Tea Roses should be on their own roots, that is to say, grown quite independently of any stock whatever. The best flowers of these are invariably produced in the greatest profusion by strong suckers thrown up by from the buried part of a stem, but in the case of worked plants these are not forthcoming. Suckers from the latter are frequently only too freely and certainly produced, but the novice in such matters, if he leaves them to their own sweet will, pays dearly for the experience he thus gains. Those suckers are terrible robbers, and if once allowed to get the upper hand the choice Rose is nearly or quite lost, and a worthless growth of Manetti or other inferior form is the outcome. Own-root plants, again, are the hardest, inasmuch as these, after being hard hit by frosts, are capable of recovering quickly, shoots being freely pushed up from near to or below the ground. One of Nature's prunings, or what would destroy any worked plants, especially if on the Brier stock, dwarf or tall, not unfrequently results in putting new life into own-root plants the owners of which have been too chary of pruning. I have had Catherine Mermet killed down to the ground, and the following summer the bushes have produced abundance of extra fine flowers. Other Teas have behaved similarly. None of them were originally bought in, for the simple reason that no nurseryman could supply other than worked plants, and hitherto those who were anxious to have a good stock of own-root Roses had to do their own propagating. Recently on going through a large Rose nursery I was shown a large number of Teas and Noisettes on their own roots, and this firm intends making a speciality of them. At present the plants are small, the one great difficulty being in getting a sufficiency of early cuttings. Cuttings of firm young wood or such as has given a bloom strike readily enough in a brisk heat, but at present these are not forthcoming in sufficiently large quantities. In most large towns there is always a good demand for early Teas, their superiority to Hybrid Perpetuals being fully and generally recognised, and it pays well, therefore, to grow them extensively for sale. What is to prevent any other enterprising nurseryman from erecting light span-roofed structures in which to plant out all the best Teas? Properly managed, grand bushes would soon be formed, these yielding a long succession of fine blooms, and, what is of even greater importance, abundance of good cuttings. Only the will is wanting, as there is absolutely nothing to prevent Teas, Noisettes, and even the other sections of Roses being established in large quantities on their own roots. What if it does cost more to raise them? Those who appreciate their superior value will readily pay better prices for them.

W. IGGULDEN.

Rose notes.—On p. 549 "A. H." gives a very promising account of his Roses; he is fortunate in possessing such good growth, as I can assure him that the majority of growers in the south are not so favoured. Genial weather has not prevailed here yet for more than two, or at the most three successive days; in fact we have seldom experienced

so unseasonable a year so far. All through May and up to the middle of June we have had very cold winds or else frequent frosts. On the 13th and 14th of this month there was ice to be seen at 6 a.m. The effect of such sudden changes as we have lately experienced is only too evident upon our Roses. On the 9th, 10th, and 11th of this month we had grand summer weather; on the 12th the wind turned to the north-east, and frost visited us on the two following mornings. The rains of Whitsuntide did not favour us, and it has been necessary to water many of our late planted Roses to keep them alive.—R.

ROSES ON THE WALLS.

THESE are opening freely. Maréchal Niel in a warm spot has many fine flowers upon it. When once old plants of this begin to show signs of canker and decay, or refuse to grow as vigorously as they did when young, there is perhaps no better plan than to root them out and replace with fresh plants. They are easily raised, and if duly prepared beforehand only one season's bloom need be lost. Bouquet d'Or is certainly one of the best wall Roses, and next to Gloire de Dijon the best of that vigorous race. It surpasses the type in its free blooming, for where Gloire de Dijon has one flower on a shoot, Bouquet d'Or has a cluster, and its shape is considerably better. Everyone who has a wall for Roses should have a plant of this kind. Emilie Dupuy is very reliable too, but not so profuse, as it contents itself with producing one bud to a shoot, but this is usually good and opens slowly into a full massive flower of great substance. The colour is rather lighter than that of Bouquet d'Or, having more yellow and less of the fawn shade. Mme. Berard is a grand Rose, but has a grave defect. It is with me always the first to be attacked by mildew, and throughout the season it is with difficulty that its foliage is kept clean and healthy. Although it clearly belongs to the Dijon family in its spineless wood and tinted leaves, it has distinct features, and perhaps its parentage has something to do with its susceptibility to attacks from this worst of pests. It is the same year after year. Though growing under similar conditions as other kinds and receiving the same careful treatment, I always look to Mme. Berard for the first indications of mildew and never fail to find it on that kind before any other, but it is a grand Rose, producing clusters of magnificent blooms. Mme. Chauvry was only sent out in 1886, and from the first I remarked its similarity to Mme. Berard. In growth, vigour, tinted leafage and susceptibility to mildew it is the counterpart of Mme. Berard, but in bloom it is abundantly distinct and a fine addition to the family. Its flowers are salmon shaded with yellow, which deepens into apricot or buff at the base of the petals. The colour of half expanded blooms is delightful. Henriette de Beauveau is one of L'charme's last Roses and very vigorous. I tried it first for pegging down, but under this treatment it does not flower so freely as most Dijon Teas. Upon the wall with a warm aspect and room to ramble, it promises to be delightful, and was this season one of the first to bloom. The flowers are of a clear yellow colour, large and of fine form, full and globular, and above all very sweetly scented. Without a doubt it is a sterling addition. Duchesse d'Auerstadt, which came out in the same year as the preceding kind (namely, 1887), justifies the good opinion first formed of it. It will prove one of the most vigorous climbing Roses and is very free flowering. In shape and colour it is distinct from other Dijon Teas, pure yellow in the bud state, but much deeper in tint as it expands. We are fortunate in having a plant of W. A. Richardson that produces flowers of a rich deep tint, and this year it is delightful. I know, however, that it is an erratic Rose. The plant in question covers a space that was originally intended for two, but whilst the one in question has done so well, the other never grew at all. Elsewhere this has happened, and from some non-apparent cause plants have refused to grow. I have never met with the two colours upon one

plant, but out of a dozen plants I grew on a fence several produced pale flowers only, whilst others had deeply coloured ones. The growth of all was alike. I do not think the cause of pale colour exists in the supposition put forth by "E. J." on p. 550, as all the plants I have ever grown had the best Rose soil that could be had, not less than 2 feet of loam in which to run riot. The plant above alluded to has through a rich root-run covered a space of 12 feet by 9 feet in three seasons, and is blooming freely from top to bottom.

GROWER.

SUMMER PRUNING OF ROSES.

THAT the best time to prune the climbing Tea-scented and Noisette Roses, as well as the most vigorous of the Hybrid Perpetuals and Bourbons, is immediately after they have finished flowering few will dispute when once they have given this system a fair trial. The whole art of growing these Roses to the best advantage consists in obtaining strong and properly ripened growth. Any plan that will tend to produce more of such wood must be a decided advantage, seeing that it is these growths which bear such a profusion of grand flowers during the early part of the summer. All who have made a study of pruning Roses will agree that it is best to remove the wood of these vigorous growers that has already flowered, and if so, why not do it at the earliest possible moment? By pruning this away in the summer, you naturally throw the whole strength of the plant into the wood that is to remain and produce flowers the following year. Another decided gain is secured, as you allow more light and air to have access to these sucker-like growths, and consequently they ripen much better than under the old treatment. When grown against pillars, the removal of the wood that has already flowered allows of the growing shoots being drawn up together out of the way, and with much less crowding than under the ordinary style. The same remarks apply to where these strong growers are cultivated in beds and pegged down; but I do not advise these long shoots being pegged down until the following spring, only recommending that the older wood be removed, so as to afford more strength and air to the remaining growth. Here, again, great advantage accrues from this system, as you are enabled to cultivate the soil between the plants at a time when it is of the most benefit to them, and in a far more effectual manner than could possibly be the case while the whole of the growth remained. Weeds can be kept down and mulchings applied with greater ease, while at the same time more valuable growth can be secured. I should like it to be particularly understood that what I am now advising is for the strong and extra vigorous growers only, and of whatever class. These seldom bloom more than once in a satisfactory manner, and it is far better to render this main crop as good as possible. William Allen Richardson, Gloire de Dijon, and a few more will sometimes produce a second crop of flowers late in the autumn, and from the earliest matured growths, but you cannot have the same crop twice, and I prefer to have a good show of bloom early in the summer in preference to such precarious and secondary crops in the autumn.

To a certain extent this same idea of summer pruning may be carried out in the case of all Roses, especially the Tea-scented and Noisette varieties. When cutting flowers of these I always remove a much longer stem than is generally the case. Not only are the flowers much more valuable for decoration when detached with long stalks, but you are practically summer pruning your plants at the same time. Roses always break more freely from the top eyes of a shoot, and by removing the blooms with a long stem, you keep your plants more compact and avoid the necessity of cutting away so much valuable wood in order to get the tree into a good shape during pruning time the following spring. I do not say that summer pruning is sufficient, but I contend that much more might be done in this respect and with decided advantage to

the plants. This is the plan to adopt with all extra strong growers, and which are too generally considered shy flowering. RIDGEWOOD.

FLOWER GARDEN.

SWEET-SCENTED FLOWERS.

SOME sweet scented flowers are more useful than others on account of their power to diffuse scent in the room when gathered, or even out of doors as you pass them by. The delicious scent of the Rose is but slightly diffused; for that very reason it is perhaps the more pleasing and delicate as we bend down over it to enjoy its fragrance. An auratum Lily, on the contrary, seems to give a weight to the atmosphere, so powerfully does it diffuse its perfume in the stillness and warmth of a drawing-room. Some people seem to enjoy thoroughly any quantity of auratum Lilies close to where they sit for a prolonged time, while others complain of headache as the speedy result of a heavy scent in the sitting-room. But some fragrant flowers have not this pernicious effect. Who, for instance, has ever found any deleterious results from Lilies of the Valley? A large bunch of these Lilies will be sufficient to scent several rooms, but without making the air oppressive or bringing on any inclination to headache. I have just finished the last gathering of this beautiful and useful flower after a constant supply for four months, that is from late in January to the first week in June. Quantities of Lilies of the Valley were used for the church at Easter, and also on Ascension Day, and from time to time a sick room in the parish was made more cheerful by the presence of this lovely flower. In order to have such a long succession of Lilies of the Valley it is necessary, of course, to devote a good piece of ground to their cultivation. But two or three yards will be sufficient if care is taken to grow them strong before they are forced. It is best to have a bed in some corner from which a regular supply of plants can be taken early in the autumn. From this bed the Lilies are taken and put out in rows, each head being separately and firmly put into well-prepared ground. They are left there to be forced after three or four years' growth, when the crowns are plump and strong, and ready to give fine spikes of bloom after being transferred to heat. There is very little trouble required to have in this way a constant succession of Lilies from the time they are first brought into heat, which with me is early in January, till they come naturally and abundantly of their own accord out of doors. Some of these Lilies when strong enough for forcing are taken up in squares about 18 inches each way and laid on the floor of the house, when they come on rapidly and with abundance of leaves. Others are potted and brought into the house when in flower in the pot; these last longer in bloom than those which are gathered in heat and brought into the house, so that while the squares are the least troublesome way of forcing, it is also the most extravagant way. In fact, nothing is required but a little space out of doors in the kitchen garden and an early vinery or hothouse, with care in the cultivation of the Lilies, to make their crowns plump and strong before forcing, in order to secure a good succession of this sweet flower throughout the spring. And when we consider the pleasure it gives both in the sick room and in the houses of those who are healthy and well, surely it is worth while to take some pains to produce it. I tried growing this Lily between lines of Asparagus. The plan answered for a year or two, but the spreading growth of the

Lily of the Valley in the rich, soft ground was too much for the Asparagus, and the attempt had to be given up.

Mignonette is not, I find, quite so manageable in the house as Lily of the Valley. Its scent is quite as powerful, however, when well grown indoors as when in summer it takes its natural place in the borders, and it has one advantage over the Lily of the Valley that it lasts much longer, for one plant will continue to supply flowers for a long period. Abundance of water seems to be one secret in forcing Mignonette into winter flowering, and another is to bring on the plants gradually and healthily out of doors during the late summer and autumn. Sturdy plants well watered will make fine pot plants in winter and spring if they are watered sufficiently to keep off the red spider. Heliotrope does not last long after being gathered, but the Cherry Pie scent is delightful, and it only requires a warm greenhouse to make it flower abundantly. In a winter nosegay Heliotrope and scarlet Geraniums go beautifully together, and a few Narcissus ornatus will make it deliciously fragrant. Our spring bulbs are certainly rich in this quality of fragrance. Hyacinths, Harris Lilies, and Narcissi are all useful in this way, and the Tuberose, which is scented more powerfully than any of the rest. This last is not a favourite with me. Its growth is stiff and ugly, and after all the trouble which the plants require, and the money which has to be spent on good roots, they must be thrown away when the flowering time is over. Narcissi and Hyacinths are kinder than that to us, and if the latter are not quite so fine the second year, at least they will help to decorate the outdoor borders, and Narcissi will go on year after year with but little attention. Moreover, the scent of Tuberoses and Gardenias and of the beautiful waxy Stephanotis is of a kind which is apt to give headache. These plants will always be favourites on account of their wonderful fragrance, but those who have not sufficient heat in which to grow them may well feel that hardier plants give a more delicious and healthier fragrance after all. Perhaps I speak of them as sour grapes, for I do not attempt to grow any one of the three now, though in former years Stephanotis and Tuberose were favourites, and the former at any rate gave me no trouble.

Sweet-scented leaves are always specially pleasant when we come across them, which is never so often as it might be. A Sweet Brier hedge on a warm, muggy day may be known by its fragrance far away, and a single bush by the door of a greenhouse is pleasant to smell as one goes in and out. Humea elegans is not often seen, as it is a somewhat troublesome biennial, but its leaves give an odour something like incense when they are gently rubbed through the hand. But the lemon Verbena (*Aloysia citriodora*) retains its scent the longest, as even a leaf put into a book and pressed there will keep its scent for a prolonged period. This delightful plant becomes a shrub of large dimensions in sheltered places in the west, and even in this county in a warm nook it will stand the winter. But it always makes a nice greenhouse plant, and its fresh green leaves are a fragrant addition to the bright flowers which may be gathered there at this season.

A GLOUCESTERSHIRE PARSON.

Ramondias.—How very beautiful these are just now, not that they are only just expanding their flowers, for they have in some districts been in flower for some little time past, in proof of which one has only to recall the fine examples of both white and purple forms that many must have

admired at the recent show at the Inner Temple. There are one or two things in which these plants luxuriate, or I think it may be safely said they are even essential to a full measure of success. These are shade and moisture. Accorded such conditions, the foundation of future success is laid. The plants are as happy on the almost perpendicular faces of rock as they are on sloping ground or the level surface of the bed. Where these conditions are not given them, no plant more quickly repents it than these, and the rough shaggy leaves speedily curl up with evident distress.—E. J.

Pyrethrums.—These handsome and useful border flowers are just now in their fullest beauty. Equally showy and beautiful are both single and double kinds, though I must confess to a leaning for the former, inasmuch as they command attention by their grace and elegance, points, I think, that are not forthcoming in the double kinds. When cut, too, the single kinds are extremely light and effective, and last a long time in perfection. The present is an excellent time to make a selection of them for planting later on, or where plants are kept in pots they may be planted without delay, taking care while the present warm weather lasts and till the plants have got well hold of the soil to keep them abundantly supplied with moisture. Pot plants should have their flowers removed as soon as they are planted out. Beds wholly devoted to these plants make a really telling display, and no garden should be without them. Where cut flowers are required in quantity Pyrethrums are simply invaluable.—E. J.

LILIUM UMBELLATUM.

CLOSELY following the yellowish-green-flowered *Lilium pyrenaicum* we have the numerous forms of that Lily usually known as *L. umbellatum* or *davuricum*, regarding the correct nomenclature of which there are at least differences of opinion, for by some authorities they are all regarded as varieties of *L. davuricum*, by others they are considered to be hybrids between that Lily and the common orange Lily (*L. croceum*). However opinions may differ as to the origin of these Lilies, there can be none as to their value in the garden, as they possess several desirable features. In the first place they are thoroughly hardy, by no means fastidious in the matter of soil, and can in an ordinary border be depended upon to flower in a satisfactory manner even the first season after planting. Besides this they are among the cheapest of all Lilies. *L. umbellatum* reaches a height of 18 inches to 1 yard, according to the position and vigour of the bulb. It pushes up a stout stem plentifully furnished with leaves, and bears an open head or cluster of cup-shaped blossoms, generally of a red or orange-red tint. While this Lily is sometimes massed in a herbaceous border, it is perhaps seen to the best advantage when associated with low-growing shrubs, between which the Lilies will make their appearance. The practice of planting Lilies of all kinds in this way appears to be greatly on the increase, and as a rule very satisfactory results are obtained. The best varieties of this Lily are fulgidum, glowing red; grandiflorum, orange-red; incomparabile, the deepest tinted of all, and to my mind the finest, with erectum, rather taller than any of the others, and with larger and more massive flowers. *L. umbellatum* is, however, sent here in a mixed state from Holland during the winter months, and being cheaper than the named varieties they are often employed for out-door planting, the range in colour not being great. True, they do not remain long in perfection, but when at their best they yield a fine display. This Lily is also grown in pots, and good examples of it so treated have made their appearance on the hawkers' barrows in the streets of London for the last month. Medium-sized bulbs are usually chosen for the purpose, and are placed two or three in a pot 5 inches in diameter, the result being a good quantity of bloom to each pot. In common with some of our hardiest and old-established Lilies, a disease will sometimes carry off the bulbs of *L. umbellatum* wholesale

where perhaps they have flourished for many years. I have seen fine established masses flower beautifully; then as the season advanced many of the flower-stems would die down prematurely, and the following season very few leaves and still fewer flowers would make their appearance. An examination has in each case revealed the fact that the bulbs were attacked by some disease which caused them to become soft, watery, and of a peculiar green colour. While I have seen several instances of this, I have, on the other hand, met with numerous examples that were never troubled in any way; so this fact should not deter anyone from planting, especially when it is remembered that some otherwise successful cultivators fail with the common white Lily (*L. candidum*), while with others it will flourish without any trouble. T.

THE FLORISTS' TULIP.

THE annual exhibitions of florists' Tulips have been held during the past two weeks in Lancashire, Cheshire, Yorkshire, and adjacent counties. Time was when there were several Tulip cultivators round London, but now only a very small number indeed cultivate florists' Tulips south of the Tweed. In the midlands and north there still exists a good deal of enthusiasm over this gorgeous flower, and exhibitions are held when the collections are in bloom. The leading exhibition is that of the Royal National Tulip Society, which is now held annually in Manchester. The date of the show is fixed about six weeks previous to its taking place. A circular is sent round to the growers, asking them to name the most suitable date, which, as a matter of course, is suggested by the advanced condition or otherwise of their own collections, and the date selected by the majority is that fixed upon. This year the fixture was June 8. The hot weather of two or three days previously brought on the flowers with surprising rapidity, and on the occasion of the show, which took place in the Botanic Gardens, Old Trafford, many of the flowers were seen to have suffered severely from the heat. The building in which the show took place was very hot, and many of the older blooms went to pieces almost before they were judged. Those growers fared best who grew their flowers in the colder and later localities.

There are five classes of florists' Tulips, viz., the seedling or breeder, the three rectified or broken forms known as bizarres, roses, and byblœmens, and lastly a very restricted section known as selfs, which comprises two types only—the yellow and the white. Those who raise seedling Tulips sow seed from broken or rectified feathered or flamed flowers, and these when they bloom—generally in four or five years—almost invariably take the form of self-coloured flowers. This is an extraordinary characteristic, illustrating a physiological fact scarcely known in any other flower. Very rare exceptions to this rule have occurred. King of the Universe, a comparatively new and very fine variety; Mrs. Jackson, also new; and Violet Amiable, all well-known byblœmens, never passed through the breeder stage, but took on the rectified character at the first time of blooming.

The seedling or breeder Tulips show by the colour of the base, or by the colour of the base and petals also, the class to which they belong. If the base of the flower is a circle of yellow, the flower will be a bizarre; if the yellow of the base suffuses the whole of the flower, it is then a self. If the base of the flower be white, it is then a byblœmen or a rose, but these two are classed by the body colour of the petals. Byblœmens have lilac, slate, mauve, or purple colours, and roses have pink, rose, or scarlet petals, but both the byblœmen and the rose have a white base. Should the white of the base suffuse the whole of the flower, then it becomes a white self. Many breeder Tulips which are very beautiful in the self-form break into flowers that are valueless; some ugly breeders, on the other hand, will break into flowers of great beauty and refinement.

When a seedling or breeder Tulip will break into the rectified character appears to be, as far as is known, a thing of mere chance. Some law operat-

ing in the flower's nature as a hidden mystery may perhaps operate to fix the time when this great change shall take place, but as far as is known, neither rank, age, nor any other characteristic affects the order of doing so. Some breeders will break into character in a few years, some in twelve or fifteen, and some have been grown for a quarter of a century without a sign of change. Many expedients have been resorted to to bring about the changes from the breeder to the broken form, but nothing beyond conjecture has been ascertained. Another singular fact concerning the Tulip is that when a breeder rectifies it always takes on a shorter stature, and becomes more refined and sometimes more delicate in habit. The foliage is less vigorous in the plant about to change, and shows long before the bud colours a mottling and streaking with lighter green, the habit of rectified Tulips, and a certain sign that such a bulb, whether it flowers that year or not, has passed from the transient to the permanent stage of its existence.

Broken or rectified flowers range themselves into two distinct sections, viz., feathered and flamed; thus bizarre, byblœmen and rose alike have their feathered and flamed forms. The feathered flowers have the colour on the petals laid in beautiful styles of pencilling round the edge only of the petals, and the centre of the petal is or should be devoid of colour, except the yellow ground of the bizarre, or the white of the rose or byblœmen. The flamed flower not only has the feathering on the petal edge, but this pencilling or feathering is joined by bold beams of colour that rise like fire flashes up the petal centre and strike into the pencilling of the edges with their sharp tongues. The feathering to be perfect should be continuous round the petal edge, and should not skip, and thus show here and there the edges of white. The feathering may be light and delicate as in some flowers, or heavy and dense as in others. The flame should be bold, striking, of good colour, and sufficient to strike the feather.

Other points of quality are the purity of the base colour, whether white or yellow; this is one of the highest importance, and is of immense value in estimating the character of the flower. There should be six petals, as this number affords the most perfect circular outline; there should be six stamens, one to each petal, each supporting a bold black anther, and this and the stamens should be as pure as the base colour.

A selection of the leading Tulips exhibited at Manchester would include the following *Feathered bizarres*: Garibaldi, General Grant, John Mills, Lord Lilford, Magnum Bonum, Masterpiece, Richard Yates, Robert Guest (extra fine), Lord Frederick Cavendish, Sir J. Paxton, Sulphur, and William Wilson. *Flamed bizarres*: Dr. Hardy, Dr. Hutcheon, Sir Joseph Paxton, Prince of Wales, and William Lea. *Feathered roses*: Aglaia, Alice, Annie McGregor, Charmer, Heroine, Julia Farnese, Modesty, Mrs. Collier, Lizzie Dymock, and Rachel. *Flamed roses*: Annie McGregor, Aglaia, Clio, Lady C. Gordon, Mme. St. Armand, Mabel, Mrs. Bright, and Triomphe Royale. *Byblœmens feathered*: Bacchus, Conningsby Castle, Bessie, King of the Universe (very fine), May Queen, Mrs. Hepworth, Pegg's Seedling, Talisman, William Bentley, and William Parkinson. *Byblœmens flamed*: Adonis, Bacchus, Bob Morley, Beauty of Litchurch, Duchess of Sutherland, Lord Denman, May Queen, Perfection, and Talisman.

Of breeder Tulips, the finest *bizarres* are Dr. Hardy, Garibaldi, Lord Delamere, Royal Standard, Sir J. Paxton, Sulphur, and William Wilson. *Byblœmen breeders*: Alice Grey, Bridesmaid, David Jackson, Glory of Stakehill, King of the Universe, Lord Denman, May Queen, Nimbus, Talisman, and William Parkinson. *Rose breeders*: Annie McGregor, Lord Derby, Mabel, Mrs. Barlow, Miss B. Coutts, Olivia, Queen of England, and Thomas Parker.

Only two self Tulips were shown; one was Buttercup, a glorious yellow, and the other Cygnet, pure white. R. D.

Narcissi in Grass.—In writing on this subject G. H. C. says (p. 542): "Basal rot undoubtedly is

due to superfluous moisture." Now it is always somewhat discouraging to read this kind of off-hand settlement and dismissal of an investigation which is full of difficulty and about which the best experts are still in the dark. To show how impossible it is to accept "G. H. C.'s" confident judgment, I will remark that in my opinion it would be nearer the truth to assert that basal rot is due to drought and lack of moisture, and perhaps I have some right to speak, having studied the cultivation of Narcissi for at least twelve years, almost to the exclusion of other horticultural subjects. Not that I really believe either moisture or drought to wholly supply the answer to the investigation. But in my own garden certain kinds of Narcissi cannot be grown; however sound and fine their bulbs are when planted, they dwindle and perish from basal rot. And there is no water within 90 feet of the surface of my garden, which, moreover, is set on a slope and as sunny and breezy as possible. This particular season we have probably suffered more from drought than any other district of England, having had literally no rain to wet the ground from November until the last week in May. I am now beginning to lift my bulbs, and find the soil perfectly dry beneath them; nevertheless there is no diminution of this mysterious disease in the varieties which are subject to it. On the other hand, I could mention localities but little elevated above the sea line where the soil is always moist a foot below the surface, yet where this disease is scarcely known. Again, the varieties of *N. spurium*, such as Ard-Righ, Henry Irving, &c., die out here and in most gardens in the south of England, while in the far moister soil and climate of the south of Ireland they grow like weeds. These varieties die out with me in grass, and planting in turf is by no means the panacea for the maladies of Narcissi which it is sometimes represented to be. I believe that basal rot is due to a complexity of unfavourable conditions, and not to any one single cause. But for the most part Narcissi get too little moisture both atmospheric and at root, not too much.—G. H. ENGLEHEART.

SEA HOLLIES.

THE article upon these in THE GARDEN, June 11 (p. 543), is very interesting, and sets forth the merits of a most deserving class of plants. There is only a limited use for the fine foliage in special arrangements or under favoured conditions. I remember once seeing some of them in a garden where many that we call greenhouse plants lived and flowered on walls outside. They were growing in a bed with Agapanthus and Tritomas and the effect was fine, but, of course, such an arrangement is quite out of the question for the majority of gardens. The lovely flowering or "border" kinds, as the article terms them, are for everybody, and they ought to be largely grown. The same omission occurs in the article in question that is made by other writers on Sea Hollies. The reader distinctly understands that the plants are perennials, but the writer generally fails to mention *E. giganteum* as the exception. This is unfortunate, and more than one instance has come to my knowledge of disappointment having been experienced. It is truly a noble Sea Holly, but if we would never be without it we must raise a batch of seedlings each year. It always dies after flowering, and, therefore, it is more of a biennial. Not truly so, however, because only by very early raising and good culture can any of the plants be had to flower in the same space of time that suffices for such things as Mulleins, Foxgloves, &c. Treated ordinarily, seed sown during the present month will give plants that will flower two years hence. I believe it might easily be naturalised upon a sunny bank where other vegetation was not rank, as it produces more seed than any other kind I know, and even if left to chance some doubtless would grow. Apart from this, however, it is one of the very finest summer-flowering hardy plants, lasting many weeks in beauty and a great favourite with bees. Whether

they gather honey or pollen, I do not know; but of all that are regarded as bee flowers I have never seen any so numerous besieged as this. The other Sea Hollies are freely visited, but in my case not to anything like the extent that this is. The more sunny the spot in which it is grown the more silvery it comes. Even in partial shade it does not take on half its delightful colour.

Concerning *E. Oliverianum* and *E. planum*, I read that they are quite distinct. If so, it is a mere botanical distinction, or otherwise I have not had the true plant under the former name. I had several under that name and from a reliable source, but though growing beside *E. planum*, I have never observed any broad distinctions and had come to regard them almost as synonymous. Of both I always have plenty of young stock, for seedlings spring up around the parent plants each year in profusion. A. H.

TUFTED PANSIES.

It seems somewhat odd that for a show of tufted Pansy flowers we should here in London be chiefly indebted to such northern growers as Messrs. Dobbie and Co., of Rothesay, although we do not know whether the very striking collections of these flowers exhibited at the James Street Drill Hall on the 7th and elsewhere previously were grown in Scotland or at their seed grounds in the New Forest. Undoubtedly it would gratify southern fanciers of these hardy flowers could it be proved that plants did as well at Beaulieu as at Rothesay, and that it was just as easy to exhibit flowers from one place as the other. Without doubt the two most recent summer seasons having been both cool and moist did very much to popularise Pansies of every strain here in the south, and especially of the bedding section, for they are now much more widely employed either as carpet plants or for mixing amongst variegated Pelargoniums or amidst silvery-foliaged Grasses, &c.; indeed few mixtures produce more pleasing effects than do strong bushy plants of Flower of Spring silver-leaved Pelargonium on a carpet of Archie Grant, or good clumps of Iresine Lindeni on a base of white Viola Countess of Hopetoun or Snowflake. In the large collection of varieties which Messrs. Dobbie and Co. so recently exhibited, by far the larger number had bicoloured or otherwise diversely marked flowers. Some were blotched, some edged, some striped, some belted, but hardly fitted to produce any pleasing effect when employed *en masse*. The selfs were more telling even in the clusters of flowers as artificially set up. It is very probable that under the cooler skies and humid air of the north these quaintly coloured forms look pretty enough, but they would hardly please here in the south, where light is strong and heat is at times very trying. The Messrs. Dobbie offer a list of over eighty varieties, but so many will for all ordinary purposes bear much paring down. Thus of the large variety presented at the Drill Hall, the best yellows were Bullion, self, deep yellow; Vernon Lee, lower petals bright yellow, top petals dark chestnut, edged with yellow; Wonder, a soft yellow shade; and Lemon Queen, creamy white. The best whites were Snowflake, undoubtedly the best, and Countess of Hopetoun, more compact in habit. Blue shades are usually very abundant. In this particular collection Archie Grant, purplish blue, was one of the deepest coloured; Mrs. H. Bellamy, pale blue upper petals, and lower ones purple; Max Kolb, bright bluish purple; Ariel, bluish lavender; and Annie King, bluish white, also make a pleasing as well as varied selection. Dorothy Tennant, purple ground, slightly streaked, is also a charming variety.

Such edged forms as Blue Cloud and Skylark, both having white grounds edged with diverse shades of blue, are very pleasing when the flowers come true to character. Lilies is another of this class that some may prefer to the other two. A select dozen of the best of these tufted Pansies suffices for any garden, however large. A. D.

PHYSALIS ALKEKENGI.

THE two species of this interesting genus at present in cultivation are both remarkable in their way. *P. edulis* is the Cape Gooseberry, and is often cultivated in this country with considerable success. *P. Alkekengi* is a singularly handsome plant, bearing throughout the autumn months handsome, bright-coloured, bladder-like fruit. It is perennial and extremely useful in the mixed border. It may be seen best in large patches, and the fruiting branches are very useful in a cut state for table and other decoration. The large, drooping, Cherry-



The winter Cherry (*Physalis Alkekengi*).

like fruits are borne in the greatest abundance, and they are extremely handsome and effective all through the autumn months. It does best in strong loamy soil, and may be propagated readily either by division or cuttings in early summer. The seeds germinate freely if sown directly they are collected, and if grown well will make strong plants the following year. It is a native of Western Europe, through Central Asia to Japan, but often cultivated. A useful plant for naturalising in woods, &c. K.

Aquilegias.—When in Manchester a short time since I saw in the garden of Stakehill House, the residence of Mr. Samuel Barlow, J.P., a bed of Aquilegias raised from selected seeds, some double and some single, of a very attractive character. Among the double varieties were a few of a singularly dwarf growth not more than 15 inches to 18 inches in height, densely flowered, and throwing their blossoms perfectly erect in a symmetrical mass. One, a bright blue-flowered double variety, was singularly striking, and seemed to be admirably adapted for border purposes. Many of our Aquile-

gias are far too tall and too spare and spreading in growth. Therein lies the value of the beautiful *A. glandulosa*, if only it could be made to flower. I have plants of it both in pots and in the open ground, but in neither case do they flower, and I have no better luck with *A. coerulea*. If the dwarfier growing species are difficult to flower, there is need of the selection of such a strain as Mr. Barlow has to supply a better habit, especially for small gardens where tall types appear out of place. Aquilegias are easily raised from seed, and if a sowing be made early in the year and the plants well treated and grown on into size, many of them will flower the same year, and those which do not will bloom early the following season. It is very easy to improve a strain by gathering a few seeds only from the very best and rejecting all inferior kinds. But those who grow Aquilegias generally allow the plants to seed themselves, with the result that the commoner rank-growing varieties of poor quality overpower the others and crowd them out of cultivation. By means of careful selection and also by cross-fertilisation, Aquilegias can be greatly improved.—R. D.

NOTES ON HARDY PLANTS.

Lilium candidum.—Many of us are again in trouble about this grand old white Lily, owing to its failure to bloom and even in many cases to grow. I believe that something might be done to add vigour to its growth, which is always desirable in the case of a plant being attacked by disease, as at least a partial remedy or preventive. It is well known that this Lily should be planted in late summer, when it naturally begins to grow. But my friend Mr. Weaver has sent to me such excellent hints, that I think they cannot be too widely known. Mr. Weaver has a clay soil, and he plants the bulbs of this Lily close to the surface, drawing the soil around them and hardly any over them. Compared with other methods of planting, he says this is the best. My own experience is that bulbs simply laid on the surface, and overlooked at planting time, with nearly all their scale points visible, have grown and flowered, and been the envy of my friends. The method is simple, and the bulbs are cheap and the experiment worthy of trial.

Asarum caudatum.—What a delightfully fragrant plant is this! It has a powerful nutmeg scent, and otherwise it is a plant few would like to lose sight of after once having made an acquaintance with it. It has many points of beauty and interest besides the one feature just mentioned. Its long-tailed black-brown flowers, produced on the ground surface, manage somehow to keep wonderfully clean, and, in their way, even bright; then they last individually six weeks or even two months; indeed they are fairly good flowers until the seed is nearly ripe. Altogether the flowers are much superior to those of the better-known *A. europæum*. The habit of the plant is neat, the foliage being wavy and somewhat heart-shaped. It does well in a sunny situation in deep light black soil, and in a moderate way comes from self-sown seed.

Asarum grandiflorum.—Under this name a very large and distinct form has reached me. The name is certainly applicable when the plant is viewed in relation to the other species. The leaves are large, like those of an *Aristolochia* or a *Colts-foot*, and fairly glisten from the peculiar pubescence. It is a bold, though dwarf plant. The flowers are reddish-brown and green.

Primula Reidi.—Small plants struggled through the long winter, and since real spring weather came have made good growth, and some have flowered and set well for seed. After this I should consider that the plants, at first properly placed, are quite capable of taking care of themselves, at least equally so with other choice Primulas.

Achillea rupestris.—A very small species with leaves exhalng a strong aromatic odour. The flowers are pure white, and for size of plant

large as well as lasting. It is a very neat alpine, and cannot fail to become popular when more plentiful and better known. J. WOOD.

Woodville, Kirkstall.

THE CULTIVATION OF ALPINE PLANTS.*

THE flora of the European Alps is the richest mountain flora in the world; but the term "alpine plants" is used to include many which are not found on the Alps—some which are not mountain plants at all. In this sense the word "alpine" is hard to define; but I intend to speak generally to-day of the cultivation of ornamental hardy plants of low stature, such as may be successfully grown amongst large stones, either facing a bank or elevated above the level of the ground. There are some favoured gardens where natural rockeries exist, or where the conditions of the soil with regard to quality or drainage are such that choice and delicate mountain plants may be grown on the ground-level in ordinary borders. Such gardens exist in several districts in England, and are common in Scotland and Wales; few rules are necessary there, where plants have only to be planted and kept clear of weeds in order to thrive. But most of us who wish to grow choice alpine plants in our gardens have to make the best of conditions naturally unfavourable, and in doing this we can be helped by the experience of those who have made it their special study. We need not say much of climate and atmospheric conditions, because they are beyond our control. It may be remarked, however, that high elevation above the sea-level is a great advantage in the neighbourhood of towns, because the impurities in the air are more readily dispersed, and do not collect or settle as in lowland valleys. Good natural drainage is also a great advantage, because although we can drain the spot in which our alpine plants grow, and even our whole garden, still, if the soil of the district is wet and retentive, the local damp seems to affect mountain plants unfavourably. Local differences of climate caused by soil and evaporation are no doubt important factors in the growth of plants, but it would be waste of time to dwell upon the endless particulars which make it impossible that the conditions which prevail on the Alps can be imitated in the valley of the Thames. I will therefore assume that the object of the amateur cultivator of alpine plants is to bring together as many ornamental and hardy dwarf plants as he can, and make them flower and thrive in his garden. The degree of his success will depend partly on circumstances which he cannot control, but in a great measure on his own skill and perseverance.

The first necessity for growing choice alpine plants is to secure perfect drainage for the soil in which they grow. This may seem strange to those who have seen them growing on the mountains, often apparently in perpetual wet; but there the soil is never waterlogged, or charged with stagnant moisture, but the wet is always in rapid motion and changing. Supposing that no part of a garden naturally gives the conditions in which alpine plants will thrive, we must make these conditions by artificial means. Those who wish to grow them on flat borders on retentive wet soil, may do so on the ground-level by digging out the soil to a depth of 3 feet, and draining the bottom of the bed to the nearest outfall, and filling up to the surface with soil mixed with two-thirds of broken stone, either in small or large pieces. But in heavy

soils, where large stones are easily obtained, still better beds for alpine plants may be made by enclosing the space with large blocks to a height of 2 feet or 3 feet, and filling up as before directed. The sides of these stone blocks can be covered with many ornamental plants in addition to those which are grown on the raised surface. But the commonest way of cultivating alpine plants is upon what are called rockeries, or loose rough stones laid together in different forms and methods. Of these I will speak more particularly, and then say something about the use of walls and frames for the growth of mountain plants.

The forms in which the rockery, usually so called, can be constructed may be divided into three: (1) The barrow-shaped rockery, (2) the facing rockery, and (3) the sunk rockery. The first may be raised anywhere; the other two depend partly upon the configuration of the ground. No wood or tree roots should be used to supplement any of them; they must be all stone. The kind of stone is seldom a matter of choice; everyone will use what is most handy. The rougher and more unshapely the blocks the better. The size should vary from 40 or 50 lbs. to 3 or 4 cwt. No mortar or cement for fixing them together must ever be employed; they must be firmly wedged and interlocked and depend upon one another, and not upon the soil between them, to keep them in their places. This rule is of the utmost importance; if it is neglected a long frost or an excessive rainfall may cause the whole structure to collapse.

Each successive part of the stone skeleton must be put together before the soil is added. This applies to all rockeries.

THE BARROW-SHAPED ROCKERY.

The most convenient size for the barrow-shaped rockery is about 4 feet high, and 6 feet or 7 feet through at the base. The length is immaterial. If the long sides face north-east and south-west it will afford perhaps the best variety of aspect; but the amount of sunshine each plant gets will depend on the arrangement of each stone as much as upon the main structure. There cannot be too many projections, and care must be taken to leave no channels between the stones by which the soil can be washed down to the base. Overhanging brows, beneath which plants can be inserted, are very useful; large surfaces of stone may here and there be left exposed, and irregularity of form is far better than symmetry. A formal arrangement of flat pockets or nests offends the eye without helping the cultivator, as the tastes of alpine plants as regards slope of surface and moisture at their roots are very various. As for the degree of slope from the base to the summit of the barrow, it will not be uniform. In some places there will be an irregular square yard of level on the top, bounded by large cross key-stones, for which the largest stones should be reserved. In other parts the sides will slope evenly to the ridge; or the upper half may be perpendicular, leaving only wide crevices to suit the taste of certain plants. If the blocks are very irregular in form, and their points of contact as few as possible, providing only for secure interlocking, there will be plenty of room for soil to nourish the plants. Ever-changing variety of stone surface, both above and below the soil, is the object to be aimed at, and any sort of symmetry must be avoided. The second form, or

FACING ROCKERY,

is dependent upon the natural shape of ground-surface. Wherever there is a steep bank facing

south or east it may be utilised for the growth of alpine plants. The stones, as before advised, should be large and unshapely, and be buried to two-thirds of their bulk, and form a very uneven surface, all being interlocked from top to bottom as described. Rockeries of this form are less liable to suffer from drought; if the surface covered is large, access to all parts should be provided by convenient stepping-stones, because, although every stone in the structure ought to be capable of bearing the weight of a heavy man without danger of displacement, it is better not to have to tread upon the plants.

THE SUNK ROCKERY.

This is perhaps the best of all, but entails rather more labour in construction. Where subsoil drainage is perfect, a sunk walk may be made, not less than 10 feet or 12 feet wide, with sloping sides. The sides may be faced with stones, as described in the second form of rockery, and all or part of the excavated soil may be made into a raised mound, continuing the slopes of the excavated banks above the ground-level, and thus combining the facing rockery and the barrow rockery. If the outer line of this portion above the ground be varied by small bays, every possible aspect and slope may be provided to suit the taste of every plant. However, unless drainage is perfect, a sunk walk, rising to the ground-level at each end, would not be feasible. But a broad walk, excavated into the side of a hill and sloping all one way, could be adapted to a structure nearly similar to that described, or the ground may be dug out in the form of an amphitheatre to suit the taste or circumstances. But whatever the form of rockery adopted, let the situation be away from the influence of trees, beyond suspicion of the reach of their roots below, or their drip, or even their shade above. Trees which only shelter from high winds are so far serviceable, and so are walls and high banks. There are few alpine plants for which a storm-swept surface is good, but trees are objectionable where they lessen the light, which is an important element in the welfare of most mountain plants. The shade and shelter afforded by the stones and form of the structure itself are the best kind of shade and shelter.

SOIL.

We now come to the subject of soil, which is very important, though I attach less importance to it than others do who have written on the subject. I hold that where atmospheric and mechanical conditions are favourable, the chemical combination of the soil is of secondary consideration. It is true that in Nature we find that the flora of a limestone mountain differs in many particulars from that of a granite mountain, and on the same mountain some plants will thrive in heavy retentive soil, whilst others will be found exclusively in peat or sand. But for one who is beginning to cultivate alpine plants to have to divide them into lime-lovers and lime-haters, lovers of sand and lovers of stiff soil, is an unnecessary aggravation of difficulties. So large a proportion of ornamental plants is contented with the soil which most cultivators provide for all alike—even though in Nature they seem to have predilections—that where an amateur has only one rockery it would be too perplexing to study the partiality of every plant, and to remember every spot where lime-lovers or their opposites had been growing. While saying this, I confess that I have some rockeries where both soil and rock are adapted exclusively for lime plants; others from which lime is kept away, and where both soil and rock are granitic; but the great ma-

* Paper read before the Royal Horticultural Society by Rev. C. Wolley Dod, M.A., June 9, 1891.

jointly of plants thrive equally well on both. I know few better collections of alpine plants than one which I recently saw at Guildford, growing on a bank of almost pure chalk. I cannot say that I noticed any inveterate lime-haters there; but conditions of drainage and atmosphere were the chief cause of success. With regard to soil, then, we must take care that it does not retain stagnant moisture, and yet it must not dry up too readily. Plants must be able to penetrate it easily with their roots, the lengths of some of which must be seen to be believed. Good loam, with a little humus in the form of leaf-mould or peat, and half or three-quarters of the bulk composed of stone riddlings from the nearest stone quarry, and varying in size from that of Rapeseed to that of horse beans, make up a soil with which most alpine are quite contented. The red alluvial clay of Cheshire, burnt hard in a kiln, and broken up or riddled to the above size, is an excellent material mixed with a little soil and a little hard stone. Where you are convinced that lime is useful, it may be added as pure lime, not planting in it till thoroughly slaked by mixture with the soil. Rough surface dressing is a thing in which all alpine delight, as it keeps the top of the soil sweet and moist, and prevents their leaves being fouled. Use for this purpose the same riddled stone as described above, which is better than gravel, as round pebbles are easily washed off the slope by rain or in watering.

PLANTING ROCKERIES.

Having now constructed our rockeries, we must next furnish them, and it must not be forgotten that they are to be furnished with alpine. It is better not to be in a hurry to see the stones covered. It would be easy to cover them with growth in a single season, but it would be demoralising to the cultivator. We must not degrade choice alpine by putting them to keep company with Periwinkles, Wood-ruff, large St. John's Wort, dead Nettles, Creeping Jenny, fast-running Sedums, and Saxifrages, which do duty for alpine on raised structures of roots or stones in the shady, neglected corners of many a garden. Some of these things are very pretty, and desirable in their way; but growing these cannot be called the cultivation of alpine plants, and such subjects as I have mentioned must be carefully kept off the alpine rockery. Indeed, there are some plants, of which *Coronilla varia* is one, which, when once established amongst large stones, cannot be eradicated by any means short of pulling the whole structure to pieces. Any plant which runs under a large stone and reappears on the other side should be treated with caution. As a rule, nothing should be planted which cannot be easily and entirely eradicated in a few minutes. If a rockery is large, there is no reason for limiting the area to be assigned to each plant, especially to such as are ornamental when in flower, and not unsightly at other seasons. If different rockeries or separate parts of the same can be assigned to rapid growers and to dwarf compact plants, it will be an advantage. There are many subjects which belong to the class of alpine which require to be displayed in a broad and high mass to do them full justice. Such things should make a train from the top of the rockery quite to the ground; *Aubrietias*, for example, and *Veronica prostrata* should look like purple or blue cataracts; others should be unlimited in breadth, like the dwarf, mossy *Phloxes* and the brilliantly coloured *Helianthemums*. Such things do not like being cropped round to limit their growth, and if there is not enough room

for them they had better be omitted from the rockery, though in stiff and cold soils they will not thrive in the mixed border. Whatever is grown, the small and delicate gems of the collection must run no danger of being smothered by overwhelming neighbours, and this requires both careful arrangement and constant watching. When first I began to cultivate alpine, I planted somewhat indiscriminately together things which I thought would make an ornamental combination, but the weaker soon became overwhelmed in the fight with the stronger, and there was nothing to be done but to build a new rockery and plant it more carefully. In this way I have now constructed at least a dozen rockeries, trying each time to benefit by past experiences and to exclude weedy plants. The first and second made still continue, and are still flowery wildernesses in spring, but everything choice and delicate upon them has either long ago perished or been transferred to new quarters. But visitors to my garden in spring who are not connoisseurs in alpine think these wild rockeries far more ornamental than the half bare stone heaps where my choicest plants are grown, and which they think will look very nice in a year or two when they are as well covered as the others. I have mentioned this to show that those who can appreciate the beauty of the smaller and more delicate alpine, and grow them for their own sake, must be contented to see their favourites surrounded in many instances by bare stones; but the stones, especially if they contain cracks, may often be clothed with plants without any danger of overcrowding. I have said little about choice of stone for rockeries, though I have tried many kinds, and of all I have tried I prefer the carboniferous limestone, common in North Wales, Derbyshire and the north of Lancashire. The loose blocks of this which lie about the land are full of cracks and are varied in shape. I carefully avoid the furrowed and smooth-channelled surface slates of this stone often sold in London for rockwork, but most unsuitable for growing plants; I do not speak of these, but detached solid blocks abounding in deep cracks and crevices. These crevices are the very place for some of the choicest alpine. *Paronychia* shows its true character in no other spot. *Potentilla nitida* flowers when fixed in them, and there only. They are excellent for *Phyteuma comosum*. The Spiderweb Houseleeks delight in them, and so do some of the smaller Saxifrages. These are only a few of a long list I might make, and things which grow in such tight quarters never encroach much. The little *Arenaria balearica*, which grows all over sandstone as close and in nearly as thin a coat as paint upon wood, does not grow well upon limestone; but this plant does encroach, spreading over the surface of small neighbours and smothering them. There are many things, however, some herbaceous, some shrubby and evergreen, which do well only on condition of resting upon stone with their leaves and branches. It is so with *Pentstemon Scouleri*, and with that most charming dwarf shrub, *Genista pilosa*, which rises hardly an inch off the stone, though it may cover several square feet. There are many other such plants, but a list of plant names is out of place here, and will be given in an appendix. I have said before that in planting aspect must be carefully considered. The best aspect for alpine is east, and west is the worst; but there is not a spot on any rockery which may not be filled with a suitable tenant. Some of the most ornamental flowers abhor, in the atmosphere of my garden, even a glimpse of the sun. *Ramondia pyrenaica* is withered up by it in an

hour; so is *Cyananthus lobatus*; and these must be shaded on every side but north. As a general rule, I find all Himalayan alpine impatient of sunshine; they may endure it in their own home, where they live in an atmosphere always saturated with wet. However, it is only the deep recesses of the rockery towards the north which get no sun at all, and plenty of things are quite contented on the north side of the slope. It was said above that the rockery is intended for dwarf and choice plants which will not thrive in other parts of the garden. This, of course, includes some dwarf shrubs. For instance, I must grow *Lithospermum prostratum* on stones or not at all. The white *Erica carnea*, and several such dwarfs, are included in the same number. These details everyone must settle for himself. Such things are included in my definition of alpine. As for bulbs, they may be ornamental enough at times, but I find they do as well or better elsewhere. Their leaves are untidy just at the time when the rockery ought to be most gay and neat; and watering in summer, which other plants require, is bad for them, so I have not included them in my list. While speaking of watering, I may say that rockeries such as I have described could not dispense with it in dry weather; it requires careful judgment, and I often prefer to water the soil holding the can close to the ground at the highest point of the stones, and letting the water run down the slope to get to the roots, rather than wet the plants themselves. Wet foliage and flowers often get burnt up by sunshine. Weeding, carefully done, is a necessity on rockeries, for weeds will come; but plants which seed about freely are to be avoided, as they greatly multiply the labour of weeding, and some of them are hard to eradicate from among the stones. The Harebells and alpine Poppies, pretty as they are, must be excluded on this account; so must that weedy little plant, *Saxifraga Cymbalaria*, which can be grown on any wall. The fewer weeds there are, the more likely are seedlings of choice and rare plants to assert themselves. For instance, *Geranium argenteum* grows in crevices into which the seeds are shot when ripe, and where plants could not be inserted, and keeps up the supply of this elegant alpine.

RAISING ALPINES FROM SEED.

A few words may be in place here about raising alpine from seed; for constant succession is necessary, the duration of their life in cultivation being, for many obvious reasons, which need not be discussed here, far shorter than in their native home. Reproduction from seed, where seed can be obtained, ensures the healthiest and finest growth, and there is no better way of getting seed than in saving it yourself. In several cases the first hint I have had that a plant has ripened fertile seed has been the recognition of a seedling near the parent, and this experience has taught me always to look carefully for seed after the flowering of rare specimens. I need not say, therefore, that I disapprove of the practice of cutting off flower-heads as soon as they wither; in some cases the seed-head is nearly as ornamental as the flower, but I have before said that discretion must be used even in this, as seedlings of some things are troublesome from their number. When ripe seed is gathered I recommend its being sown at once. It is then more likely to come up quickly, and as all such plants as we grow on rockeries are better sown in pans, there is seldom difficulty in keeping small seedlings through the winter. The greatest enemy we have in the process is the growth of Lichen, the worst being the *Marchantia* or Liverwort fun-

gus, which completely chokes tender growth. A coating of finely sifted burnt earth on the surface, and a piece of flat glass laid over the pan, especially if no water is used for them unless it has been boiled, reduces this trouble to a minimum. But sowings of choice and rare seed should be carefully watched, and the fungus picked off at the first appearance. Many alpine plants seem never to make seed in cultivation, and must be reproduced by division or cuttings. The skill required to do this varies greatly with different subjects; where a shoot can seldom be found more than half an inch long, as in the case of two or three hybrid alpine Pinks, the striking needs delicate manipulation. Other things grow very slowly, though not long-lived, and a constant succession from cuttings must be ensured. Some of the terrestrial Orchids, such as Bee, and Fly, and Spider, excellent subjects for rockery, we must be contented to keep as long as they choose to live, as they seem never to increase in cultivation at all, though they may flower well year after year. But there are not a few plants which refuse to be tamed, and from the time they are planted in our gardens seem always to go from bad to worse, and are never presentable in appearance for two seasons together. Of these I may instance *Gentiana bavarica* and *Eritrichium nanum*, which I believe no skill has ever kept in cultivation without constant renewal, and which perhaps are never likely to repay the trouble of trying to keep them alive on an English rockery. In all alpine gardening there will be, even where equal skill is exerted, different degrees of success, according to the surrounding conditions; and it must not be expected that the same soil and treatment which keep a hundred rare alpine plants in perfect health at Edinburgh will be equally fortunate at Kew.

FRAMES FOR ALPINES.

This paper would not be complete without saying something about the use of frames in alpine gardening. Where the area of rockery is considerable, a cold frame should be assigned for keeping up the supply of plants for it—cuttings and seedlings—in pots. The best treatment of these plants in winter has been much discussed in gardening journals. I may say that I think all attempts to imitate natural conditions, such as snow and long rest, by unnatural means are mistakes. During warm winters mountain plants will grow, and must be allowed to grow, and to keep them unnaturally dark or dry when growing is fatal to their health. Even in severe frosts air must be given abundantly in the daytime, and the frames must not be muffled up. Stagnant air, whether damp or dry, is their worst enemy; but if the weather is warm enough to set them growing, they may easily die for want of moisture. I will not say more than this, for experience is the best guide, and everyone thinks he can manage his frames better than his neighbour, but of the use of frames for flowering alpine plants in pots I must add a few words. There are certain very early-flowering alpine plants upon which a mixture of admiration and lamentation is bestowed at the end of every winter. Their flowers are often beautiful in a treacherous fortnight at the beginning of February, and are suddenly destroyed by a return of winter in its severest form. I may mention, amongst others, *Saxifraga Burseriana* and *sancta* and their near relatives and hybrids, *Primula marginata* and *intermedia*, *Androsace carnea*, *Chamaejasme* and *Laggeri*, several dwarf species of *Alyssum* and *Iberis*, and there are a good many more. Pots or pans containing these may be grouped together in an open sunny spot, and plunged in

sand or coal-ashes in a rough frame made for them, so that the lights may be not more than 3 inches or 4 inches above the pots. These lights should be removed in the daytime when the weather is fine and air should be admitted, according to the temperature, at night. Such a sheet of elegant beauty, lasting, if well arranged, through February, March and April, may be obtained in this way that I often wonder why amateurs attempt to flower early alpine plants in any other fashion. With me April is the earliest month in which I can expect to have anything gay on the open rockery without disappointment. I am obliged to disfigure the slopes with sheets of glass and handlights to preserve through winter at all *Omphalodes Luciliae*, *Onosma tauricum*, *Androsace sarmentosa* and others which cannot endure winter wet, and the real pleasure of the rockery begins when the frame alpine plants are waning. I recommend those masses of covered pots in early spring to all cultivators of alpine plants.

ALPINES ON WALLS.

I promised to speak of alpine plants on walls, and that shall end my say. A few years ago I was driving through Dorking, and I noticed a smooth and by no means ancient brick wall covered, above the reach of boys' hands, with *Erinus alpinus*. Rough stone walls I had often seen well clothed with alpine plants, but from that time I became aware that there is hardly any garden wall, of whatever material, of which the parts otherwise bare might not be made ornamental with flowers. I do not suggest that such things should supersede climbing Roses and wall fruit, but how often we see bare walls on which nothing is grown at all! The capabilities of rough stone walls for growing mountain plants are very great. Falls of *Aubrietia* and *Iberis*, groups of *Saxifragas*, and similar subjects may make many a corner gay instead of bare. Some very pretty things I grow on walls which have defied all my attempts to cultivate them elsewhere. I may specify *Lychnis Lagascea*, a fragile evergreen plant of shrubby growth, easily multiplied by seed, which alternate snows and thaws generally crush up, but in this way it continues to thrive, and is covered during early summer with crimson flowers.

I have now come to the end of my subject, and only add that I have made a careful selection of 150 or so alpine plants suited for English rockeries in a list given as an appendix, from which all coarse growers are excluded.

ROCK PLANTS SUITABLE FOR ENGLISH GARDENS.

<i>Acantholimon venustum</i>	<i>Arabis Androsace</i>
<i>Achillea tomentosa</i>	<i>Halleri</i>
<i>Clavennae</i>	<i>Arnebia echioides</i>
<i>argentea</i>	<i>Aster alpinus</i>
<i>umbellata</i>	<i>Aubrietia</i>
<i>rupestris</i>	<i>Bellis coarulescens</i>
<i>Ethionema grandiflorum</i>	<i>Calandrinia umbellata</i>
and others	<i>Campanula garganica</i>
<i>Alyssum serpyllifolium</i>	<i>Portenschlagiana</i>
<i>pyrenaicum</i>	<i>Waldsteiniana</i>
<i>Androsace carnea</i>	<i>Raineri</i>
<i>Laggeri</i>	<i>isophylla</i>
<i>laeta</i>	<i>Cyananthus lobatus</i>
<i>sarmentosa</i>	<i>Cyclamen</i>
<i>villosa</i>	<i>Dianthus deltoides</i>
<i>lanuginosa</i>	<i>alpinus</i>
<i>Vitaliana</i>	<i>neglectus</i>
<i>Anemone alpina</i>	<i>cæsius</i>
<i>sulphurea</i>	<i>sylvestris</i>
<i>narcissiflora</i>	<i>viscidus</i>
<i>vernalis</i>	<i>hybrids</i>
<i>Anthemis Aizoon</i>	<i>Draba</i>
<i>Anthyllis montana</i>	<i>Dryas octopetala</i>
<i>Aphyllanthus</i>	<i>Drummondii</i>
<i>Aquilegia pyrenaica</i>	<i>Edraianthus dalmaticus</i>
<i>Arenaria purpurascens</i>	<i>Epilobium obovatatum</i>
<i>grandiflora</i>	<i>Erinus alpinus</i>
<i>balearia</i>	<i>Erodium Reichardi</i>
<i>tetrapetala</i>	<i>petraeum</i>
<i>laricifolia</i>	<i>macrodonum</i>

<i>Erythraea diffusa</i>	<i>Ranunculus amplexicaulis</i>
<i>Fritillaria</i> (dwarf kinds)	<i>rutae-folius</i>
<i>Geranium argenteum</i>	<i>Segneri</i>
<i>cinerereum</i>	<i>anemonoides</i>
<i>subcaulescens</i>	<i>alpestris</i>
<i>Gemma minutum</i>	<i>Rubus arcticus</i>
<i>Globularia nana</i>	<i>Samolus repens</i>
<i>Gypsophila cerastioides</i>	<i>Saponaria ocyroides</i>
<i>reptans</i>	<i>Saxifraga Burseriana</i>
<i>Haberlea rhodopensis</i>	<i>Cotyledon</i>
<i>Helianthemum</i>	<i>diapensioides</i>
<i>Hippocrepis comosa</i>	<i>aretoides</i>
<i>Houstonia</i>	<i>cochlearis</i>
<i>Hutchinsia alpina</i>	<i>longifolia</i>
<i>Hypericum Coris</i>	<i>marginata</i>
<i>repens</i>	<i>sancta</i>
<i>nummularium</i>	<i>oppositifolia</i>
<i>Iberis saxatilis</i>	<i>rotunda</i> , &c.
<i>petraea</i>	<i>Scabiosa Parnassi</i>
<i>Pruiti</i>	<i>Sedum Everi</i>
<i>Tenoreana</i>	<i>pulchellum</i>
<i>rupestris</i> , &c.	<i>populifolium</i>
<i>Leontopodium</i>	<i>arborescens</i> , &c.
<i>Linaria alpina</i>	<i>Sempervivum</i> (many sorts)
<i>antiarica</i>	<i>Spiraea umbellata</i>
<i>hepaticifolia</i>	<i>crispifolia</i>
<i>Linum alpinum</i>	<i>Thymus Serpyllum</i> (in many varieties), &c.
<i>Lithospermum Gastoni</i>	<i>Tunica Saxifraga</i>
<i>petraeum</i>	<i>Veronica</i> (several dwarf shrubs from New Zealand)
<i>fruticosum</i>	<i>reptans</i>
<i>Lychnis Lagascea alpina</i>	<i>saxatilis</i> (in variety)
<i>Micromeria Piperella</i>	<i>spicata</i> (true)
<i>Myosotis rupicola</i>	<i>hybrida</i>
<i>Omphalodes Luciliae</i>	<i>aphylla</i> , &c.
<i>Onosma tauricum</i>	
<i>Oxytropis Halleri</i> , &c.	
<i>Paronychia serpyllifolia</i>	
<i>Phlox stellaria</i>	
<i>anemona</i>	
<i>setacea</i> , &c.	
<i>Polygala Chamaebuxus</i>	
<i>Potentilla nitida</i>	
<i>Pratia repens</i>	
<i>Primula Auricula marginata</i>	
<i>viscosa</i> , &c.	
<i>Ranunculus montanus</i>	
<i>hybridus</i>	
<i>Thora</i>	
<i>parnassifolius</i>	
<i>pyrenaicus</i>	

<i>Ranunculus amplexicaulis</i>	<i>rutae-folius</i>
<i>Segneri</i>	<i>anemonoides</i>
<i>alpestris</i>	<i>Rubus arcticus</i>
<i>Rubus arcticus</i>	<i>Samolus repens</i>
<i>Samolus repens</i>	<i>Saponaria ocyroides</i>
<i>Saponaria ocyroides</i>	<i>Saxifraga Burseriana</i>
<i>Saxifraga Burseriana</i>	<i>Cotyledon</i>
<i>Cotyledon</i>	<i>diapensioides</i>
<i>diapensioides</i>	<i>aretoides</i>
<i>aretoides</i>	<i>cochlearis</i>
<i>cochlearis</i>	<i>longifolia</i>
<i>longifolia</i>	<i>marginata</i>
<i>marginata</i>	<i>sancta</i>
<i>sancta</i>	<i>oppositifolia</i>
<i>oppositifolia</i>	<i>rotunda</i> , &c.
<i>rotunda</i> , &c.	<i>Scabiosa Parnassi</i>
<i>Scabiosa Parnassi</i>	<i>Sedum Everi</i>
<i>Sedum Everi</i>	<i>pulchellum</i>
<i>pulchellum</i>	<i>populifolium</i>
<i>populifolium</i>	<i>arborescens</i> , &c.
<i>arborescens</i> , &c.	<i>Sempervivum</i> (many sorts)
<i>Sempervivum</i> (many sorts)	<i>Spiraea umbellata</i>
<i>Spiraea umbellata</i>	<i>crispifolia</i>
<i>crispifolia</i>	<i>Thymus Serpyllum</i> (in many varieties), &c.
<i>Thymus Serpyllum</i> (in many varieties), &c.	<i>Tunica Saxifraga</i>
<i>Tunica Saxifraga</i>	<i>Veronica</i> (several dwarf shrubs from New Zealand)
<i>Veronica</i> (several dwarf shrubs from New Zealand)	<i>reptans</i>
<i>reptans</i>	<i>saxatilis</i> (in variety)
<i>saxatilis</i> (in variety)	<i>spicata</i> (true)
<i>spicata</i> (true)	<i>hybrida</i>
<i>hybrida</i>	<i>aphylla</i> , &c.
<i>aphylla</i> , &c.	

Additional Shrubs.

<i>Cytisus Ardoini</i>	
<i>Erica carnea</i>	
<i>Genista pilosa</i>	
<i>Margyricarpus setosus</i>	
<i>Grammanthes geianoides</i>	
<i>Ionopsidium acaule</i>	
<i>Leptosiphon hybridus</i>	

GARDEN FLORA.

PLATE 863.

INDIAN PRIMROSES.

(WITH A COLOURED PLATE OF PRIMULA FLORIBUNDA.*)

THIS highly popular and interesting genus of spring flowers comprises considerably over 100 species. They are found in the temperate and cold regions of the northern hemisphere. Over forty distinct species are found on the mountains of Northern India, and of these something like twenty are or were until lately in cultivation. The giant *P. Elwesiana*, *Gambelliana*, and a few others are still amongst the un-introduced species, although seed has in many instances been sent to England. Of the species in cultivation, *P. rosea*, *P. rotundifolia*, *P. sikimensis*, *P. denticulata*, and *P. capitata* are the most popular in gardens. They are the most easily managed, and are readily established in moist situations. The species from the very high elevations seem to require something our climate does not possess. They are invariably easily raised from seed, only to languish, perhaps die the first winter. Few of the species are long lived, and attention should be given to regular sowing of seed. Young strong seedlings always flower better than old plants.

* Drawn for THE GARDEN by Gertrude Hamilton, in the Royal Gardens, Kew, January 13, 1892. Lithographed and printed by Guillaume Severeys.



PRIMULA FLORIBUNDA

P. sikkimensis and *P. capitata* rarely live over three years. A well-drained boggy soil will be found the most suitable, and if it can be regulated so as to be dry during winter, all the better. Indian species not mentioned are *P. sapphirina*, a very small plant with purple flowers, *P. Clarkei*, *P. Dickiana*, *P. geraniifolia*, *P. Hookeri*, &c.

P. CAPITATA.—This species has much the habit of large forms of *P. farinosa*, but with non-mealy leaves and larger flower-heads. Although not at all difficult to manage, it does not seem to be a long-lived plant, and requires to be periodically raised from seed in the same way as we treat biennials. It rarely exceeds a foot in height; the leaves, forming a dense flat rosette, are from 2 inches to 6 inches long, narrow, irregularly toothed and usually covered on the underside with fine sulphury powder. The flowers, borne in round dense heads, are rich deep purple and slightly fragrant. It requires a rich peaty soil and should be planted where it can escape the mid-day sun. It should be watered frequently during the growing season, and, if possible, kept dry during the late autumn and winter. The varieties *cœrulea* and *atro-violacea* are very good. It is a native of the Himalayas, where it is found on dry gravelly banks at Lachow, Sikkim. It flowers in May and June. A coloured plate of this was given in *THE GARDEN* of December 13, 1879 (p. 534).

P. DENTICULATA, although one of the many plants that have not got quite used to our climate, is a great favourite in gardens, and where it grows freely and assumes a strong vigorous habit, one of the best of this large genus. It requires a strong rich soil, and should always be planted in a sheltered position on account of the flowers often appearing before our spring frosts are over. It is one of those Primroses that may be cut up in the most careless way; every bit will grow and be all the better for dividing. It is an excellent perennial, and where it succeeds, the flower-stems are often over 2 feet in height. The flower-heads are spherical, very large, the flowers being lilac-purple of various shades. The leaves are each 6 inches to 12 inches long, rough and toothed. There are several varieties in gardens, *cashmeriana* being a very distinct one, the flowers of this being larger, dark purple-lilac. *Henryi* is a cross between *denticulata* and *pulcherrima* and is very fine, the leaves mealy; *alba* and *amabilis* are also good. They flower from early March to June. Natives of the Himalayas, Yunnan, &c.

P. ELLIPTICA was first introduced by the late Mr. Anderson-Henry, and distributed under the name of *P. obtusiloba*. It seems a difficult plant to manage, and invariably dies out after flowering. It may be described as a *P. rosea* with purple flowers. It rarely exceeds a foot in height, with about a dozen purplish-blue flowers in a head. The leaves are non-mealy, oval or oblong, each about $1\frac{1}{2}$ inches long, sharply toothed, and shiny above. It flowers in June and July and is a native of Thibet, Cashmere, &c., at from 8000 feet to 12,000 feet elevation.

P. EROSA is almost exactly intermediate between *denticulata* and *capitata*, and was long cultivated in gardens under the name of *capitata crispata*, from its crisp Parsley-like leaves. It differs from *denticulata* by its more slender habit and non-mealy leaves, which are full grown at flowering time, and from *capitata* by its looser flower-heads, deeper purple flowers, and crisp leaves. *P. erosa* is a charming plant for damp shady spots on the rockery, but like *capitata* must be regularly raised from seed, as the old plants soon die out. It flowers about the same time as *P. capitata*, and is a native of the Himalayas.

P. FLOREBUNDA well deserves its name, as it seems impossible to possess a plant that flowers more abundantly or is so easily managed. It is, unfortunately, not quite hardy, and although it has frequently been tried out of doors, no one has yet succeeded in keeping it two consecutive winters. In a cool house it will commence blooming in September and will continue almost with-

out a break to flower until the following September. When allowed to flower so long, however, the plants become exhausted and will have to be renewed from seed, as they divide badly and are rarely ever satisfactory afterwards. It resembles, as may be seen from the accompanying coloured illustration, more nearly *P. verticillata* than any other species known to us; the leaves are, however, non-mealy, the flowers a rich canary-yellow. It should, as stated above, be regularly raised from seed, as the old plants are next to useless. Native of the Western Himalayas.

P. IMPERIALIS, the giant Java Primrose, lately introduced to and flowered in the Royal Gardens, Kew, is certainly one of the finest of the genus. Its hardiness has not been yet tried, but there is



Primula sikkimensis.

no reason why it should not stand out in the south of England or in Ireland. It grows from 2 feet to 3 feet high, bearing many whorls of deep yellow flowers, quite unique and very handsome. The leaves are said to be very large in a wild state; under cultivation they are 8 inches to 10 inches long, 2 inches to 3 inches broad, sharply dentate, and without meal. It is a moisture-loving plant, and requires abundance of water during the season of growth. A coloured plate of this appeared in *THE GARDEN* of September 19, 1891 (p. 266).

P. MINUTISSIMA is a small, densely tufted species with small rose-coloured flowers. It is not a garden plant, and is only found in botanical collections. Native of Cashmere and Kumaon, flowering June and July.

P. MOLLIS, the soft-leaved Bhotan Primrose, like *P. floribunda*, will not stand in the open air in this

country, not so much, we believe, on account of frosts, as it is found at high elevations, as from cold fogs and excessive moisture overhead. It has been tried often, and as often failed. As a greenhouse plant, however, it is both useful and interesting, and as it may be grown successfully in a very low temperature, it may prove useful for corridors, &c. It grows quickly, and should be potted in good rich loamy soil. From a 6-inch pot as many as thirty flower-stems are produced, each bearing four to six whorls of reddish flowers. The leaves are roundish, covered with curious spreading hairs, toothed, and veined. It flowers from April until August, and is a native of the Bhotan Mountains.

P. NIVALIS.—A remarkably fine and distinct species now almost lost to cultivation. Dr. Regel describes it as one of the most beautiful species of the genus. It is found in the Alps of Afghanistan and Nepal, but is a common Siberian Primrose. The flowers vary from reddish or rose-coloured to deep purple and violet. *P. n. var. purpurea*, a typical Himalayan form, is one of the most difficult Primroses to manage under cultivation. It seems to require being kept perfectly dry during the late summer and autumn. Indeed in its native habitat we are told it is buried in snow from early October until May, and although this may not account for our want of success, it seems to point to the fact that our open moist winters are the reverse of welcome to *P. purpurea*. It is a very handsome Primrose if it would only stay long enough with us to enable us to find suitable means for growing it. It grows at elevations of 10,000 feet to 14,000 feet in the Himalayas.

P. OBTUSIFOLIA is a species nearly allied to *P. sikkimensis*, which it resembles in habit and leaves. It is a very pretty plant, though a rather shy bloomer, and when strong specimens can be obtained it will prove useful for early summer flowering. It grows from 6 inches to 12 inches high, the stem bearing a loose umbel of dark blue or reddish purple flowers. A native of the Western Himalayas.

P. PETIOLARIS, another rare and extremely variable species, has been in cultivation several years, although not by any means happy. The leaves, which seem to vary greatly in size and meanness, are from 2 in. to 12 in. long, irregularly toothed, and of two or more distinct forms on a single plant. The flowers are pale lilac or pink, in a large loose head, and very showy. It grows at high elevations from Simla to Bhotan, and flowers in August.

P. PROLIFERA.—This has been confused with the Java *P. imperialis*, but since the introduction of the latter in its true form there can be no mistake about their being distinct species. *P. prolifera* may be described as a yellow-flowered *P. japonica*; in habit and appearance it is identical, and requires similar treatment. It does best in rich loamy soil and likes plenty of moisture all through the growing season. It commences to flower in June and continues until September. A native of the Himalayas.

P. REIDI, found by Duthie near Raler Glacier, is one of the most interesting and quaint Primroses we have yet seen. Unfortunately, it is not hardy in the open rockery, although it does well and continues to increase with a glass covering over it during the winter. It is more quaint than beautiful, rarely growing more than 2 inches high, the stem bearing many pale sulphur campanulate flowers which are fragrant. The leaves are oval, yellowish-green, and covered on both surfaces with long silky hairs. It flowers in June and ripens seed freely, which should be sown as soon as ripe.

P. RETICULATA is a poor weedy plant, somewhat similar, but very inferior to *P. sikkimensis*.

P. ROSEA.—The most brilliant and beautiful of all the Himalayan species, and one of the easiest

to manage under cultivation. Few plants better repay a little extra attention than does this charming Primrose and none respond more readily. It is a true bog plant, and should be planted in good peat near a running stream if possible. In just such a position we have seen great breadths of this plant from self-sown seed, which, in our opinion, is by far the best way of increasing it. It is one of the hardiest, and when doing well its large sheets of bright rosy carmine flowers are very effective. The leaves are oval, serrated, bright green, and do not appear until after the flowers. It is a native of the Western Himalayas, flowering in May and June. A coloured plate of this appeared in *THE GARDEN* of July 5, 1879 (p. 12).

P. ROTUNDIFOLIA, the round-leaved Primrose from Cashmere and Sikkim at elevations of 12,000 feet to 13,000 feet above sea level, is a very pretty and attractive species. Next to *P. rosea* comes the above for brightness. It is somewhat similar in habit, forming a large mealy bud during winter, which should be protected from the depredations of birds, &c. The plant grows about a foot high, the leaves round, dark green above and mealy underneath. The flowers are produced in large heads of a bright rosy red as large as those of *P. rosea*. It likes a free peaty soil in a half-shady spot. It flowers in April and May.

P. SIKKIMENSIS.—An old and extremely popular Primrose from high elevations near Lachong and Lachen, where it covers acres with a yellow carpet in May and June. It flowers later in cultivation, and is an excellent plant for wet, boggy places in the wood or the wild garden. Like many of the other species, it is not long-lived, and should be raised from seed every few years, as the old plants after the third year are not of much use for flowering. The third year's flowers are usually best, and it is not unusual to see the stems of strong plants a yard high and bearing over fifty of the most fragrant yellow flowers. It grows best in a good peaty soil, and does not like being disturbed.

P. STUARTI, like *P. purpurea*, is a beautiful Primrose, and a most difficult one to manage. The remarks under *P. purpurea* apply equally to this one. The flower-stems grow from 1 foot to 2 feet high, bearing large heads of pale yellow flowers. The leaves are narrow, lance-shaped, entire margined, and yellow underneath. It is not in cultivation so far as we know. D. K.

THE WEEK'S WORK.

ORCHIDS.

THE changeable weather, as usual, causes us from time to time to alter our treatment of the various houses. The cool weather is undoubtedly the best for the cool house Orchids, including many plants besides the *Odontoglossums* and *Masdevallias*. The beautiful *Dendrobiums*, such as *D. Jamesianum* and *D. infundibulum*, are really cool house species, considering that they are found at an elevation where the temperature falls to 40° and sometimes lower, and as it is also stated that the annual rainfall in the *D. Jamesianum* district is something like 200 inches, we may therefrom form some idea of the treatment required. A moist atmosphere and a good supply of water at the roots are essential in the growing season. For many years these beautiful *Dendrobiums* were treated like the nearly allied species, *D. formosum*, but it was found that though they can scarcely be admitted to have any specific difference, the treatment must be quite different. Messrs. Veitch, in their new Manual, described *D. Jamesianum* as a variety of *D. infundibulum*, and both as "nothing more than alpine forms of *D. formosum*." We now know that two of them thrive in the cool house and the other in the East India temperature. They may be grown in good peat or Sphagnum in baskets or pots, and be placed near the glass roof of their respective houses. The outside air being cool and scarcely any artificial heat being used, not much damping down has been needed in the cool house, for too much moisture without heat in the

pipes causes the flowers to become studded less or more with decay spots. All the *Odontoglossums* and *Masdevallias* require sufficient water to keep the Moss growing freely upon the surface of the potting material. The temperature at night is from 50° to 55°, but by day it is very uncertain, fluctuating between 65° and 85°, simply because we could not keep it down lower with the thermometer up to 85° in the shade out of doors. When excessively hot weather sets in many of the cool house Orchids show signs of distress when it is long continued. It has been thought that the plants ought not to be repotted at this season, and certainly in very hot weather the strain upon the vigour of the plants is quite enough from the heat without anything else. Newly-imported pieces may be planted in quite small pots at any time.

The Cattleya house is very interesting at this season even when the number of flowers is greatly diminished, for there are yet some straggling blooms of choice species and varieties, and some are in prospect. It is very interesting, too, to watch the growth of the Cattleya Trianae, *C. Mendeli* and *C. Mossiae* sections. Now that they have passed out of bloom they require careful treatment, in order that strong, well-ripened pseudo-bulbs may be formed for next year. We are also anxiously looking for the full development of the sheaths of *C. Dowiana* and all the varieties of this, the more vigorous *C. gigas* and its varieties, with the intermediate *C. Hardyana*. If the treatment previously recommended has been followed, flowering sheaths will be fairly plentiful, but the *C. Dowiana* type is the most difficult to manage after the first few years of its importation is over, when the native energy of the plants is exhausted. After a time it seems that the plants have not sufficient stamina to throw flowering sheaths under the best artificial treatment we can give them. The colour of the flowers is suffused through the leaves, and, like yellow Carnations, *C. Dowiana* is the most difficult of all to grow. The imported plants are furnished with short stout bulbs, which alter considerably in form under the artificial treatment we give them, becoming long and slender. This alteration in the nature of the growths shows that the climatal conditions are different where the plants grow naturally. The pretty little *Promenaea citrina* succeeds admirably in this house and flowers in June and into July. It belongs to a small genus of Orchids nearly related to *Maxillaria*, and should be grown in baskets or pans in fibrous peat and Sphagnum. The *Aerides Fieldingi* (Foxbrush *Aerides*) is now finely in flower in the Cattleya house. Its very long spikes of rosy purple-tinted flowers have a fine effect. It is one of the best of this genus, and in contrast to it is *A. japonicum*, perhaps the smallest-growing species in the genus; its pendulous spikes are few-flowered, but the whole plant is interesting, as being from so high a northern latitude as Japan, and its perfume is very pleasing. Grow it in baskets near the glass in the shady part of the house in Sphagnum with a little peat of a very fibrous nature.

The varieties of *Sobralia macrantha* are now in flower and very showy distinct-looking plants they are. While growing they need plentiful supplies of water and a mass of good fibrous yellow loam and the best lumpy fibrous peat to grow in. The pots soon become matted with the thick fleshy roots. They are easily propagated by division; the plants may, if of large size, be separated into several pieces and be repotted. The best time to do this is just before the plants start into growth, or, if we could hit the time, when the roots begin to become active after a season of rest. Some varieties of *S. macrantha* are much dwarfer than others. Woolley's variety is dwarf, and the handsome one named *splendens* will throw up its Reed-like stems to a height of 4 feet or 5 feet. *S. xantholeuca* has become well known in recent years; it is truly handsome; the large yellow flowers of different shades are a pleasing contrast to the rich purplish crimson ones of *S. macrantha*. I grow them on the shady side of the Cattleya house, and they flower freely every year. One fault the flowers have, and that is the short time they last fresh, but there is a succession of them constantly

developing. The temperature of the Cattleya house would be 60° to 65° at night, and the East India house about 70°. J. DOUGLAS.

PLANT HOUSES.

STOVES.—Where plants have thriven well and the growth of such foliage subjects as Palms, Crotons, *Dracenas*, *Dieffenbachias*, and the hardier of the stove Ferns has been such as to need more room, this may be had, provided there is accommodation in other houses. For instance, during the next eight or ten weeks such plants as these would add greatly to the effect where a large conservatory has to be filled, giving quite a change to the usual run of plants. Flowers will have predominated to a considerable extent during the past three or four months; a change, therefore, in the arrangement will be all the more welcome. With the gayest season out of doors the conservatory really need not contain so many flowers; it rather affords a pleasing relief and makes the surroundings more enjoyable than otherwise when good-sized foliage plants are thus employed. The chief points to observe when such plants as those named are used are to gradually inure them to the change from a stove with a free amount of moisture and a comparatively close treatment to the atmosphere of a conservatory which will be more freely ventilated and the temperature lower. If this be not done in the stove itself, the conservatory should be kept closer for a few days. The watering, too, will have to be done with more caution, for whilst in a stove many may be watered quite freely, yet when in a conservatory more care is necessary. If the weather be hot they may take as much or more at times, yet without fire heat they will oftentimes require considerably less. In such cases I prefer the water to be chilled, particularly if the conservatory supply be taken from quite a cold water tank. The plants should not be stood too close to open windows nor be too much exposed to sunshine. Crotons will have been exposed where the object has been to secure highly-coloured foliage; now this has been attained, the shading will not do any harm for a time; the other plants should be shaded as before. There is, it is true, a little risk to be run, but with due care it is almost *nil*. Young growing plants that have not thoroughly filled their pots with roots should not be used; none in fact which have been recently potted, whether they be large or small. Such Palms as *Areca lutescens*, *A. Verschaffeltii* and the varieties of the *Dæmonorops* with *Cocos plumosa* and *Chamaedorea glaucifolia* may be thus used, all being plants of graceful habit. The larger forms of the *Dracenas*, as *D. Youngi*, *D. amabilis*, *D. Shepherdii*, and the smaller, as *D. terminalis*, are amongst the best; some, as *D. Cooperi* and *D. Mrs. Turner*, are rather tender. Those plants, of which there are duplicates should be used the most freely; then if a few do suffer somewhat, it will not matter when others are growing on to take their place. Such plants as *Caladiums*, *Marantas*, *Alocasias*, and *Anthuriums* should not be used in this way; they are more liable to injury; neither is it advisable to use such Ferns as *Gymnogrammas*. Room for all of these things will be provided by the removal of those aforementioned, so that such as *Caladiums* and other quick growing plants can have sufficient space to be seen to advantage.

Flowering plants, as *Achimenes*, *Gloxinias*, and *Impatiens*, can also be used in the conservatory in the way suggested; so also can the annual *Torenia*, *T. Fournieri*, when it has been well advanced previously, but other plants, as *Ixoras*, *Dipladenias*, *Allamandas*, and *Vincas*, it is not well to trifle with. I have, however, used for some weeks in this way both *Clerodendron fallax* and *Bougainvillea glabra* without any harm coming to either one or the other. When the flowering plants are too much overcrowded, such as *Allamandas*, *Vincas*, and *Clerodendrons*, also *Bougainvilleas*, they can be grown in another light house for the flowering season. For instance, a greenhouse (in the usual way) if not too much occupied now might for

the time be treated as a stove with considerable advantage. Overcrowding is bad at any time; when therefore it can be avoided in either of the ways I have suggested it is better for the plants. Their ultimate disposal, if not actually required in the autumn, can then be duly considered.

SEED SOWING.—This matter should receive further consideration now. If the stock of *Primulas* is not up to the usual standard, it is not too late yet to sow and raise a further stock. Seed sown at this season may be raised in a close pit or frame without artificial heat. *Cineraria* seed sown at this time will provide a stock of useful plants, minus the unduly large foliage, more like small *Rhubarb* leaves than anything else. This, too, can be raised with the *Primula* seed. If plants of fairly large size of the herbaceous *Calceolarias* are essential, the seed should now be sown, keeping the seed pan in quite a cool place, as for instance behind a north wall. *Humea elegans* should also be raised from seed about this time, being treated as first advised in a close frame; this plant requires some care to get a satisfactory return. Finely sifted leaf soil and loam should, with a free amount of silver sand, be distributed upon the surface of the pan prior to sowing the seed.

JAS HUDSON.

THE KITCHEN GARDEN.

THINNING YOUNG CROPS.—The thinning out of the various young crops should now be brought to a close, except perhaps in the case of Carrots, which may either be in danger of suffering from the depredation of the Carrot grub, or where the surplus is required for drawing for early use. The larger-growing Carrots may be thinned to 6 inches, those of medium size an inch or two less, whilst for Parsnips a foot apart will be ample, this distance providing sufficiently large roots. *Salsify* and *Scorzonera* may be left from 9 inches or a foot, according to the fertility of the soil. When the thinning has been finished, the surface must be again stirred with a hoe both to stimulate growth and keep down weeds. Whether or not Onions must be thinned freely is more a matter of fancy than anything else. Only in cases where they are at all too thick need any of the young Onions be pulled. The bulbs as they increase in size, where they are in clusters of two or three, push each other on one side and so have room for expansion.

ONION FLY.—Where preventive measures were not taken earlier in the season, this destructive pest will now be busy. There cannot be any mistaking its presence, for the foliage quickly turns of a yellow cast and falls over. This season I am afraid it will be rather prevalent, the late dry weather having apparently favoured the egg-production. When once its presence is detected, prompt measures must be taken, or else there may be danger of the best part of the crop being ruined. One of the best preventives is sprinkling a little gas-lime along the centres of the rows, care being taken not to let it fall upon the plants. Freely dusting the plants with soot will not do any harm, the rains washing it to the roots, and in addition to proving distasteful to the grubs, acting as a stimulant. Guano may also be used, but only just a sprinkling, and this not over the foliage. Last, but not least, petroleum diluted with water may be used at the rate of a wineglassful to three gallons of soft water, taking care to keep the mixture well agitated, or injury may result. This must be lightly syringed over the whole quarter. Slightly earthing up the rows on each side may also be adopted. Any plants found to be attacked should be dug up carefully and burned, also removing any grubs.

BEET.—In my case the seeds of Beet have germinated very badly indeed. At any rate, I shall have to make the most of the thinnings and also make an extra sowing. I have sown as late as this at other times when the crop has been short, and invariably managed to secure a serviceable lot of roots. No one need have any misgivings about its being too late for sowing, for if the roots are small

they will be acceptable. Carter's Crimson Ball and Dell's Crimson are capital varieties and may be relied upon for good quality. Any transplanting should take place in showery weather, taking care not to injure the tap-root. The Turnip-rooted sorts are not so likely to suffer as the long-rooted section from transplanting.

SUMMER SPINACH.—As a rule Spinach does not prove very satisfactory during the heat of summer, as it bolts almost as soon as out of the ground; consequently extreme precautions have to be taken to prevent this taking place. As a rule Spinach substitutes are depended upon at this time, but these do not find favour with all alike, and nothing short of the ordinary Spinach will be appreciated. To succeed with summer Spinach a naturally cool site will suffice, and this must also be in a highly fertile state. A north border away from overhanging trees is a good position. Conditions suitable for speedy germination, and after speedy growth are needed to secure succulent leaves worth gathering. On some soils the ordinary prickly-seeded winter Spinach is more to be relied upon than any other, it not running to seed nearly so quickly, although of course the newer *Victoria* will succeed generally, but not on all soils alike, as I have proved. The prickly-seeded in my case stands the drought of summer better than any other.

LATE POTATOES.—These are making very satisfactory progress, the recent sunny weather and beneficial rains causing the growth to be very healthy. Potatoes which may be growing on rough land should have the centres between the rows well broken up if possible with a pronged hoe. Earthing should be well done, bringing the mould well up to the stems so as to throw off heavy rains if these should come later on. The earthing in all cases should be done before the stems fall over, both for the well-being of the crop and to economise labour.

SEAKALE.—This is a crop too often neglected during the growing season. Before the foliage spreads much, the space between the rows should be stirred, and at the same time given a light dressing of salt.

A. YOUNG.

HARDY FRUITS.

THINNING THE CROPS.—In some cases there is not nearly enough of this to do to please the cultivators, while in others the trees are carrying far more fruit than is good for them. Apricots on late and unprotected walls are very lightly cropped, but if fine fruit is desired, it is most unwise to leave what few fruit there are in great clusters. These ought long since to have been well thinned, no more being left in a bunch than there is good room for. If the advice repeatedly given this season has been acted upon, the fruit on protected trees will have been freely thinned out some weeks ago, but in many cases nothing of the sort has been attempted. The thinning out should be completed before stoning takes place, and not after, if good crops of well-formed fruit are aimed at. Peaches and Nectarines are bearing good crops everywhere, and if the thinning out has been timely and severe, a healthy growth of tree as well as fine fruit should be obtained. Leaving the fruit thickly on the trees under the impression that a considerable number will fall to stone properly is the surest way of inviting failure. Thin out freely, leaving the fruit not less than 6 inches apart each way all over the trees, allowing from 3 inches to 6 inches more space if extra fine samples are wanted, and then there will be no premature dropping either shortly or nearer the ripening period. Plums are more variable than most other fruits this season, some trees being heavily laden with fruit, while others have failed badly. If the fruit where somewhat thick has been once lightly thinned, being left quite clear of each other, the final thinning may be deferred till after the stoning has taken place. When the fruits have commenced their final swelling they are excellent in pies, and when about half ripe can be made into good preserve. Naturally, leaving a heavy weight of fruit on the trees so long must greatly weaken them, and certainly

spoils the prospect of any extra fine fruit being had. Now unless Plums, or indeed all other stone fruits, are grown to their full size they seldom attain perfection in quality, and that is another strong reason why thinning out should be early and somewhat severe. Cherries, as a rule, will not require any thinning out, and they seldom get it in any case, yet it is one of the surest means of increasing the size and quality of the fruit. Pears are a poor crop, though where they occupy several different sites some few trees against walls are bearing good crops. Those in the open have fruited very badly. Extra strong clusters of fruit set on most of the trees, and any that escaped injury from frosts should ere this have been lightly thinned out, the opportunity also being taken to crush any caterpillars that could be found. Birds, owing to a scarcity of other food, have made short work of most of the caterpillars or grubs, but they damaged numerous bunches of flowers and fruit in their efforts to get at the insects and grubs enclosed by them. The very large Pears ought to be left singly, the best formed fruit being reserved, and unless the medium-sized and smaller varieties are lightly cropped, it is scarcely advisable to leave the fruit other than singly on the trees. Apples are somewhat disappointing. All flowered strongly and freely, but in very many cases the crops are extremely light, while in others they are far too heavy. An early thinning-out of all the bunches would have saved many fruit from caterpillars, nothing better suiting the latter than thick clusters of young fruit. All that can well be got at ought to be gone over again, leaving two or more fruits to swell at each spur, the thinning-out to take place naturally not being the way to secure good crops of well-formed fruit at a minimum amount of injury to the trees. The fruit can be most expeditiously and safely removed with either a sharp knife or a strong pair of scissors. As far as Gooseberries are concerned, there is little need to urge the necessity for thinning out freely if extra fine fruit is desired, the crops being considerably under the average, and, as a rule, thinned down severely for use in a green state. If plentiful, it should be remembered that Gooseberries gathered before they have commenced to ripen, that is to say, before the skins harden, make by far the best preserve.

WATERING FRUIT TREES.—The necessity for giving the wall trees more especially a thorough good soaking of water was never more apparent than now. A fairly heavy mulching of strawy manure would have conserved a moderate amount of moisture in the border, and also rendered it a comparatively easy matter to give a soaking of water now; but where no mulching has been applied the surface has quickly become hard and dry, cracking taking place in many instances. A week's rain would scarcely re-moisten such neglected borders sufficiently, and close up to the walls not a few borders are always injuriously dry. Where Apricots, Peaches, Nectarines, Plums and Pears are carrying good crops, the borders being rather high and dry, there ought to be no hesitation about giving them a heavy watering. If all cannot be watered at once, then take one or two trees at a time, and after the surface has been loosened (though this will not be necessary if previous advice as to doing this and early mulching has been acted upon), give them a thorough soaking. Pond water, or water softened and warmed by exposure in tanks, is much the best that can be used, and if this can be highly coloured by farmyard liquid manure or have sewage water freely mixed with it, so much the better for the trees. Driblets are next to worthless; hence the advice to water one or two trees at a time, in order that there should be no mistake about their having enough.

W. IGGULDEN.

Cytisus Laburnum Adami.—The origin of the purple colour of the flower of *Laburnum Adami* has been in doubt. It has been supposed to have originated from inoculation by a scion of *Cytisus purpureus* on a stock of *Laburnum*. The ease with which the green-leaved *Laburnum* may be inocu-

lated by a graft of the yellow-leaved variety would support this theory. On the other hand, it has been stated that all attempts in this direction have hitherto failed. I enclose a flower of *Laburnum Adami* and a branch of *Cytisus purpureus*, which has sported from the *Laburnum* tree. Possibly this instance of reversion or heredity, as I suppose I ought to call it, will be considered good evidence in support of the theory of inoculation.—W. ELLIS, *Bothalton, Merpeth*.

KITCHEN GARDEN.

LATE PEAS.

It is at the closing of the summer season that choice vegetables are scarce, and at this time a few dishes of Peas are very acceptable. To secure late Peas, however, good culture must prevail, not only at the close when the pods are appearing, but right throughout the season of growth. Whilst the seeds are germinating, it is generally at the most critical time for the free growth of the young Peas, as at this time the weather as a rule is very dry, this necessitating a good seed bed, both as regards a well-pulverised and manured soil, and where moisture may be applied in sufficient quantity to sustain a healthy growth. Again, when the pods commence to form, the weather is generally the reverse of favourable, being as a rule damp and cold and favouring the spread of mildew. The rows should be well exposed, so that sunshine and air can have free access, this latter particularly so. The best late Peas I have ever seen were in a very open and breezy spot. Such positions can certainly only be obtainable in isolated instances, but this does not prevent the rows from being freely exposed in every garden by not being placed in the shade of trees, or smothered up with other crops. Whether the site should be specially provided for them by forming prepared trenches will resolve itself into the kinds selected. For instance, the tall *Ne Plus Ultra*, on account of the length of haulm there is to support, will require a freer rooting medium than the dwarf kinds, as it will be obvious to all that, with such a length of haulm to support, there must be no lack of aliment, or there will be an early collapse. The roots of Peas do not ramble, and this is the reason why trenches prepared for their reception are formed. The feeding material is in direct touch with the roots, and manure in a confined space directly under the rows is more economised than the same amount spread over the whole surface. If it was not for this and the soil in a high state of fertility through deep digging and manuring, the drills might just as well be drawn on the level, the soil being drawn up to the sides sufficiently to form a receptacle for moisture. The soil I have to deal with being of a moisture-holding description, I find it much the best to sow on the level, as if sown low down in trenches it would be too cold for the roots by the time the crop comes to maturity. Not that it is advisable in any case to sow in deep trenches, the best course being to mark out the space for the rows 15 inches or 18 inches in width, taking the soil out as for Celery, placing the manure in the bottom and the best of the surface soil on the top. The seeds having been sown and covered with soil, the outer edge may be drawn up with a hoe so as to form a receptacle for water. It would only be for the taller growing sorts that such extra preparation would be needed, and two or three rows of the length of 30 yards in isolated positions would well repay the little extra trouble. Sturdy and Success are two capital late kinds; so also are Veitch's Perfection and

British Queen. Omega I have had as late as the first week in November. The value of such kinds as this last and Sturdy is that they are more readily protected from birds. The taller early round-seeded varieties I have given up for late sowing, relying on the dwarf earlies, as William Hurst, Chelsea Gem, and American Wonder. The rows need not be more than 30 inches apart, and being dwarf, the plants are easily protected. In late districts these may well be relied upon. These dwarf kinds are often selected, as it is thought that sticks are not needed, but in every case they well repay for this extra trouble, as by this means the light and air can both reach and circulate to the bottom of the haulm. I find it very advantageous to place small sticks to these dwarf kinds even early in the season, and this being so, it is all the more necessary that those for the late supply should be supported. Deep digging and well manuring are what these early dwarf sorts when used for a late supply need, and in all cases where the haulm appears weak and yellow-looking, a dressing of wood ashes and fine bone-meal will improve the growth considerably. A. Y. A.

Early Broad Beans raised in heat.—There are few vegetables that lend themselves so readily to forcing as the Bean, and those of the broad type are equally good. We are now gathering Early Long-pod in quantity from plants raised in frames in February and planted out early in April in deep drills, so as to shelter from cold winds. A ready and simple method is to sow at the beginning of February in pots, boxes, or even in frames. I prefer boxes of rich material and to sow very thinly, so that when lifted out at planting time a good ball of earth is attached to the roots. I do not care to give too much heat, so that I advise frames, as these are often kept at an intermediate temperature, and the Beans are closer to the glass and do not become drawn. Planting should take place according to the weather, but if the Beans are well hardened they will stand a good deal of frost. After planting, the soil should be drawn close up to the bottom leaves to support and protect them. The advantage of sowing in this way is that the Beans may be planted closely together, as they are much dwarfed, and good dishes are secured early in June. It is much better than the old plan of sowing in November, as often birds and mice take half the crop.—G. W. S.

Bolting of Cabbages.—Here I sow in the third week in July for the spring supply, sowing again ten days later, and planting half the quarter from each sowing. I only grow the small kinds, and Ellam's is one of the best, if not the best for early use. If the plants from the first sowing get too large, I make sure of the second lot. Fortunately, this season very few of our earliest sown Cabbages bolted, and I cut a quantity the last week in April, a week or so later than usual. Our plants suffered severely in February, losing a great portion of their leaves and being crippled for a few weeks. I prefer to plant on two quarters, one in freshly-manured land, the other in succession to Onions without forking the ground. These latter often make a sturdier growth, with thick-set foliage, and do not suffer so much from loss of leaves as those on richer ground. I like planting in good time; indeed, I am of opinion that late planting causes much loss and very often failure. I always take the precaution to plant rather deeply, doing this before the plants get large or crowded in the seed beds. Drills are a ready means of conveying moisture to the plants, and before severe weather sets in the soil is drawn up to the plants, there being no leaf or stem exposed. One advantage in growing Ellam's or other small variety is that so many plants can be grown on a small space. I plant at 18 inches apart in the row, and the plants half that distance from each other. I grow some thousands in this way, going over them

as soon as hearting commences and thinning out. I also feed with liquid manure from the cow-yard as soon as new growth commences. Guano is useful if applied in showery weather, and I have great faith in this feeding at that date, as often we get drying east winds that shrivel up the plants. I have for many years grown Nonpareil. I always plant this along with Ellam's, and it is surprising how few run if not sown too early. I generally sow these on July 20 and again on August 1, rejecting the large plants of both varieties at planting time, preferring those of medium size as less likely to run. I do not think there would be so much bolting if the plants were not left so long in the seed beds and sown less thickly. It is advisable to make the plants firm when planting, and to do this after frosty weather, as when they are lifted out of the ground it checks root action, causing the plants to bolt.—G. WYTHES, *Syon House*.

EARLY PEAS.

I HAVE in previous notes stated that there is little advantage in sowing early Peas at the end of the year. I had for years discontinued growing Peas as above, but hearing of others being successful I was induced to make another trial, and as there have been many additions to the early varieties of late, I sowed several kinds in December in a sheltered position on light soil, giving protection in the months of February and March. I also sowed in pots at the same date in a cold frame, using the same varieties; I sowed also in the open ground the first week in February. The result is, I am now gathering in quantity from the last sowing, also from those planted out, whilst those sown in December were several days later and the rows present a patchy appearance. Peas this season have been more difficult to raise than usual, the seed being poor, no doubt owing to the past wet sunless autumn. There was also a difficulty in getting stocks of such sterling kinds as Chelsea Gem, one of the best Peas introduced of late years. It is important to get the stock of seed for the early sowing of Peas from seed harvested in the summer, and not from later sown when the season is often wet and half the Peas fail to germinate. This early harvesting of stocks has of late years received more attention, and will be more looked after in future.

VARIETIES.—For early or winter sowing those of the marrow type should not be used; they will not succeed in cold wet soil, as often only half the crop will survive, and that left be weak. Some of the round-seeded Peas should be used for this purpose. I used for the December sowing Veitch's Extra Early, which was fit for use in the first week in June, a few days earlier than the wrinkled type. It is, however, inferior to Chelsea Gem for filling the basket and does not last so long. I also sowed Chelsea Gem, but, as previously stated, I would advise sowing early in February, as the trouble is less and there is no loss of seed. Chelsea Gem, Extra Early, and Duke of Albany were sown on February 6, and I gathered Extra Early on June 4, Chelsea Gem on the 6th, at the same time as from seed sown early in December. Duke of Albany was ready on the 11th, just a week later than the earlier kinds. I also sowed this variety in pots, and there was scarcely any difference as to time of gathering. Some may object to sowing a second early, but there is little difference in the time required if the taller kinds are topped and grown under favourable conditions. When topped at 2½ feet from the ground only 3-feet stakes are required, and the yield from this or any other similar is much greater than from dwarf Peas. Where Peas are required in quantity I would advise sowing a good breadth of a dwarf variety, at the same date sowing a taller growing kind and stopping as advised. These come in well after the dwarf ones and there is no gap in the succession. For years I grew American Wonder in quantity, but this is now superseded by Chelsea Gem, a larger and longer Pea, equally productive and of good flavour. With me it was fit for table this year four months from the date of sowing.

In more favourable seasons I have had it in a shorter time, namely, thirteen weeks. The small round-seeded Peas come in a few days in advance of the wrinkled section, but there are several objections to them; they are small and soon over, and unless well supplied with moisture they are of poor flavour. For small gardens the dwarf wrinkled marrows are a great gain; they take up so little space, and, provided moisture can be given in dry weather, they well repay for the space given them. The lack of moisture in such seasons as this is a serious matter. In districts short of water much assistance can be given by mulching between the rows with decayed manure to retain moisture. If this is given, the growth of the haulm will be better and a greater crop will be secured. G. WYTHES.

— Last season there was a discussion in the pages of THE GARDEN as to the relative earliness of Peas grown in private gardens over those in the open fields, one writer affirming that market growers could gather Peas earlier in proportion than the private grower, although the latter was supposed to have the advantage. Now that the season of gathering is upon us, it would be interesting to learn how market growers with their open field crops are situated, and whether there is really any difference in private gardens where the earliest Peas had the benefit of a warm border and south wall for protection. It would also be interesting to learn whether the much-lauded early rounds, especially the older types, are in advance of what I may term the comparatively new race of dwarf marrow Peas. As regards the relative earliness of the crop in the case of the private gardener and market growers, the latter are hopelessly in the rear in my district, and in my own case the Peas on a south border are much in advance of those sown in the open. The variety is William Hurst, a sterling kind, and it certainly has done capitally. A portion of the crop was sown in pots on February 8, brought on under cool treatment in a cold Peach house, and eventually transferred to a cold frame. The first gathering from these was ready for use on June 6. The greater portion of the border was sown on the last day of February, and Peas were ready for gathering on June 11. I might also add that those which are ready are nearest the wall, but there is not the slightest difference in the height or length of the haulm. The taller rounds may be out of place on a south border, but as far as the early dwarf varieties are concerned, this is the place for them to secure an early crop. Considering that they may be sown more closely together, it makes the crop much in advance of what can be secured from the early, but most decidedly inferior rounds in point of both quality and quantity, with the dual advantage of continuing longer in bearing. The growth is altogether more succulent, and so better enabled to withstand dry weather, of which we have had plenty this spring. With cheaper seed, William Hurst should become a capital early Pea for market work, and should certainly pay well. I consider it an ideal Pea for private gardens for sowing either on south borders or in good positions in the open. —A. Y. A.

Bougainvillea glabra.—Since I saw many years ago the splendid growth and bloom which Mr. Daniels had on his Bougainvilleas at Royncombe, Oxfordshire, the earliest plants flowered in England, I have not seen a more beautiful mass of colour than can be now found on the back wall of a lean-to house at Claremont, at present planted in front with Tomatoes. The combination is an odd one, but that is of little consequence. The house is of considerable length and the wall probably about 7 feet in depth. The plant seemed to be as much at home in this position as under the roof of a tall house, as is so often seen.—D.

Pinks.—The recent hot weather brought on the plants of these with surprising rapidity. Mr. S. Barlow has in his garden at Stakehill, Manchester, a very fine collection of named laced varieties that

promise a rare bloom. The plants must on no account be suffered to want for water. A top-dressing of rich soil is also very useful. So far nothing more has been heard of the probable doings of the National Pink Society in London, and I fear a show during the summer is very unlikely. The Midland Pink Society will hold their annual exhibition at Wolverhampton on July 12, and the northern show will be held in the Botanic Gardens, Old Trafford, on July 16.—R. D.

FERNS.

DICKSONIAS.

THE fine examples of these plants which are to be seen at the Earl's Court exhibition recall to mind the splendid specimens that were shown at the last international show. Tree Ferns



Dicksonia antarctica.

now for some reason have lost their fascination. I am told that the fine plants that used to exist near Dublin in Mr. Bewley's garden have disappeared too. This is a great pity. A large trade was at one time done with the Antipodes in Tree Ferns. The safest and surest way of getting them home alive was in the ships that came home laden with wool, and I have bought several hundreds at various times so brought home. From inquiries that have been made of me from time to time I am inclined to think these plants will again be in demand. The best size in which to import these stems is from 4 feet to 6 feet in height. These should be straight and sound, so that when potted they have no holes in their sides needing patching up, which I have heard many people advocate being done with Sphagnum Moss. This should never be resorted to, for it makes a faulty and a rotten stem at the best. These plants when brought home in a dry state should have their

stems well soaked without letting a drop get into the crown, and they should be let stand in a shed or shady part of the conservatory or greenhouse, keeping the stems sprinkled; here they will soon begin to push roots. Upon the first signs of movement the plants should be potted, using fair sized pots, which should be well drained. The best soil to pot them in is equal parts of good fibrous loam and peat, making the whole tolerably sandy. The stems should be potted very firmly, and they may be stood in a shady place in a house until their crowns have developed. The stems must be kept well sprinkled, but none should be given the crowns until they begin to push up fronds. I do not like the system of placing these plants in the stove to force their growth. Of course, I here allude to the greenhouse kinds, as those from warm regions differ in their requirements. When the fronds begin to grow, the atmosphere must be kept moist, and the plants should be syringed gently overhead at least twice in the day, morning and evening, and an occasional dewing in the middle of the day will do them no harm if the sun does not shine upon them. This will prevent the thrips gaining a lodgment on them. The following are the best known kinds:—

D. ARBORESCENS.—This is a rare plant in cultivation, and it has always been so. I have frequently in years gone by had branched stems and plain ones introduced, but never got them to live, and I am inclined to think it was from keeping them too warm. This plant is found peculiar to the island of St Helena, where it grows from 6 feet to 18 feet high, the crown densely clothed with long amber-coloured silky hairs; the fronds attain a length of 6 feet. It was upon this species the genus was founded, and I cannot agree with those authors who join with these arborescent kinds such plants as the *Denstedtia*, which have creeping rhizomes.

D. ANTARCTICA.—This is the commonest Tree Fern in this country, and certainly the most useful. I have no

doubt that in many parts of Ireland and in the west of Scotland and England it would succeed if suitable protection was afforded it. In the indoor cool fernery it forms a magnificent object. The fronds are beautifully arched, dark green on the upper side, paler beneath, the crown furnished with ferruginous hairs. Native of Australia.

D. FIBROSA is said by many to be the New Zealand form of the last-named species, but under cultivation there are slight differences—the stem is always shorter and the fronds have a rigid appearance, which the true *D. antarctica* has not. It is neither so effective nor so beautiful as the last-named plant, but it may be grown in a collection with much advantage.

D. SQUARROSA.—This is the Table-top Fern. The stems are slender and black, the fronds being very rigid and deep green on the upper side, paler below. It is a very handsome species from New Zealand.

Besides the above there are *D. Berteroana*

from Juan Fernandez, and *D. Sellowiana* from South Brazil. Both these species, I believe, I have seen in the nurseries of Messrs. Veitch, of Chelsea. There are one or two others which I have only seen in a small state and cannot say much of, but they certainly are worth seeking for and adding to a collection. They are *D. Deplanchei* from New Caledonia, *D. lanata* from New Zealand, *D. Youngiae* from New South Wales, and *D. Brackenridgei* from the island of Samoa. The last I have not seen, but I am told it is very near to *D. Berteroana*.

WM. HUGH GOWER.

MARKET GARDEN NOTES.

NOT only the crops, but the weeds are taxing the energies of cultivators to the utmost, for the change from a very late spring to a comparatively early summer has been remarkable. Although we were bewailing crops cut to the ground with frost in May, the prospects all round are at present very favourable. The crops now needing attention are the following:

ASPARAGUS.—Old established beds have been yielding good crops lately, but it is not advisable to continue cutting after this month is out. Newly planted beds have had to contend with a dry spring and a great deal of rough wind, by no means favourable to Asparagus.

BRUSSELS SPROUTS.—Large quantities of these are being put out, as the earlier and stronger they are grown, the better the crop. In open fields the plants are set in rows 3 feet apart and the plants 2 feet apart. By having full exposure to light and air the growth gets so well ripened, that it takes a very severe frost to affect it.

CABBAGE.—The early spring Cabbages have now mostly been cut, and up to the present have realised good prices, for they have been by no means plentiful, the severe frosts and cutting winds in March having greatly reduced the crop. The planting out of spring-sown plants is now being vigorously pushed on.

LETTUCES have been selling well, for the same cause that reduced the crop of early Cabbages made the supply of Lettuces far below the average. The spring-sown crops are now arriving at a marketable size, and abundance of salading will soon be ready.

PEAS are now coming into market and realise good prices; they are fully as early as in seasons when the spring has been much more genial. This is probably due to the fact of the very dwarf early kinds being now used for field culture. American Wonder and William Hurst are decided acquisitions to the lists of early Peas, and many rely on them, not only for the first, but for the latest crop as well. Many Peas are being sown now, as very late Peas sometimes prove a profitable crop.

POTATOES.—These look remarkably well at present, and very large areas have been devoted to them this year; the earthing up of main crops is now in active progress. Early crops are being lifted and sent to market, good samples realising good prices. Sharpe's Victor, Early Puritan, and Beauty of Hebron are the most largely grown for outdoor crops here.

TOMATOES are being extensively grown out of doors again this year against walls, fences, and on warm sunny borders. The cultivation of Tomatoes increases every year, whole ranges of glass being devoted solely to this crop. Ripe fruit are at the present time selling freely at good prices.

VEGETABLE MARROWS are now growing freely, but the month of May was very trying to them, as market growers get their main supply from plants put out like any other crop in good rich soil, but without hot-beds, merely a little manure under each plant to give it a start. The varieties mostly grown are the Long White and Green, the Bush or Cluster, and Penny-bud.

Fruit gardens and orchards look extremely well, and crops are better than could have been expected after such severe frosts in May.

APPLES are a grand crop, the blooming having been exceptionally late. Growth has been so rapid, that they are now well advanced for the season. That splendid early variety, Lord Suffield, again heads the list as the most prolific kind we have, and for a late sort I think Lane's Prince Albert will rival it, for quite small trees planted last winter have set a fine crop of fruit right on the tips of the last season's growth.

PEARS, although by no means so good as last year, are mostly carrying a fair crop, that looks like swelling up to good size, the trees looking most vigorous.

PLUMS and **DAMSONS** are variable. The Victoria Plum is generally heavily cropped, also Orleans and Early Violet, but the Gages that apparently set a heavy crop have dropped very much lately. The Farleigh Prolific Damson has set good crops, the fruit on pruned trees being in dense clusters. It is an erroneous idea not to prune Damsons. I have both pruned and unpruned trees, and the former are by far the more prolific.

BUSH FRUITS are very plentiful, Gooseberries being a heavy crop. Great quantities have been sent to market lately, for as Whitsuntide fell late this year the Gooseberries were quite large and fairly cheap, so that the demand for them was exceptionally heavy.

STRAWBERRIES, which are just coming in and promise to be plentiful, need rain to swell off the late fruits, as the soil here is light and the rainfall much below the average.

JAMES GROOM.

Gosport.

ORCHIDS.

CATTELEYA SUPERBA.

REMARKABLE flowers of this species come to me from Mr. S. Johnstone. Mr. Johnstone says, "The plant from which the spike was cut is blooming for the fifth year, and this season it has produced five flowers upon two of the three spikes which the plant is bearing; the other has four blooms upon it, but I have cut them all now, as they have been open a fortnight." It being a rather unusual thing for this plant to remain in perfect health for so long a time, I will give my friend's system of managing it. He says: "The plant is firmly fixed to a large block of Sallow, a kind of Willow, with some living Sphagnum Moss, which is renewed annually, or whenever it appears to be getting worn out. I object to pot culture for this plant, as the drainage never seems to be free enough, and the plants are too far removed from the glass, and in consequence they die. Every plant I received from a friend travelling on the Essequibo River some few years ago is dead. These were grown in pots, but the plant on the block has grown splendidly. It is exposed to all the sunlight possible, saving just during the hottest part of the day, and it is kept in the East Indian house all the year round. This house gets very hot sometimes with sun heat, but it is not over-done with artificial heat, as it frequently falls to 60° in the winter, and I recently had it up to 85° with air and shade on, so that the variation in temperature ranges considerably." In its native habitat it has a great variation in temperature, and it likes abundance of water when growing. When I first saw the flower it was shown by Mr. Godney, then gardener to the Rev. W. Ellis of Madagascar fame. It was an excellent variety, and was shown in a shallow basket lined with green Moss. The flowers now before me put me in mind of that time, now many years ago. The sepals and petals are of a deep, but bright

rose colour, thick and waxy in texture. The large spreading front lobe is somewhat fan-shaped, with a broad band of deep crimson-purple with a rugose border; disc yellow, white on either side, and veined with deep rose. The variety *splendens* comes from the Rio Negro, and, like the typical plant, should always be kept hot and well exposed to the sun and have an abundance of air—in fact, this *Cattleya* should never be dried off. When at the Messrs. Rollisson's, of Tooting, we had a large importation of this species, and I was persuaded by the late Mr. Spyers to put them upon Fern stems, on which they did not thrive very well. I have no doubt they would have done better had the Ferns been living plants.

WM. HUGH GOWER.

***Calanthe vestita gigantea* (J. B.).**—This is a beautiful flower of this variety, and with between thirty and forty large blooms must present a noble appearance, and flowering with its foliage, too, it has a splendid effect. This plant is, I believe, a native of Borneo; the flower, as far as I can see and remember, is identical with that of the species. It requires a warm corner and to be well supplied with moisture.—W.

***Oncidium Marshallianum* (C. Morant).**—A very fine form of this plant. The flower measures 3½ inches across and the colour is rich bright yellow, dotted and spotted reddish brown. It is nearly thirty years ago since Blunt first sent this plant to Messrs. Low, of Clapton, with *O. crispum*, which has been found to thrive best when grown cool. The same treatment will suit this species. Do not let the flowers remain too long on the plant.—G.

***Odontoglossum crispum Johnsonianum*.**—This is a beautiful variety, which is now flowering in Mr. Dorman's collection at Laurie Park, Sydenham. The flower is round and full, the sepal's and petals being white, flushed with rosy-lilac, the latter prettily toothed at the edges, and heavily marked with cinnamon-brown, which runs out in flakes and spots. The sepals are marked with the same colour, but in a less degree; it is a charming variety.—W. H. G.

***Cattleya Sanderiana*.**—This is one of the labiate section and a variety of what is now known as *Warszewiczii*. A splendid variety is now blooming in Mr. Dorman's collection, bearing five flowers on the scape, each flower measuring upwards of 9 inches across, being of excellent form and of good substance; the petals and the sepals are of a rich rosy mauve, the very large lip being beautifully frilled round the edge and of a rich velvety crimson-purple, having by the sides of the throat two large yellow eye-like spots. It is a magnificent variety.—G.

Orchids from Cheltenham.—Amongst some flowers received from Mr. Cypher, of Cheltenham, are two fine *Cattleya Mossiae* with large, beautifully frilled lips stained with deep crimson-purple; one very rich orange at the base and in the side lobes, the other with very little orange. Some flowers of *Laelia purpurata* are also magnificent; one flower in particular is very dark and would be an excellent *Bryasiana*; another flower is a broad-petalled, pure white form, with a large lip of a very dark maroon-purple, broadly splashed in front with lilac. There is also a very fine *L. purpurata Russelliana*, with broad pure white sepals and petals, the lip very large and spreading, soft rosy-lilac, with deeper veins. There were also some large and very highly-coloured flowers of *Odontoglossum vexillarium* in the consignment.—W.

***Dendrobium Draconis*.**—Flowers of this plant come from J. Macfarlane, asking if this is the true *D. Jamesianum*. It is the true *D. Draconis* of Reichenbach, and a very beautiful plant it is, belonging to the same nigro-hirsute section as *Jamesianum*, but better known in English gardens by the name of *D. Parishii*, under which it was figured in the *Botanical Magazine* in 1864, t. 5459, as *Dendrobium*

eburneum. The variety sent is a very fine one, much above the average. It has a wide range. You say that this is from a plant imported from Siam; notwithstanding this it succeeds admirably under the same cool treatment that suits *D. infundibulum* and *Jamesianum*. It should be potted in good brown peat fibre, be well drained, and hung up near the glass, as it likes an abundance of light, but yet must be shaded from the hottest sun; the flowers are pure white, the base of the lip pencilled with lines of red. This is its usual time for flowering, and it lasts a long time in full beauty.—W. H. G.

Cattleya Warocqueana.—From the gardens of Sir William Marriott, Bart., Down House, Blandford, comes a fine flower of this variety. Mr. Denny, the gardener, says, "I send you a *Cattleya* flower from a plant which was sold a short time ago with a great flourish of trumpets as the true autumn-flowering labiata, and should like your opinion." This is not the labiata so called by Lindley, which blooms late in the autumn and beginning of winter. I have seen a fine lot of *C. Warocqueana* flowering in the autumn, but amongst some hundreds which I then saw, not one was equal to the plant named by Lindley for richness of colour or size of flower. This I can speak positively on, because I had for years a plant which had formed part of Mr. Cattley's original one. The lip of the flower now before me, although the sepals and petals are of very good size and colour, is very deficient in colour. I am quite willing to admit that Lindley's plant may have been an exceedingly fine variety, and the varieties may be inferior to the original plant, but a plant that flowers at midsummer no one will make me believe is the true labiata. I have now before me a fine flower of *Warnei*, which is much more like the true labiata than the flower sent for Lindley's plant.—W. H. GOWER.

ORCHARD AND FRUIT GARDEN.

COLOUR IN PEACHES.

THERE cannot be any question as to the value of good colour in Peaches and Nectarines, not only for private consumption, but also for market. It is well known, at least by those who are acquainted with the London and other markets, that highly-coloured Peaches and Nectarines realise as much as 50 per cent. more than those badly coloured. We must make due allowance for soil influence in the colouring of the fruit, although not to such an extent as in the case of Apples. It is also in the power of those who may have charge of trees to improve the colour of their Peaches and Nectarines if they will but only take the trouble to expose the fruits sufficiently early to enable them to colour well. To a certain extent the colouring commences to show itself during the earlier stages of the young fruit's existence, but it is not until the commencement of the second swelling that colouring commences in earnest, this being more rapid about ten days or a fortnight before the fruit is fit for gathering. Experienced Peach growers expose the fruit to a certain extent from the time of tying in the shoots, but it is at the commencement of the second swelling that the most exposure is needed. Now will be seen the advantage of selecting those fruits with an upward and outward tendency during the operation of thinning. These are the fruits which are the more easily exposed, and which with a little extraneous aid may be encouraged to colour up splendidly. Excepting exhibitors who generally go to the extra trouble, the majority of growers are content to tuck away the leaves, and if the fruits cannot be sufficiently exposed, any overhanging leaves

are reduced by one half, and in cases of necessity a leaf here and there may be wholly removed.

The extra trouble taken by the most successful exhibitors in raising the fruits, placing a piece of lath under the shoot which is carrying the fruit, is well repaid. By a little manipulation the lath will not injure the ripening fruit, as it is apt to if pressing tightly against the base of the fruit. The lath will obviously be necessary for those fruits growing on overhead trellises. Trees which are growing against walls may have the fruit more exposed by fixing a piece of wood about 2 inches or 3 inches in length behind the fruit-bearing shoot and resting against the wall. It will now rest with other rational cultural details whether the fruit takes on a rich colour by the time it is ripe. This will resolve itself into a free circulation of air, especially during the latter stage, and also whilst the sun is shining. A close and overheated atmosphere is too vitiated for good colour, and besides it brings on the ripening too fast, which in itself is detrimental to high colour. A cold and damp atmosphere would also be antagonistic to the end in view. What is wanted is a warm and buoyant temperature tempered with a free circulation of air according to the weather. Those structures which are apt to become very hot during bright weather must have free ventilation at these times, as if not, the side most exposed to the sun is apt to become discoloured through burning. Like some varieties of Apples, there are some Peaches which take on colour very sparingly, even if fully exposed, but it behoves cultivators to bring out what latent colour they possess. Y. A. H.

Strawberries and moisture.—Those who took the precaution to apply moisture to their Strawberries a few weeks ago will now see the result of their labours by the increased quantity of fruit. There are serious complaints as to the flowers having failed to set this season, especially in the case of large-fruited mid-season and late kinds. This is no doubt caused through drought. In many districts there is still a want of genial rains for this and other crops, so that unless means be taken to supply moisture, the late sorts will fail to set. It is an excellent plan with a good supply of water to have lengths of hose-pipe and to allow the water to run gently between the rows. I do not advise liquid manure for Strawberries after the fruits are of fair size, as often it causes imperfect fruits and does not add to flavour, and in no case should it be given over the mulch, as it leaves a nasty deposit on the clean straw. There are often objections made to the use of cold water direct to the roots, but if allowed to run in the middle of the day, the soil is sufficiently warm to counteract any evil effects. Of course if it can be given from a pool or of the same temperature as the soil, so much the better, but it is not often practicable.—G. W. S.

Early Strawberries.—I have noticed that Noble Strawberry this season is a little later than last year, and I should like to know if others find this so, as it was very promising in May. King of the Earlies is now giving nice dishes daily and of good size. I think this variety will prove a good kind for private gardens, though for market its size may be against it. We had our first ripe fruits on June 7, and got nice dishes daily after the 10th, so that it comes in useful. Pauline is also giving us good fruits, the first having been gathered on the 10th. This is a fine-looking fruit, though its shape is against it. The flavour is also very good. Pauline may be gathered at the same time as Noble, King of the Earlies and Black Prince if a little extra care is bestowed on its culture. I find it an excellent plan to get the early fruits from strong plants planted out of pots, propagated in the same way as forced plants or to layer direct into

$\frac{1}{2}$ -inch pots, and to plant these out as soon as full of roots on a south border in a rich soil; they then give fine fruits very early the following June. It is a bad variety if left too long in one place. The new system of planting a bed yearly and destroying one just suits this. Vicomtesse Héricart de Thury looks most promising this season, but in light soils requires rain badly. Competitor is also a good early fruit and promises well; this came in on the 11th, and is a fine fruit, making a handsome dish with a distinct flavour, and seems to be a vigorous grower. I prefer it to Noble for flavour, and it seems to run it very close for earliness.—G. W.

SHOULD VINES BE SHADED?

IF this question were put to many experienced Grape growers the majority would unhesitatingly pronounce against shading in any shape or form, but there are so many conditions to be taken into consideration that I should never think of laying down any hard and fast lines in the matter. According to my experience, there are cases where a light shading would or does act most beneficially to the Vines underneath, while I readily admit that in the great majority of instances they would be or are all the better for no shading at all. Especially is the latter the case where the old fashioned houses exist. In these there is more wood used than modern builders would think of devoting to double the area of vinery roofing, and if in addition to the very heavy rafters there are also comparatively stout sashes and numerous sash-bars, the Vines underneath not unfrequently get more shade than is good for them. It is my belief, however, that builders have erred in going to the other extreme—that is to say, in using extremely light rafters and extra large squares of glass, and those in charge of such lightly constructed houses must either resort to shading or else run risks of scalding, red spider, and other evils. That even these may be prevented must also be conceded, but the over-worked private gardener and the inexperienced amateur are liable to be too late in admitting sufficient air to prevent burning, and may also find that red spider gains ground in spite of every precaution that may be taken in the way of maintaining a moist atmosphere. If from any cause the foliage is prematurely crippled or lost, it is quite useless to expect well-coloured Grapes, while the Vines will also be greatly weakened both above and below ground.

In all instances where there are a maximum amount of glass and a minimum thickness of wood, injurious extremes of temperature are very quickly reached, and it is as bad or perhaps worse in the case of iron or metal houses. During the hottest part of a bright summer's day, iron rafters become so very hot, that the hand cannot be kept on them, and this material being highly conductive, it follows that the temperature of the house may become overheated, or at any rate the evaporation of moisture from the foliage may, and undoubtedly often does, become dangerously rapid. It is not so bad certainly in the case of modern wood and glass structures, but unless the large squares are kept in position by metal clips and not closely bedded in putty, the extra free admittance of sun-heat and partial exclusion of air also result in an excessive loss of moisture from the foliage, burning being the natural outcome. If the houses were so glazed, or the trellises and ventilators so arranged as to admit of a good circulation of air passing over the upper surface of the leaves, there would then be little or no necessity for shading, but as a rule no such provisions for admitting air are made, the leaves more often than not pressing hard against the closely fitting glass.

Then, again, there are varieties of Grapes more liable to burn than others, and that too in spite of a perfect system of ventilation. At Longlet it has always been found necessary to shade a large Vine of Mrs. Pince's Muscat, or otherwise the foliage burns badly, and red Grapes are the inevitable result. The foliage of Gros Colman is of a far thicker and robust character, but it is liable to

burn badly all the same. This variety takes a long time to colour properly, and if from any cause the primary leaves are early crippled, the colour of the berries will be of a glowing red rather than a deep purplish black. In some instances faulty cheap glass is responsible for the burning of Grape and other leaves, and nothing short of either removing the glass or lightly shading will check the work of destruction. The position of some vineries makes it a very difficult matter to keep the Vines in a healthy state, and it is a case of either sponging the leaves frequently in order to keep down red spider or else of early and lightly shading the house. Being under the obligation of shading the vineries in order to save the foliage is, therefore, nothing to be ashamed of, but there are plenty of gardeners who cannot overcome their deep-rooted objections to the practice. Doubtless, several good reasons can be urged why shading should not be resorted to in any case, but will they bear being roughly overhauled?

It must not be thought that I am advocating a free use of blinds or of any other form of heavy shading. On the contrary, the shade afforded should be of a light and temporary character, such, for instance, as fish netting hung loosely over the roof. If this is not sufficient to prevent undue evaporation, then double it, taking care in any case to withdraw the netting during dull weather. Naturally, it would answer even better if it could be run over the roof during the hottest part of the day only, but this is not always practicable. What I have found answer equally as well, probably even better, is a very light sprinkling of lime water. Enough stale lime or whiting should be mixed with water to make it quite white, and this should then be very lightly sprayed over the roof. It ought to be sprayed very carefully on, so as not to closely cover the glass, or heavy enough to trickle down the roof. The first heavy rain will wash off this shading, and that is why stale, and not fresh or newly-slaked lime is recommended for use, the latter becoming tightly glued to the glass. It does not take many minutes to thus lightly shade quite the largest vineries, and being under the necessity of renewing the shading after each showery time is far better than using any material that cannot easily be washed off. There is yet another reason for shading Vines for a few days or weeks at any rate. When either Black Hamburgh or Madresfield Court is thoroughly well coloured, that is to say, purplish rather than reddish black in colour, they do not remain at their best, but lose colour perceptibly, to the no small annoyance of the would-be prize-winner. When, therefore, it is desirable that early or comparatively early black Grapes should retain their colour for a few weeks after becoming ripe, my plan of rather freely shading them should be resorted to, a trebled fish-net or a moderately heavy spraying of lime water not injuring the Vines, while it does to a certain extent preserve the colour of the Grapes.

W. IGGULDEN.

Apple Beauty of Bath.—This excellent early variety is most appreciated in the south-western counties of England, but judging from what has been done in the way of planting much nearer London, it will not be long before Covent Garden Market is well supplied with it while in season. No better early Apple for the markets as well as private use and exhibition could well be named. It is of free, yet sturdy growth and remarkably productive in quite a young state, while the older trees never fail outright—at any rate that has been my experience with the variety, and very frequently yield extra heavy crops. This season strong bushes planted rather more than seven years ago are, or were literally smothered with fruit. They set in clusters of four or five, and the work of reducing these to one, or at the most two, fruit in each case has been tedious, though necessary. In Messrs. Cooling's Bath Nurseries are to be seen two fairly large old trees from which the many thousand grafts used in working up a stock of young trees have been principally obtained. These two trees (they are half standards) rarely, if ever, fail to

produce good crops, and the samples as seen by me on the trees and also at the various shows are also particularly good. The fruit is of medium size, though large for an early Apple, flat, round, and even in outline, and when ripe the skin is a rich yellow, beautifully and freely striped with red. It can be had ripe early in August, and when first gathered is crisp, juicy, and very agreeably flavoured. Another point in favour of this distinct and handsome Apple is the fact that the fruits keep well after they are ripe, or very much better than most early varieties, the flavour not deteriorating to any very marked extent. It is to be seen at all the local fruit shows held in August and the early part of September, and usually takes the principal prizes.—W. I.

DESSERT CHERRIES.

It has often been a source of surprise to me why dessert Cherries have not found a place on every garden wall. In most large places a stretch of wall is generally devoted to their culture, but in those gardens where the space enclosed only

of stout small-meshed or a triple thickness of thin wide-meshed net is an essential feature towards securing a crop, and this season even that barely sufficed to protect the blossom from the combined visitation of storms of sleet, followed by frost. The only enemy we are troubled with is black-fly, and this can be warded off by applying tobacco powder or other insecticide. An early, prompt and effectual dealing with the fly is necessary, as on the first sign of colouring the trees have to be netted, when the application of insecticide in any shape or form is not an easy matter. If wall space is limited it is not necessary to plant any great number of varieties; three of the best are Frogmore Early Bigarreau, Elton, and Bigarreau Napoleon, and if the first-named was planted in the earliest aspect, there would be a succession of fruit from say the end of June until early in August—quite six weeks. If a greater variety is required, other useful sorts are May Duke, Werder's and Knight's Early Black, Black Eagle, and in some soils Early Purple Glean. This last, however, is not satisfactory with me; the tree is very subject to gumming and canker. If any of the late varieties are grown, such as Belle Magnifique, Late



Primula denticulata (See p. 580).

averages a little over an acre, they are as a rule conspicuous by their absence. Perhaps the said absence has in most cases to be accounted for by a sort of general unwritten, but understood law, that walls were for Peaches, Nectarines, Apricots, and the best of Plums and Pears, but that dessert Cherries must be grown as standards or bushes. This might be all very well if one was tolerably certain of a crop under such treatment, but it is not so; it is very difficult to effectually protect ripe fruit on large trees from birds, and still more difficult both in the case of standards and bushes to protect the blossom from spring frosts. By giving a few trees the benefit of a wall with spring protection one is pretty sure of a crop, and a dish of nice Cherries is always welcome. Dessert Cherries do best with me on a south-west by west wall; there are a few trees on a south east aspect, and I get some early fruit here, but the trees certainly do not do kindly. I fancy in our light and rather shallow soil the latter situation is too hot and dry for them. On both aspects the trees are greatly benefited by an annual winter top-dressing of three parts stiff clayey loam and one part cow manure some 2 inches thick, and a summer mulching of half rotten manure if the weather prove very dry. The spring protection with a double thickness

Duke, and Florence, they should be planted together, and have a small stretch of wall devoted entirely to them. A mixture of early and late sorts is unsatisfactory when covering has to be done. It is perhaps hardly necessary to refer to the very fair quality of Morellos from a dessert standpoint late in the season, as, given a favourable autumn, good dishes are often shown late in October and early in November. I may note that two things are necessary to secure the late hanging of this Cherry—good netting to protect from birds and clean wood and foliage. The last must be insisted on, as a visitation of black-fly means a deposit on the fruit which renders it unfit for table.

Claremont.

E. BURRELL.

Successional Melons.—I very much doubt whether the practice of retaining the old plants of Melons for the production of successional crops is worth the trouble. Occasionally we read of two and even sometimes three crops being taken off the plants in succession, and although I have seen second crops and also had the growing of them, I invariably came to the conclusion that the results obtained would never lead me to recommend the practice. It appears also a favourite method for

calendar writers to recommend, but for my part I consider it a waste of time and room, as far better results are to be obtained by relying exclusively upon young plants. My practice is to have relays of young plants coming on, so as to take the place of the older plants as the fruit is cut. To go to the trouble of clearing out the old soil, fermenting material and so forth, and replacing with fresh is not at all necessary. If the structure is thoroughly cleansed at the first onset early in the season for the first crop, this will be sufficient for any successional crop it may be desired to plant. If, however, the plants which are being cleared out are infested with insects, then a thorough cleansing of the structure is necessary. If the plants that have been cleared out were clean, all that will be necessary will be to level down the old hillocks, giving the soil and all dry corners a thorough watering. Fresh hillocks of soil for the reception of the young plants should be made. The young plants grow away vigorously and prove more satisfactory in every respect than old ones.—Y. A. H.

SOCIETIES AND EXHIBITIONS.

ROYAL HORTICULTURAL SOCIETY.

JUNE 21.

THIS meeting was undoubtedly one of the best yet held during this season. This refers not only to the extent of the exhibits, but also to the many good things shown. Pæonies were strongly represented by various well-known growers, several new kinds being recognised by the floral committee with awards of merit. Hardy herbaceous plants (cut specimens) were shown in considerable quantity, making a brilliant display. Tea-scented Roses were not probably shown in such numbers as last year, but the quality of the exhibits in most cases was very fine, some splendid flowers being staged. Malmaison Carnations were present in good numbers, the plants of extra size and vigour. Orchids were not so numerous as on some previous occasions; nevertheless there were several choice kinds exhibited. The exhibits before the fruit committee were more numerous. Strawberries from the open air, Melons (of which some grand fruits were shown), and Peaches with Nectarines were the chief exhibits. The lecture was practical and full of interest, being listened to by more Fellows than usual.

Orchid Committee.

First-class certificates were awarded to the following:—

SOBRALIA LUCASIANA.—A distinct looking species of very dwarf and compact growth, the flowers of medium size, sepals and petals bluish-white, the lip large, rosy lilac in colour, with the throat shaded with yellow. From Mr. C. J. Lucas, Warnham Court.

CATTLEYA EMPRESS FREDERICK (Dowiana × Mossiæ).—The flowers of this grand hybrid are of extra size; sepals and petals pure white and very broad, lip deep velvety purple, with a pale margin that is most conspicuous. It is one of the greatest triumphs of the hybridiser. From Baron Schröder.

Awards of merit were given to—

CATTLEYA AMESLE from Colombia. It has flowers of grand size, some 9 inches across; sepals and petals broad, lip finely fringed, also pure white, save yellow blotch and veins on inner portion. From Messrs. Sander and Co.

CATTLEYA PRINCEPS.—With flowers of the substance of *C. granulosa* and the same in size; colour of sepals and petals a reddish bronze, with greenish yellow near the base, lip veined with purplish violet. Imported from Southern Brazil by Messrs. Sander and Co.

DENDROBIUM SOUVENIR D'ALEC.—A pure white variety after *D. transparens*, with twenty-eight flowers on the one flowering bulb. From Mr. Hamar Bass, Burton-on-Trent.

CATTLEYA WARNERI MARMORATA, with the typical flowers of this fine species, in which the

sepals and petals are marbled with pale lilac, the lip with a deeper coloured blotch than usual (a remarkable deviation in colour). From Mr. Gabriel, Streatham Hill.

ONCIDIUM LANCEANUM VAR.—A fine dark coloured form of this well-known Orchid. From Mr. E. H. Woodall, Scarborough.

GRAMMATOPHYLLUM SEEGERIANUM, bearing a spike of flowers and buds some $4\frac{1}{2}$ feet in length, with finer blooms than usual, spotted with dark spots on a light greenish yellow ground. From Mr. Lucas.

CYPRIPEDIUM TELEMACHUS (Lawrenceanum × niveum). The flowers of this are of a purplish or vinous rose, the dorsal sepal broad and well marked, the wings having minute dark spots, the foliage after the manner of *C. Lawrenceanum*, but lighter in colour; growth vigorous. From Messrs. Veitch and Sons.

LÆLIA PURPURATA (The Dell var.), in which the lip is the distinguishing characteristic, being narrower than in the species, the colour of the same more of a bronzy red. From Baron Schröder.

Messrs. Sander and Co. showed a small collection of choice kinds, embracing *Thunia Brymeriana*, white sepals and petals, rosy lilac lip; *Thunia Campbellæ*, light sepals and petals, dark lilac lip with darker veins; *Oncidium Schlegelianum* (*O. Lanceanum*, pale var.?) a pretty form with the foliage not so freely spotted; *Odontoglossum Harryanum*, with spikes of remarkable vigour, finer than this variety has before been shown, the strongest spike between 2 feet and 3 feet in length, bearing ten flowers of extra size, three plants being shown in flower; *Dendrobium filiforme*, a beautiful example of this elegant old Orchid, with numbers of spikes of good length; *Cycnoches chlorochilum* (the Swan Orchid), with yellowish green flowers; *Cattleya Arnoldiana*, a beautiful example—this hybrid improves on acquaintance; and *Vanda Hookeriana*, after *V. teres* in habit, but quite distinct in its flowers, which are of a rosy purple with lighter sepals and petals (silver Flora medal).

Messrs. Collins and Collins, Willesden, showed another group consisting of *Dendrobium suavisimum*, *Cattleya gigas*, *Vanda tricolor*, *Odontoglossum citrosum roseum*, and *Aerides odoratum majus* (silver Banksian medal).

From Mr. Tiarks, Chislehurst, came a superb spike of *Lælia grandistenebrosa*, with flowers more than 8 inches across and of fine colour. From Mr. Fowler, Woodford, came *Cattleya Mossiæ* Fowleriana, with white sepals and petals, lip pale yellow with lilac venations. Both Sir W. Marriott, of Down House, Blandford, and Mr. R. White, Gairlochhead, sent excellent cut specimens, chiefly of *Cattleyas* and *Lælias*.

Floral Committee.

The awards to new plants were on this occasion very numerous and varied. First-class certificates were awarded to—

CORNUS KOUSA.—A Japanese introduction of singular and distinctive character; the flowers are white, of stellate form, much resembling those of a *Clematis* in outline, the colour a pure white; the growth appears to be semi-shrubby and of a coriaceous texture. From Messrs. Veitch and Sons.

TRITOMA CAULESCENS.—A grand form of this popular flower, being extremely early flowering, and apparently most continuous; the spikes are conspicuous by their stout sturdy habit of growth; the unexpanded flower-buds are of a deep vinous red colour, changing to pale yellow as they expand; the foliage is broad and of Yucca-like appearance. From Messrs. Veitch and Sons.

CALLA PENTLANDI.—Another valuable addition to its class, the spathe being of a rich deep golden-yellow, and quite as large with the same shape as the old white variety; the foliage is large, semi-erect, more arrow-pointed than in the old white, and of a deep green; at the base of the spathe upon the inner side there are some blackish markings, which are not discernible outside. It is a grand variety, and must be considered as decidedly superior to *C. Elliotiana*, which has been

certificated, and which has spotted leaves with green markings upon the spathe upon the outer side at the base; both are totally distinct. *C. Pentlandi* was shown by Mr. R. Whyte, Pentland House, Lee, Kent.

CRINUM BRACHYNEMA, which had received this honour previously. It is a delicately beautiful kind with white flowers having the faintest suffusion of pink here and there. From Mr. Smith, Mentmore Gardens.

Awards of merit were given to—

PELARGONIUM FIREBALL.—A decorative variety with deep cerise-coloured flowers, with a darker shade in the top petals, the habit good and of a free-blooming character. From Mr. Chas. Turner.

PELARGONIUM SOUVENIR.—With rosy lilac flowers, very distinct and of large size, habit vigorous; its shade of colour will make it very useful. From Mr. Chas. Turner.

PELARGONIUM ROSY GEM.—A rose-shaded variety with almost self-coloured flowers, habit dwarf, flower-trusses large. From Mr. Chas. Turner.

CARNATION GEORGE FRY.—A promising variety with bright scarlet flowers, having a decided clove perfume, being also large and full and not given to splitting. From Messrs. Laing and Sons.

TREE CARNATION MRS. HEMSLEY.—A valuable new kind, figured and described in *THE GARDEN* of March 26, 1892 (p. 280). It has dark crimson flowers of fine form, the growth free, also a non-splitting kind. From Mr. H. B. May.

IVY-LEAVED PELARGONIUM RYECROFT SURPRISE.—A distinct-looking kind of close and compact habit, with a free-blooming character; the trusses are large and borne upon stout foot-stalks; the flowers, which are double, are of a bright rosy pink colour. From Mr. H. J. Jones, Lewisham.

ROSE GUSTAVE REGIS (H.T.).—With flowers of *Mme. Falcot* character, but of a much lighter shade and apparently more free; also very useful as a decorative Rose. From Messrs. Paul and Son.

SWEET BRIER LUCY BERTRAM.—A vivid crimson, with large trusses; a remarkably free-growing kind, and valuable as a garden Rose. From Lord Penzance.

SWEET BRIER ALICE BRIDGENORTH.—Another beautiful kind with shell-like petals of a rosy pink shade, the flowers quite single. Also from Lord Penzance.

PEONY VAN DYCK.—With rosy pink flowers, very large and full.

PEONY MME. ROSSEAU.—A beautiful blush white, very beautiful.

PEONY MME. LOISE.—A rosy red and very distinct; and

PEONY FELIX CROUSSE, a dark red of a bright shade. All the above Pæonies were from Messrs. Paul and Son.

PEONY SNOWBALL.—A fine white variety of large size and good form, having a faint trace of yellow at the base of the segments.

PEONY MME. BREON.—A pale blush kind with large full flowers. Both from Messrs. Barr and Son.

PEONY GRIZZEL MUIR, with flowers of a straw or French white shade, extra fine.

PEONY LOTTIE COLLINS.—A rich dark crimson, and very full. Both from Messrs. Kelway and Son.

CALADIUM MME. EDOUARD PYNAERT, with foliage of a bronzy red, very rich in its shading, a fine kind. From Mr. Bause, Morland Nursery, South Norwood.

CALADIUM MARGUERITE GELINIER.—The leaves have pale yellow margins, the central portion of a pale pink shade, a dwarf grower. Also from Mr. Bause.

ADIANTUM MACROPHYLLUM STRIATUM.—Deep bronze in colour, striped with a lighter shade, habit dwarfer than in the species. From Mr. H. J. Rogers, Lodsworth, Petworth.

Mr. Crisp, gardener to Lord Wimborne, Canford Manor, Dorset, sent some grandly grown plants of the blush Malmaison Carnation, bearing several fine flowers, but some bore trace of the journey;

these plants wanted more room to show them to advantage (silver-gilt Flora medal). Messrs Laing and Sons exhibited a miscellaneous group, consisting of several good Orchids, amongst which were the following: *Dendrobium suavisimum*, a good plant with extra long spikes, a fine *Dendrobe* when thus seen; *Cattleya gigas* and *Odontoglossum Pescatorei*, *Begonia corallina*, a coral-red species seldom seen; with seedling tuberous varieties and several well-grown foliage plants, chiefly the newer kinds of Dracenas, as *D. australis variegata*, *Caladiums*, as *C. Reine de Danmark*, a bright and attractive kind, and *Comtesse de Condeixa*, a rosy red sort (silver Flora medal).

Messrs. Paul and Son had a splendid display of Pæonies, consisting of many of the best kinds. Besides those certificated the following were some of the best: *Belle Chatelaine*, pale pinkish-blush and white, flowers large; *La Volupteuse*, a deep pink; *L'Elgarite*, pale pink, full; *Lady Carrington*, extra fine, large, French white; *Duchesse de Nemours*, straw white; *Edulis superba*, rose, and *Madame Forel*, pale rose; with these were included a large assortment of cut herbaceous flowers in season, as *Delphiniums* of which two of the best were conspicuous, an extra fine deep blue, and *Schamyl*, a bright blue; *Clematis erecta* (after *C. Viticella*) in profuse flower; *Erigeron caucasicum*, *Carduus heterophyllus*, *Geum miniatum*, *Thalictrum floribundum*, and fine spikes of *Spiraea aruncus* (silver Flora medal).

Messrs. Veitch and Sons exhibited an excellent assortment of Pæonies in good variety of colour and a choice lot of cut herbaceous flowers. Of the Pæonies the finest were *Vittata*, rose; *Emilie Lemoine*, white, with few traces of colour; *Chas. Rousellon*, pale rose; *Rubens*, dark; *Mme. Vilmorin*, straw white and rose; *Gloire de Douai*, dark. Of the herbaceous flowers, *Heuchera sanguinea* was finely shown; so was *Tritoma caulescens*, *Aquilegia chrysantha*, *Cnicus floribundus*, *Cephalaria alpina*, with pale lemon Scabious-like trusses of flower, *Campanula persicifolia*, *Phlox ovata* and *Delphinium cardinale* in good form (silver Banksian medal).

Messrs. Barr and Son exhibited a fine bank of herbaceous flowers and Pæonies of the best kinds: of the latter note should be taken of the following: *Duc de Sutherland*, deep blush, extra fine; *Gloria Mundi*, light; *Figaro*, light with darker guard petals; *General Bedeaux*, light; *Prince Charles*, rosy pink; *Whitley*, extra good light with blush buds; *Triomphe de Paris*, pale yellow, distinct, light guard petals; *Mme. Furtado*, deep rose; and *Taglioni*, rosy pink. Of the herbaceous flowers, *Heuchera micrantha*, *Gaillardias*, *Ice and Poppies*, *Gillenia trifoliata*, and *Lupinus arboreus luteus* were the most striking (silver Banksian medal).

Messrs. Kelway and Sons exhibited another large collection of Pæonies, Delphiniums, and Pyrethrums in their characteristic style, making a fine display of the Pæonies. The best were *Mme. Bernard*, blush, rosy buds; *Lady L. Bramwell*, deep pink; *Duc de Wellington*, straw; *Triumphans gandavensis*, blush, free; and *Arborea*, rose. Of the singles the best were *Minerva*, blush; and *Hesperus*, deep blush. Of the Delphiniums the following were in fine form: *Midas*, rich blue, close spike; *Evelyn*, dark blue; *Robin Adair*, dark blue; *Lord Brassey*, light blue, white eye; *Salamander*, mauve and blue, distinct eye; *Gilbert*, bright blue, white eye; and *Nuphar*, vigorous branching spike, dark blue (silver Banksian medal).

Mr. Jones, Rye Croft Nursery, staged a good group of decorative Pelargoniums, the best being *Duke of Fife*, *Martial*, *Dorothy*, *J. T. Hayes*, *Rose Queen*, and *Lady Blanche*; these were all well-grown plants, being also freely flowered (silver Banksian medal).

Messrs. Cheal and Son staged an excellent assortment of Pansies in fresh condition; the best were *Evelyn*, *Countess of Kintore*, *Royalty*, *King of Blacks*, *Duchess of Fife*, and *Dawn of Day*. Mr. R. Dean, Ealing, staged several bunches of his new border Pinks, which are a decided advance with more distinct colours. The following were some of the best: *Rosy Circle*, deep colour, dark centre; *Charmer*, pale pink; *Snowflake*, pure white, extra

fringed; *Beauty*, dark; *Annie Bolton*, pure white, with dark centre, and *Delight*, pink self.

Mr. Laxton had white seedling Pinks *Stanley* and *Marchioness of Salisbury*, with a few Sweet Peas. Mr. Reynolds, Gunnersbury Park, showed some finely flowered, vigorous plants of Veitch's hybrid *Streptocarpus*, bearing blooms of extra size and distinct markings. Messrs. Ross and Co. showed *Ismene Amancaes* with yellowish flowers after the *Hymenocallis*, but with shorter petals. Mr. Chas. Turner, Slough, showed a deep crimson climbing Rose called *Crimson Rambler*, a fine addition to climbing kinds. Messrs. Veitch and Sons had a distinct species of *Syringa* called *S. japonica* with long spikes of yellowish white flowers. Seedling *Gloxinias* were sent by Mr. Donaldson, Tower House, Chiswick. Rev. W. Wilks showed *Carpenteria californica* in beautiful condition, very pure in colour.

The competitive awards for Pæonies went to Mr. Berkeley James and Mr. Crasp, both lots containing good kinds with but little to choose between them.

Fruit Committee.

There was a fair number of exhibits before this committee, Melons, Strawberries and Cherries being shown in quantity. The Melons, though large and numerous, did not call for special notice, showing no improvement on existing varieties. A first-class certificate was awarded to

STRAWBERRY ROYAL SOVEREIGN, a nice-looking fruit of high colour with first-class flavour, and likely to make an excellent market sort, being very firm. It is somewhat like Sir J. Paxton in shape and of medium size. Shown by Mr. T. Laxton, Bedford.

A fine collection of *Marguerite* Strawberries was sent by Mr. T. Sharpe, The Royal Strawberry Gardens, Virginia Water, Surrey, and was worthily awarded a silver Banksian medal. A collection of Strawberries came from Mr. C. Turner, Royal Nurseries, Slough. From Syon House Mr. Wythes sent nine varieties of early Cherries grown in the open, the best dishes being *Early Rivers*, a large black variety of rich flavour; *Belle d'Orleans*, Governor Wood, and *Frogmore Bigarreau*. Seedling Melons were exhibited by Messrs. W. Allen, gardener to Sir W. Russell, Swallowfield Park, Reading; T. Bonsall, gardener to Mr. J. H. Hitchen, Elmet Hall, Leeds; and S. Eley Joice, Grove Gardens, Nettlebed, Henley-on-Thames. Mr. Reynolds sent from Gunnersbury Park Gardens five Melons weighing 29 lbs. Mr. T. H. Crasp, gardener to Lord Wimborne, Canford Manor, Wimborne, Dorset, sent a collection of Peaches and Nectarines. Mr. Miller, gardener to Lord Foley, Ruxley Lodge, Esher, sent Mushrooms. A box of seedling Cucumbers came from Mr. Lowe, the Nurseries, Uxbridge. Mr. Wythes, Syon House, had a nice dish of *Duke of Albany* Peas.

Rose Show.

In the classes for Tea Roses the competition was variable; in some instances it was strong and keen in others; the first-prize winners had an easy walk over. In class A for twenty-four blooms, Mr. Tate, Downside, Leatherhead, was first with a grand lot of flowers, very fresh and of fine size. These consisted of *Comtesse de Nadaillac*, blooms of splendid colour, including the premier flower in the show; *Niphetos*, extra large in its true character; *Mme. de Watteville*, *The Bride*, *Catherine Mermet*, *Mme. Casin*, *Souvenir d'un Ami* (extra), *Souvenir d'Elise Vardon* (fine), *Mme. Willermoz*, *Innocente Pirola* and *Marie van Houtte*, in all an excellent exhibit. In class B for twelve single trusses, Rev. Mr. Burnside, Hereford, was first with very fresh flowers, the following being splendid blooms: *Niphetos*, *Princess of Wales* (extra good), *Mme. Casin*, *Cleopatra* (fine in colour), *Souvenir d'Elise Vardon*, *Souvenir d'un Ami* and *Rubens*. Rev. H. Berners, Ipswich, came a close second, having *Anna Olivier* (extra fine), *Souvenir de S. A. Prince*, *Maréchal Niel* and *Cleopatra*. Mr. Fowler came in a good third in this class, *Marie van Houtte*, *Mme. Casin* and *Francisca Kruger* being his best blooms. In class C for six blooms, Rev. J. Pem-

berton was first, having fine flowers of *Souvenir d'Elise*, *The Bride*, *Caroline Kuster*, *Jules Finger*, *Souvenir d'un Ami*, and *Maréchal Niel*; Rev. H. Biron was second, *Marie van Houtte* and *Souvenir d'Elise* being his best flowers. In class D for six single trusses of one variety, Rev. F. S. Taylor was first with fine blooms of *Maréchal Niel* of deep colour and fresh, Rev. Mr. Burnside being second with *Anna Olivier* of extra good colour. In class E for six triplets, Mr. A. H. Gray, Bath, was to the front for the first time, he having *Maréchal Niel* and *Comtesse de Nadaillac* (both extra good), *Alba rosea*, *Marie van Houtte* (with its peculiar tints deeper than usual), *Catherine Mermet*, and *The Bride*. In class F, Mr. Biron, Lympy Vicarage, was first for an arrangement of Teas and Noisettes in a vase or basket; the arrangement was good, but if wires had been dispensed with, the slight trace of stiffness would have disappeared. There was no trace of overcrowding, whilst the choice of colour was good, W. A. Richardson and *Marie van Houtte* telling with good effect. The second in this class went to Miss Bloxam, Eltham Court, the arrangement rather too close.

The open classes were well represented by Mr. F. Cant, Braiswick, Colchester. In class G for twenty-four single trusses he had a remarkably fresh collection, the colours good throughout. His best blooms were: *Hon. E. Gifford*, *Mme. Casin*, *Mme. de Watteville*, *Rubens*, *Comtesse de Nadaillac*, *Catherine Mermet*, and *Souvenir de Paul Neron*. Messrs. D. Prior and Sons, Colchester, were second, *Anna Olivier* being one of the best. In class H for twelve triplets Mr. F. Cant was again first, having *Comtesse de Nadaillac* (extra), *Maréchal Niel*, *Mme. Lambard*, *Catherine Mermet*, and *The Bride* this was a remarkably even lot, the colours first rate. Mr. A. H. Gray was second, his best blooms being *Souvenir d'Elise Vardon*, *Souvenir de Thérèse Levat*, and *Jean Ducher*. In class I for eighteen bunches, three trusses to each bunch naturally grown, not disbudded (a very sensible mode of exhibiting not often enough seen), Mr. F. Cant again came to the front with *Catherine Mermet*, *Chas. Legrad* (deep colour), *W. A. Richardson*, *Mme. Lambard*, *Ma Capucine* (extra colour), *Réve d'Or* and *Deviensensis*. In class K for twelve single trusses *Maréchal Niel*, Mr. R. S. Knight, Sittingbourne, won with grand blooms, extra deep in colour and of large size; Mr. A. H. Gray coming in a good second. In class L for single trusses of any Tea or Noisette other than *Maréchal Niel* Mr. F. Cant and Messrs. D. Prior and Son divided the honours between them, being placed equal first; the two boxes were as alike as two peas, both excellent, the variety in each instance *Marie van Houtte*. Mr. Gray followed with *Anna Olivier*.

Non-competing exhibits were not numerous, but of a most interesting character. Messrs. Paul and Son had a box of fine blooms of *Bourbon* Mrs. Paul, a truly beautiful Rose, which will be a thorough garden variety, as we have been able to prove for ourselves. Plants of the same kind were also shown, also cut flowers of *Tea* *Mme. d'Aoust*, with light outer petals and a deep apricot centre, and *Hybrid Tea* *Gustave Regis*, a light form of *Mme. Falcot*. Some of the richly-coloured shoots of *Rosa rubrifolia* were also included. Lord Penzance again showed his hybrid Sweet Briers, in which class of Roses his lordship has raised so many beautiful hybrids. On this occasion, the exhibit consisted of thirty bunches of several trusses in each and as many varieties, the parentage of each being given, although all had not received names. Two of these will be found amongst the list of certificated plants. Others which were the most striking were *Jeannie Deans*, with small incurved flowers of a bright crimson, very pretty in the bud and *Meg Merillies*, another crimson with larger flowers. This was a most conspicuous exhibit, and elicited much admiration. A silver Flora medal was awarded to Lord Penzance.

Professor Dyer, in his lecture on the "Management of Trees in Parks and Gardens," did not think so much attention was paid to trees as used to be. He said it was impossible to obtain large specimens

unless great attention was paid to them. Planting trees in parks and gardens required special attention. The best point in a tree is its height; nothing looked better than a well-grown Oak. Trees required close attention, not allowing the lower branches to get too large, and thereby injuring the leader. When the leader of a tree is lost, it is spoilt and cannot very well be replaced. One point he would like to mention was that of trees being split and broken about it. This soon caused decay. One of the annoyances in planting young trees is the staking. Mr. Waterer does not stake his trees, but depends upon good growth. Trees are often damaged by stakes in rough weather. Another complaint was animals eating the bark off the trees. He then described various injuries done by insects getting under the bark. The best plan to get rid of them was to cut out the affected parts and burn them, and then paint the places over with coal tar. Coal tar was used a great deal at Kew for trees that had decayed. He found it much better than anything else, because it did not dry so hard as other material, and the bark had a better chance of healing. The practice in France was to plug the places up and then to paint over with coal tar.

The chairman (Sir Trevor Lawrence) thought the conifers were looked after much more now than they used to be. He knew of a place where the Beeches were dying by hundreds, and he thought it required someone with a thorough knowledge to look after trees. He desired to thank Mr. Dyer for his excellent lecture on such an interesting subject.

NOTES OF THE WEEK.

A white Pæony.—I send you buds and blossoms of a single white Pæony, which seem to differ from those of *P. albiflora* var. *vestalis* in being more cup-shaped and having a rose flush at the base of the petals.—ST. BRIGID.

*** The flowers in all stages very delicately suffused with flesh colour.—ED.

The Sikkim Primrose.—We have a fine display of *Primula sikkimensis* this season, hundreds of flower-heads similar to those enclosed. We thought it would interest you to see them, they are so fine, growing in a damp, shady peat bed in the nursery.—JAMES BACKHOUSE AND SON, *The Nurseries, York.*

*** The flowers as sent to us have stems 18 inches long, and they are beautiful and fragrant.—ED.

Delphinium grandiflorum Brecki.—I send you per same post a small box containing a spray of *Delphinium grandiflorum Brecki*, of which find photograph enclosed. The plant when photographed was just 2 feet 1 inch above the pot, and being grown in a pot under glass its tendency would be to draw. This is without exception the most charming blue Larkspur in cultivation either for planting in the mass or for cutting. It was raised over twenty years ago by the late Hon. Joseph Breck. It is of very dwarf habit, bushy and compact, and will keep on blooming for several months. The colour is a very dark blue.—J. FORBES, *The Nurseries, Hawick.*

Edelweiss in Devon.—I send you a photograph of a very fine specimen now in full bloom, many of the flowers measuring 14 inches in circumference round the outside edge of the points. I have had it three years, and it is planted in a crevice in poor soil among lime rock and in a southern aspect. This evidently suits it best, as I have tried it in richer soils and different aspects, but the blooms have invariably been very poor, and it has never succeeded as it has in its present situation. I also grow successfully amongst numerous other alpine plants *Gentiana verna*, *Onosma tauricum*, and the lovely *Glossocoma clematidea*.—G. SOLTAU-SYMONS, *Chaddlerwood, Plympton.*

Tufted Pansies from Hawick.—Mr. Forbes sends us a few charming tufted Pansies, among

which we find Mauve Queen, the always fine Countess of Hopetoun, Abercorn Gem, Columbine, the beautiful Ariel, Aurora, Diana, Mrs. Turner, Duchess, a good white with a clear yellow eye; Brilliant, Gipsy Queen, a bluish white with faint stripes; Marchioness of Tweeddale, an excellent white with lilac shading; Chieftain, wiry-eyed, but fine; Duchess of Fife, and Sulphurea—altogether a very fine collection. There are, perhaps, too many wiry-eyed yellows in cultivation. What we want are simple colours without wiry eyes; and there ought to be no trouble in raising them, not merely strong yellows, but delicate primrose, sulphur, and pale yellows.

Carnations at Ham.—Will you kindly give me your opinion about these Carnations? They are seedlings of mine. No. 1 is a Tree variety with a very strong constitution, and carries from twelve to twenty-two flower-buds on a stem, and is an excellent winter bloomer. Nos. 2, 3, and 4 have all fine strong habits, and I have enclosed a stem of No. 4, as I do not have a good flower open at present. The Aquilegias are seedlings. I find they grow strongest where they are shaded.—PETER ELDER, *Forbes House, Ham.*

*** The Carnations are charming. You would do well to look after No. 1. The Aquilegias are very pretty, but not so fine as the wild species.—ED.

Primula japonica.—Referring to "D. T. F.'s" note (p. 553) as to the hardness of this *Primula*, there is at Darlington Hall Gardens, near Leeds, a large batch of plants which have stood out in the kitchen garden for several years past. When I saw them lately there was a quantity in bloom, and the ground all underneath the old plants was literally carpeted with thousands of seedlings from last year's crop of self-sown seeds. Close by were some batches of *Primula Sieboldi* in various colours in full bloom. Mr. Dunn, the gardener, told me all were alike as to hardness. The last two winters in the north have been severe ones.—H. J. C., *Grinstead.*

Peach Early Beatrice.—I send you some fruits of this early variety. It is a useful Peach for forcing, coming in as it does about three weeks in advance of Early Grosse Mignonne. Then follows Royal George in the same house. Although a small Peach, it gives us a nice early dish. As a rule all our early Peaches are small. Early Beatrice came into bloom at the same time as Early Grosse Mignonne and Royal George. I have had no experience with any of the other early sorts, such as Alexander, Amsden June, Early York and Hale's Early, which are said to be better than Early Beatrice. I think a house set apart for such sorts would be a gain, as there is not a very plentiful supply of such fruits early in the season.—A. TRAIL, *Fulshaw Hall Gardens.*

*** These Peaches were without flavour or even odour of any agreeable kind, and we regret very much that anybody should continue to cultivate such fruit. There are surely early Peaches of good quality, and it is so costly a matter to grow good Peaches in this country, that only those of fine flavour should be grown.—ED.

Destructive frosts.—White frosts were experienced in low-lying positions on the mornings of June 13 and 14, but these apparently did no harm. On the morning of June 15, however, the frost was far more severe, there being not less than 8° in places, and I should not be surprised to hear of still lower temperatures being registered in this vicinity. The Potatoes were in some cases cut down to near the ground, while in others they escaped with the disfigurement of the tips of the haulm only. Vegetable Marrows were either much crippled or killed outright, kidney Beans badly scorched, and runner Beans very much injured, in some instances killed outright. Tender bedding plants have also suffered, and altogether a more destructive frost I have never seen at this season of the year.—W. I., *Somerset.*

—On the night of the 14th and morning of the 15th we had 6° of frost. So severe was it that it killed Marrow plants in exposed places, cut Dahlias

down, while runner Beans that were from 1 foot to 2 feet high, also dwarf Beans, have suffered severely. Potatoes, too, are much injured in exposed places, and many tender plants we shall have to replace.—JOHN CROOK, *Forde Abbey, Dorset.*

PUBLIC GARDENS.

A new open space.—At a recent meeting of the St. Pancras Vestry, the Parliamentary Committee reported that the County Council had agreed that the vacant land in Highgate Road (several acres in extent), from the Hampstead and Tottenham Junction Railway Bridge northwards, should be acquired by agreement, and maintained as enclosed ornamental gardens.

Alleged breach of faith.—The Parks Committee reported that some time ago the Council agreed to contribute £5625 to the cost of purchasing a recreation ground at the corner of Crown Lane and Fulham Palace Road, the contribution being contingent on the Vestry of Fulham laying it out within twelve months from the date of the Council's vote. The Vestry only obtained possession of the ground on March 8, and on that plea they asked for an extension of time for six months, which the Council granted in April, attaching the condition, however, that no gravel should be removed from nor dustbin or other offensive refuse deposited on the ground. On visiting the place on May 18 last the committee found that a quantity of gravel had been removed and sold, and that some very offensive material had been deposited in the hole whence the gravel had been taken. They at once communicated with the Vestry to the effect that they were not complying with the terms of the Council's resolution granting conditionally an extension of time for the laying out, and received in reply an assurance that the sale of the gravel and the deposits of foul matter should be stopped. Provided that that promise was adhered to, they recommended that the Council should grant an extension of time for twelve months to the Vestry to lay out the ground, on condition that no earth, gravel, or sand be removed from the land, and no dustbin or other offensive refuse deposited thereon.

Why paint greenhouses white (p. 569)?—Because white paint stands the weather and preserves the wood much better than colours. So a painter told me.—T. J. WEAVER.

Sending plants abroad.—I have been asked to send out to the Argentine Republic plants of Roses, Chrysanthemums, &c., with a view to their establishment in a garden in that country. I shall feel obliged by advice as to the best means of complying with this request and ensuring the receipt of the plants in an "available" condition.—CUARO.

The Guelder Rose.—I beg to thank Mr. Harman Payne for his account of the Guelder Rose. I have seen "The Compleat Florist," but have not got it. It is thus described by Miller, 1747: "The Compleat Florist," consisting of 100 copper-plates of flowers, coloured and plain, and is also described in Weston's "Tract on Agriculture and Gardening," 1772.—HENRY N. ELLACOMBE, *Bitton Vicarage.*

Names of plants.—B. J. C.—1, *Laia tenebrosa* 2, *Broughtonia sanguinea*; 3, *Odontoglossum citrosimum*—Marie.—No; the specimen sent is not *Cypripedium lraeanum*, but *C. parvidorum*, a much smaller flower and of a paler yellow.—G. W.—*Euphorbia petiolaris*.—S. C. Owen.—1, *Abutilon vitifolium album*; 2, *Choisya ternata* (the Mexican Orange Flower); 3, *Eurybia Gunniana*.—J. Roberts. 1, *Cypripedium spectabile*; 2, *C. pubescens*; 3, *C. pedunculatum*.—T. M. P.—1, *Botrychium lunaria*; 2, *Pedicularis palustris*; 3, *Orchis Morio*.—C. Judd.—1, *Habenaria bifolia*; 2, *Pleurothallis*, cannot say what species.—C. C.—*Cattleya Mossiae*, an excellent variety.—One in Doubt.—1, *Trichomanes radicans*; 2, *Hymenophyllum demissum*.—W. Wild.—1, *Dendrobium Falconeri*; 2, *Cattleya Aclandiae*; 3, *Oncidium crispum marginatum*.—G. L. W.—*Cytisus Adami*.—J. B. Marsden Smedley.—*Cattleya Warocqueana*.—Mrs. Saunders.—*Eurybia macrophylla*.

WOODS AND FORESTS.

THE WHITE OR HUNTINGDON WILLOW.

(*SALIX ALBA*)

THIS very ornamental tree at all times has a fine effect by the lake or waterside; it also ranks high as a decorative tree in park scenery; and, indeed, it is most useful for giving picturesque and telling effect to any landscape. Its narrow, elegant leaves, of silvery whiteness on their under surface, are particularly noticeable when stirred by the wind, giving a light, airy look to its somewhat round and wide-spreading top of drooping spray. Whether planted singly or associated with other species of trees, so long as it is allowed plenty of room to spread out its branches, it presents the same ornamental character, and a well-developed specimen from an artist's point of view is invariably fine; but perhaps when contrasted with spiry or heavy-headed trees, or those with dull and dark foliage, the peculiarly pleasing effect of its light-coloured, pointed, narrow leaves hanging in tufts and forming flying cloud-like masses is still more pleasingly apparent and effective in the landscape. This Willow is very useful for planting near the sea-coast, either for shelter or ornament, for it flourishes well when under the influence of sea breezes, and grows almost as fast as the Poplars, but when planted in many parts of Britain inland it often succumbs to the late spring frosts just as it is developing and unfolding its tender young leaves. This is unfortunate, and doubtless is the chief reason why so few good and mature specimens can be seen throughout the country. This Willow is also, unfortunately, liable to the attacks of numerous kinds of insects and their larvæ, suffering from these pests both in foliage and stem.

The wood of the White Willow is always in request for various uses, but is mostly in demand for cricket bats, for which purpose there is a continuous and ready sale for clean and good quality butts upwards of 9 inches in diameter. When planted in moist deep soil

this Willow grows so rapidly and makes wood so fast, that a profitable return may be had in fifteen to twenty years. It is one of the easiest trees to propagate, as it will grow from the smallest cutting, or take root freely from a stump as large as a fencing stake driven into the ground; but when planted it rarely receives the attention it deserves in the way of pruning and protection from the browsing of cattle. It may often be seen planted in grass lands by the water's edge, but is usually left to take care of itself, and the consequence is that too often the tree is left to struggle on and fight against numbers of enemies. It is quite a common occurrence to see trees after they have been planted in fields maimed, barked, and even beheaded by cattle, and the consequence is they are either killed outright or linger on as rough pollards instead of growing in a comparatively few years into remunerative timber trees all through a little outlay and attention being denied them for the first two or three years after planting. Excepting the Larch, I know of no tree that is likely to pay better and give a quicker return for an outlay of capital than the Huntingdon Willow in localities where it has been found to flourish and succeed well; but care should be taken when planting to avoid the crack Willow and other rough-barked, coarse, worthless sorts, which are hardly worth cutting for the sake of their timber. Moreover, it has the advantage of the Larch when planted in heavy soils, for in damp, low-lying situations it is quite at home and thrives the best; whereas the Larch is altogether unsuited for heavy soil in low level tracts of land. The Willow, however, is a tree that when grown for profit should be cut as soon as it is large enough for the market, and then be allowed to grow up again from the stool. It is only a short-lived tree, and after thirty years' growth its life is very uncertain unless it be pollarded; then it may live to a good old age.

Carex divulsa for covert.—The Sedge is an excellent subject for covering the bare places under trees in winter. In winter, when few things in the shape of green leaves are to be seen,

a carpet of this *Carex* relieves the dreary bareness in woodlands in a most effectual and agreeable manner. The plant is common in many parts of England, grows about a foot high, and forms tufts of deep green leaves, which preserve their verdure in the midst of frost and snow. It is easily and quickly increased by division of the tufts, and is a capital plant for forming a warm game covert where other things would not thrive.

Appearance of good timber.—There are certain appearances which are characteristic of strong and durable timber, to what class soever it belongs. In the same species of timber that specimen will in general be the strongest and the most durable which has grown the slowest, as shown by the narrowness of the annual rings. The cellular tissue as seen in the medullary rays (when visible) should be hard and compact. The vascular or fibrous tissue should adhere firmly together, and should show no woolliness at a freshly-cut surface, nor should it clog the teeth of the saw with loose fibres. If the wood is coloured, darkness of colour is in general a sign of strength and durability. The freshly-cut surface of the wood should be firm and shining, and should have somewhat of a translucent appearance. A dull, chalky appearance is a sign of bad timber. In wood of a given species, the heavier specimens are in general the stronger and the more lasting. Among resinous woods, those which have least resin in their pores, and amongst non-resinous woods, those which have least sap or gum in them, are in general the strongest and most lasting. It is stated by some that in Pine wood, that which has most sap-wood is the most durable; but the universality of this law is doubtful. —A. N.

Timber of the deciduous Cypress.—The timber of this tree, which is very durable even under water, is finely grained and of a reddish colour. A peculiar property of the wood is its adaptability to split straight, so as to serve for planks without the use of a saw. To cultivate this tree successfully it must have good, rich soil, a well-sheltered situation, and abundance of moisture, not stagnant, which is probably the reason why a sandstone district is preferred, a chalk soil being too dry, and a clay subsoil defective in drainage. The tree is readily propagated from cuttings or seeds, of which latter a good supply is regularly imported from America. It is never planted for profit, but only as an ornamental tree for park or lawn decoration. —W.



